Evaluation of nurse and pharmacist independent prescribing

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1 Executive summary

1.1 Summary of Key Points

- Between 2% and 3% of both the nursing and pharmacist workforce are qualified to prescribe medicines independently
- 93% of nurse prescribers and 80% of pharmacist prescribers had used their independent prescribing qualification. 86% of the nurses and 71% of the pharmacists were currently prescribing[1]
- Nurses and pharmacists are prescribing predominantly in primary care, with substantial numbers also in secondary care settings
- Study results indicate that overall, nurse and pharmacist prescribing is currently safe and clinically appropriate
- The study findings indicate that current educational programmes of preparation for nurse and pharmacist prescribing are operating largely satisfactorily, and provide fit-for-purpose preparation
- Evidence suggests that non-medical prescribing has been largely driven by individual practitioners to date, and has been used to increase the quality of existing services, as opposed to enabling service re-design
- Only about half of Trusts reported a strategy or written plan for the development of non-medical prescribing
- Key clinical governance and risk management strategies for non-medical prescribing are in place within the majority of Trusts
- Acceptability of independent prescribing to patients is high, as evidenced by the majority of patients reporting that they were very satisfied with their visit to their nurse or pharmacist prescriber
- When comparing care provided by their nurse or pharmacist independent prescriber to being treated by their GP, most patients in this study did not report a strong preference for either their non-medical or medical prescriber
- Results indicate that non-medical prescribing was generally viewed positively by other health care professionals
- Nurse and pharmacist independent prescribing in England is becoming a well–integrated and established means of managing a patient's condition and giving him/her access to medicines
- Key issues for further expansion of non-medical prescribing may include preparing nurses and pharmacists to prescribe across conditions for patients with co-morbidities

1 The survey was conducted in autumn 2008 when there were 358 pharmacist independent prescribers who had been qualified for longer than 6 months, and all were surveyed. NB In July 2010, there were more than 1,100 qualified pharmacist independent prescribers.

1.2 Background

The original policy objectives for the development of non-medical prescribing from 2000 related to the principles set out in the NHS Plan (DH, 2000): improvements in patient care, choice and access, patient safety, better use of health professionals' skills and more flexible team working across the NHS. In working towards these objectives the NHS embarked on a graduated move to increase the scope and responsibilities of non-medical prescribing. This culminated in the opening of the British National Formulary (BNF) to independent nurse and pharmacist prescribers in 2006, and national policy guidance on implementation (DH, 2006a). This study was commissioned in the wake of these policy changes to provide a national evaluation of nurse and pharmacist independent prescribing in England. The research was conducted between May 2008 and May 2010.

1.3 Study aims and objectives

The overall aim of the study was to evaluate nurse and pharmacist independent prescribing in order to inform planning for current and future prescribers.

The study addressed the following research questions, developed from the specified objectives:

1. What is the scope and scale of independent prescribing (IP) by nurses and pharmacists?
2. What is the quality of, how safe, and how clinically appropriate is IP by nurses and pharmacists?
3. Are the operational arrangements for clinical governance and risk management for IP by nurses and pharmacists adequate and sufficiently robust to ensure patient safety?
4. What are the prescribing models in current practice, their associated resources, and patient utility?
5. Is IP by nurses and pharmacists acceptable to patients, and what are patients' experiences of the impact of IP on choice, access, and clinical outcomes?
6. Do any changes need to be made to existing educational programmes for nurse and pharmacist independent prescribers?
7. What is the response of other health professionals to nurse and pharmacist IP?

1.4 Design and methods

The study design had three phases:

1.4.1 Phase 1: National overview

- National questionnaire survey of nurse and pharmacist independent prescribers
- Telephone survey of non-medical prescribing Trust leads
- Focus group discussions with Higher Education Institution non-medical prescribing programme leads and Designated Medical Practitioners
- Secondary analysis of national datasets on safety incidents

1.4.2 Phase 2: Case studies of practice

At each case site:

- Analysis of the clinical appropriateness of nurse and pharmacist independent prescriber consultations using the Medication Appropriateness Index
- Case record analysis of nurse and pharmacist independent prescriber consultations against national prescribing standards
- Patient surveys of experiences, outcomes and preferences
- Interviews with health care professionals

1.4.3 Phase 3: Multi-stakeholder workshop

- Stakeholders were invited to consider and prioritise the preliminary study findings and implications

1.5 Main findings

1.5.1 Scope, scale, and models of nurse and pharmacist independent prescribing

Upon qualifying, the majority of both nurse and pharmacist prescribers make use of their independent prescribing authority. 93% of nurse prescribers and 80% of pharmacist prescribers had used their independent prescribing qualification. 86% of the nurses and 71% of the pharmacists were currently prescribing. Independent prescribing is the main form of delivering medicines to patients after qualifying as a prescriber, but many also continue to use both Patient Group Directions and supplementary prescribing as part of their role.

Nurse, and to a lesser extent pharmacist, independent prescribing is becoming a widely integrated feature of health service delivery, with nurses qualified to prescribe in nearly all Trusts in England and pharmacists prescribing in an increasing number of Trusts. Approximately 2–3% of both the nursing and pharmacist workforce are qualified to prescribe medicines independently.

Nurses and pharmacists are prescribing predominantly in primary care, with substantial numbers also in secondary care settings. They prescribe for a range of conditions: nurses across a range of acute and long-term conditions associated with their roles, pharmacists predominantly for cardiovascular and a number of other long-term conditions. Key issues for further expansion of non-medical prescribing may include preparing nurses and pharmacists to prescribe across conditions for patients with co-morbidities, and consideration given to pharmacists prescribing for a wider range of conditions.

Prescribing volume indicates a regular contribution by nurses and pharmacists to the prescription of medicines for patients.

The evidence suggests that non-medical prescribing has been largely driven by individual practitioners to date, and has been used to increase the quality of existing services, as opposed to enabling service re-design. Only approximately half of Trusts reported a strategy or written plan for the development of non-medical prescribing. If workforce planning is to be effective, more Trusts need to develop their strategic approach for non-medical prescribing.

1.5.2 Safety, clinical appropriateness, and quality of nurse and pharmacist independent prescribing

Study results indicate that nurse and pharmacist prescribing is currently safe and clinically appropriate. There was some indication that assessment and diagnostic skills associated with prescribing could be improved, and some medicines prescribed may not be the most cost effective and / or consistent with national guidelines on prescribing.

Most nurses and pharmacists generally reported communicating with patients about medicines in line with national guidelines, discussing issues likely to facilitate effective patient medicine-taking, although discussing concerns, misunderstandings and side effects of medicines were reported more frequently than discussion of patients' beliefs about medicines and their necessity. This latter finding may warrant consideration by Higher Education Institutions delivering non-medical prescribing education and training programmes. Most patients of both nurse and pharmacist independent prescribers said they had been told as much about their medicines as they wanted, that they were involved in decisions about the medicines prescribed, and that they felt the prescriber understood their point of view.

1.5.3 Clinical governance and risk management of nurse and pharmacist independent prescribing

Clinical governance and risk management strategies for non-medical prescribing are in place within the majority of Trusts. Most nurse and pharmacist independent prescribers also report using a range of quality assurance tools and continuing professional development activities in their practice, and have on-going support from an experienced prescriber. However, systems for dealing with poor performance of NMPs were more frequently reported for secondary than primary care Trusts and most Trusts do not have a system to cover services provided by non-medical prescribers when they are absent. In addition, patient feedback strategies were not used by the majority of Trusts.

Stakeholder workshop participants recommended greater public and patient involvement in non-medical

prescribing, a common quality assurance framework for all prescribers – inclusive of nurses, pharmacists, doctors and other allied health professionals – as well as more planning and support for newly qualified non-medical prescribers.

These and other strategies will require consideration as priorities for implementation, as mechanisms to ensure safety and quality of current forms of non-medical prescribing, and as further changes enabling prescribing of unlicensed medicines and controlled drugs come into force.

1.5.4 Patients' views of nurse and pharmacist independent prescribing

Acceptability of independent prescribing to patients is high as evidenced by the majority of patients reporting they were very satisfied with their visit to their nurse or pharmacist prescriber and overall they felt they had a good relationship with and confidence in the independent prescriber. The findings of our Discrete Choice Experiment also showed that patients valued pharmacist and nurse prescribing services as an alternative to GP prescribing in primary care.

When comparing care provided by their nurse or pharmacist independent prescriber to being treated by their GP, most patients in this study did not report a strong preference for either their non-medical or medical prescriber. Findings from our Discrete Choice Experiment are congruent in that respondents consulting for an exemplar long-term condition equally preferred a prescribing service provided by their own doctor or a prescribing pharmacist. Consulting a nurse independent prescriber was preferred over the option of doing nothing for a headache and fever; the family doctor was found to be the preferred choice over a prescribing nurse. However, this preference was reversed in those who had previously consulted a nurse prescriber.

For both of the scenarios in the Discrete Choice Experiment certain attributes of the consultation, such as listening to patients views about medicines and explanation about medicines, were considered more important than the profession of the prescriber.

1.5.5 Educational programmes for nurse and pharmacist independent prescribing

The study findings indicate that current educational programmes of preparation for nurse and pharmacist prescribing are operating largely satisfactorily, and provide fit-for-purpose preparation for current nurse and pharmacist prescribing roles. However, we recommend that attention needs to continue to be given to nurses' and pharmacists' assessment and diagnostic skills which underpin their independent prescribing role.

1.5.6 Views of other health care professionals

Nurse and pharmacist prescribers report making a positive impact on the policy targets for non-medical prescribing: quality of care, clinical effectiveness, patient access and choice.

Results indicate that non-medical prescribing was generally viewed positively by other health care professionals, although there is some evidence to suggest that some doctors remain unclear about nurses' and pharmacists' prescribing authority.

1.6 Conclusions

Nurse and pharmacist independent prescribing in England is becoming a well-integrated and established means of managing a patient's condition and giving him/her access to medicines. Evidence indicates that, overall, educational preparation is fit-for-purpose. Nurse and pharmacist independent prescribing is operating safely and prescribing is clinically appropriate, with most Trusts having established core clinical governance and management strategies for non-medical prescribing. Evidence indicates that overall patients are satisfied with their experience of nurse and pharmacist prescribing. Recommendations to inform planning for current and future nurse and pharmacist prescribing have been made.

2. Study aim and objectives

2.1 Study aim

To evaluate nurse and pharmacist independent prescribing in order to inform planning for current and future prescribers.

2.2 Study objectives

The objectives of the evaluation set out in the tender specification were to:

1. Determine the nature and content of the educational preparation for nurse and pharmacist independent prescribers;
2. Draw comparisons between Supplementary Prescribing and Nurse and Pharmacist Independent Prescribing;
3. Determine whether all who qualify actually do take up their prescribing responsibilities;
4. Investigate the views of doctors and other key stakeholders in a range of settings and services of independent prescribing by nurses and pharmacists;
5. Assess patient experience and satisfaction with nurse and pharmacist independent prescribing, e.g. whether they find the service acceptable;
6. Compare the prescribing patterns of nurse and pharmacist independent prescribers with each other and against doctors; and
7. Identify the implications for efficiency, clinical and cost effectiveness, patient safety, Continuing Professional Development, clinical governance and professional regulation.

The study addressed the following research questions, developed from the specified objectives:

1. What is the scope and scale of independent prescribing (IP) by nurses and pharmacists?
2. What is the quality of, how safe, and how clinically appropriate is IP by nurses and pharmacists?
3. Are the operational arrangements for clinical governance and risk management for IP by nurses and pharmacists adequate and sufficiently robust to ensure patient safety?
4. What are the prescribing models in current practice, their associated resources, and patient utility?
5. Is IP by nurses and pharmacists acceptable to patients, and what are patients' experiences of the impact of IP on choice, access, and clinical outcomes?
6. Do any changes need to be made to existing educational programmes for nurse and pharmacist independent prescribers?
7. What is the response of other health professionals to nurse and pharmacist IP?

3 Background

3.1 Policy context

The original policy objectives for the development of non-medical prescribing from 2000 related to the principles set out in the NHS Plan (DH, 2000): improvements in patient care, choice and access, patient safety, better use of health professionals' skills, and more flexible team-working across the NHS. In working towards these objectives the NHS embarked on a graduated move to increase the scope and responsibilities of non-medical prescribing which culminated in the opening of the British National Formulary (BNF) to independent nurse and pharmacist prescribers in 2006.

The move began with the transition from extended formulary nurse prescribing to incorporate Supplementary Prescribing by nurses and introduce it for pharmacists, underpinned by legal changes in 2003. Supplementary Prescribing is defined as 'a voluntary partnership between the independent prescriber (a doctor or dentist) and a supplementary prescriber to implement an agreed patient-specific Clinical Management Plan, with the patient's agreement'.

By spring 2005, over 240 pharmacists were qualified as supplementary prescribers and over 4000 nurses as supplementary and independent prescribers, and a consultation opened proposing possible models for extending nurse independent prescribing (NIP) and introducing pharmacist independent prescribing (PIP) (MHRA, 2005). As a result legal changes were enacted in 2006 such that qualified NIPs and PIPs would be able to independently prescribe any licensed medicine for any medical condition, subject to their sphere of competence (with the exception of Controlled Drugs). Independent prescribing is defined as 'prescribing by a practitioner (e.g. doctor, dentist, nurse, pharmacist) responsible and accountable for the assessment of patients with undiagnosed or diagnosed conditions and for decisions about the clinical management required, including prescribing' (Department of Health, 2006a). Effectively this change opened up the BNF to nurse and pharmacist independent prescribers. Guidance issued by DH in 2006 set out a framework to implement independent prescribing.

The period between 2000 and 2006 saw several other key policy developments, including:

- The new General Medical Services contract (nGMS) in April 2004, introducing the Quality and Outcomes Framework (QOF) and resulting in the transfer of responsibility for out of hours (OOH) services from general practitioner contractors to PCTs;
- The new Community Pharmacy Contractual Framework (CPCF) in April 2005, introducing new patient-centred services including Medicines Use Review; and
- The application from August 2004 of statutory working time limits (in line with the EU working time Directive) to doctors in training in the UK.

These changes created several potential opportunities for nurse and pharmacist independent prescribing in both 'First Contact' and 'Elective' consultations, for example to support improvements in the management of long-term conditions in primary care through the QOF; to provide health services out of hours; and to substitute for some of the work previously done in hospitals by junior doctors.

The 2006 DH guidance instructed NHS organisations to implement independent prescribing by nurses and pharmacists in a planned way and to:

'Develop their strategic plan for the use of nonmedical prescribing to include independent prescribing by nurses and pharmacists. Typically this would involve senior managers and clinicians (doctors, nurses, pharmacists) and the drug and therapeutics committee (or equivalent). The plan should be approved at

Board level and would, for example:

– recognise the benefits to patients of non-medical prescribing;

– identify an initial range of clinical areas where patients could benefit;

– identify a way to support and sustain the transition of staff to extended roles and the services they currently provide;

– develop a communications plan aimed at informing both patients and all clinical and managerial staff;

– include timescales for implementation;

– identify a lead director to be responsible for implementation.'

The guidance also gave some pointers to NHS organisations about using nurse and pharmacist independent prescribers to:

– 'fill geographical or skills gaps in services;

– meet the needs of patient groups who find it hard to access services, e.g. housebound people, people with busy lifestyles;

– manage long-term conditions;

– manage co-morbidities/complex medication regimes' (DH, 2006a).

However, prior to the current study there was no published research that had investigated the extent to which the developments in independent prescribing by nurses and pharmacists had impacted on the achievement of the original policy objectives for non-medical prescribing (NMP), nor the extent to which change was being driven by strategic approaches taken at Trust level.

Since 2006 there have been further significant policy developments including:

– The 'Care Closer to Home' agenda to transfer care from hospitals into primary care using patient pathways as the basis for redesigning care and services (DH, 2006b; DH, 2007a);

– Associated frameworks to develop and enhance specialist expertise in primary care (Practitioners with Special Interests) (DH, 2007b; DH, 2007c);

– Requirement for local health economies to conduct a Joint Strategic Needs Assessment in partnership with local authorities (DH, 2007d);

– Outcomes of the NHS Next Stage Review including improvements in access to diagnosis and treatment in primary care (DH, 2008a);

– A White Paper setting out the development of clinical roles across the different sectors of pharmacy (DH, 2008b);

– Aspiration to 'World Class Commissioning' to improve the commissioning of health services (DH 2009a); and

– A plan for the NHS for 2010–2015 (DH, 2009b)

These changes created a drive for local review of health needs and service provision, with commissioning as a lever to achieve improvement through service redesign, as well as a policy direction of further extensions to the role of health professionals. In particular the development of specialist expertise in primary care offered role expansion for GPs, and opportunities for nurses and pharmacists to specialise as well as requiring the delegation of more routine illness management from GPs to non-medical staff in the areas of focus identified in 'Care Closer to Home' – dermatology, ENT, orthopaedics, gynaecology and urology (DH, 2007a). More recently the NHS plan for 2010–2015 identified diabetes, heart failure, respiratory disease (including COPD), dementia and cancer as a chronic disease for early action, offering further opportunities for non-medical prescribers (DH, 2009b).

This evaluation is the first research to investigate how the changing policy landscape has affected the development and outcomes of nurse and pharmacist independent prescribing.

3.2 Review of research into nurse and pharmacist independent prescribing

3.2.1 Search strategy

The review focused on research into nurse and pharmacist prescribing undertaken in the UK between 2002 and 2009. Initial inclusion and exclusion criteria were identified as:

Inclusion:

- Nurse or pharmacist prescribing
- Research articles
- Primary research (including surveys, interviews, case studies)
- Major literature reviews (to enable cross-checking)
- Research in the UK
- Research conducted between 2002–2009
- Published in the English language

Exclusion:

- Doctor or community practitioner nurse prescribing (V100 qualification)
- Non-UK
- Letters, opinion, editorials, description of clinical practice
- Administration of medicines via Patient Group Directions (PGDs)
- Research undertaken prior to 2002

The research team undertook a systematic literature search and review at the beginning of the study in May 2008 to inform the development of the research and the design of data collection instruments throughout the study Phases. Systematic searches were conducted using a search strategy constructed with support from an expert librarian (see Appendix 11.0). Hand searches of key journals (e.g. Nurse Prescribing, International Journal of Pharmacy Practice) not included in bibliographic databases were also used, together with networking with key individuals active in NMP research and policy development to ensure grey literature was included and the review was as complete as possible. The team continued to network and scan relevant journals to update the review as the study progressed. A second systematic literature search was carried out in December 2009, covering the period June 2008 to December 2009.

Following an initial overview of the research papers retrieved, it was decided to exclude papers reporting solely on supplementary precribing in nursing, due to the availablity of research into independent prescribing by nurses. However, due to the relative lack of research into independent pharmacist prescribing, research into pharmacist supplementary prescribing (PSP) was included in the review.

3.2.2 Empirical studies

A total of 126 papers were found meeting the criteria; of these, 96 focused on NIP, 28 on PSP and/or PIP, and two on both nurse and pharmacist independent prescribing. Of the papers focused on nurses, approximately 50 were reports of research evaluating nurse independent prescribing following the 2006 changes to an expanded formulary. Six reviews of research were included, four on NIP and two on PSP. A number of other reports of research on a national scale were also included, notably, the nationally funded evaluations of Latter *et al*. (2005) on extended formulary nurse prescribing, Norman *et al.* (2007) on mental health nurse supplementary prescribing, Bissell *et al.* (2008) on nurse and pharmacist supplementary prescribing, Watterson *et al.* (2009) on nurse independent prescribing in Scotland and Drennan *et al.* (2009) on nurse independent prescribing in Ireland. In addition, a number of other significant national scale unpublished studies identified from the grey literature were included: Weiss *et al.* (2006) on PSP; Healthcare Commission (2006) on the management of medicines in acute and specialist trusts; Winstanley (2009) on the continuing professional development (CPD) needs of pharmacist prescribers; and Dobel-Ober and Bradley (2009) on mental health nurse prescribing.

The literature review highlighted that the vast majority of research was focused on self-report data, with views of stakeholder groups, such as nurse and pharmacist prescribers, patients/consumers, and doctors predominant. Very few studies had moved beyond this to examine safety, quality and effectiveness of NMP in practice. The pharmacist literature was characterised by the majority of studies focusing on PSP and a dearth of research into independent prescribing, understandably because of the more recent expansion of independent prescribing to pharmacists in 2006. A thematic overview of the research into nurse and pharmacist prescribing, to provide the background to the study, is given below, using exemplar studies to illustrate main themes from the review. The thematic overview focused on the study objectives and thus not all of the studies identified in the search are cited in the review.

3.2.2.1 Scope and scale of nurse and pharmacist independent prescribing

Early cohorts of nurse and pharmacist prescribers worked predominantly in primary care. A 2005 survey of PSPs found that over two-thirds were working in primary care (George *et al.*, 2006). Similarly, the most common setting for nurse prescribing in the Latter *et al.* (2005) national survey was primary care, with over 60% citing their area of practice as General Practice, primary care and/or family planning. Almost half of pharmacist prescribers in Winstanley's (2009) survey worked in primary care, with one-third in hospital settings and most of the remainder in community pharmacy. The national evaluation in Scotland (Watterson *et al.*, 2009) also found that the majority (71%) of NIPs worked in primary care, with only 10% in acute settings. A 2005 Healthcare Commission study found that the average hospital Trust had 9.4 non-medical prescribers, 88% of whom were nurses (Healthcare Commission, 2006). The commonest settings for NMP in hospitals in 2005 were maternity (49%), accident and emergency (48%), with cardiology, respiratory, dermatology at 34% or more (Healthcare Commission, 2006).

There are limited data on the clinical conditions for which nurses and pharmacists are currently prescribing. Accumulating data from earlier PSP studies suggested prescribing for cardiovascular conditions was common (George *et al.*, 2006; Warchal *et al.*, 2006; Blenkinsopp and Chatterton, 2007;George *et al.*, 2007; and Bissell *et al.*, 2008), together with diabetes (Warchal *et al.*, 2006). The most common conditions prescribed for by independent nurse prescribers were skin conditions, family planning and soft tissue injuries (Latter *et al.*, 2005). However, at the time of this study nurse prescribing was restricted to a formulary of around 250 medicines, mainly for minor illness, minor injury, health promotion, and palliative care.

The extent to which nurses and pharmacists who qualify as prescribers use their prescriptive authority has been the subject of debate in the literature. Evidence concerning the proportion that use their prescribing authority and the frequency of prescribing of NMPs varies. A number of studies on pharmacist prescribing report relatively low proportions actively prescribing, with 49% in the George *et al.* (2006) study prescribing, 45% of pharmacist prescribers were prescribing at least once a week in the Healthcare Commission (2006) study, and 48% in Winstanley's (2009) survey. However, some two-thirds of qualified PSPs were practising as such in the Weiss study (Weiss *et al.*, 2006), and PSPs in the Bissell *et al.* (2008) national survey issued on average four prescriptions per week. For nurses, 65% of nurse prescribers were prescribing at least once a week in the Healthcare Commission (2006) study and other surveys of qualified independent and extended nurse prescribers found proportions between 78% in Scotland (Watterson *et al.* 2009) and 90% using independent extended prescribing (Latter *et al.*, 2005; Courtenay *et al.*, 2007) and issuing a prescription on average every 2.82 consultations (Latter *et al.*, 2007a).

The present study sought to establish current national data on the scope and scale of NIP and PIP, identifying the proportion of those NIPs and PIPs qualifying who go on to practice as IPs; the frequency with which they are prescribing; and the practice settings and the patient groups for whom they prescribe.

3.2.2.2 Safety, quality and clinical appropriateness

There is little published research directly evaluating the prescribing behaviours of nurse and pharmacist prescribers. Only three studies have attempted to evaluate the safety and quality of nurse and pharmacist independent prescribing. Ratings by medical experts indicated that 'nurses were generally prescribing medicines clinically appropriately', although there were some suggestions of possible limitations in history-taking, assessment, and diagnostic skills (Latter *et al.*, 2007b) and the study also found scope for improvement in the range and frequency of communication competencies that underpin quality prescribing consultations (Latter *et al.*, 2007c). Drennan *et al.* (2009) report positively on their analysis of a sample of 142 records of 25 nurse and midwives prescribing consultations in Ireland, concluding that the majority of their prescribing was appropriate and safe. We found no studies evaluating the safety, quality, or clinical appropriateness of PIP, although PSP was included in the Bissell *et al.* (2008) assessment of the prescribing

safety of 71 medicines prescribed by pharmacists and nurses. Their analysis revealed no prescribing errors, three assessments of inappropriate prescribing (two of which were for use of branded medicines), and 'transgressions' involving Clinical Management Plans (CMPs) (where doctors' signatures were obtained following prescribing, where generic CMPs were used, or where a CMP was missing) in six case study sites, based on the majority view of assessors.

In light of the limited evidence base, and the post-2006 expanded formulary from which NIPs and PIPs are now prescribing, the present study set out to provide an analysis of the safety, quality and clinical appropriateness of nurse and pharmacist independent prescribing in situ, through direct recording of patient consultations, as well as an analysis of NIPs' and PIPs' case records against national prescribing standards.

3.2.2.3 Clinical governance and risk management

There are no national data on Trusts' clinical governance arrangements for non-medical prescribing. Existing data suggest only partial implementation at best. Over three quarters of the 24 Trusts in a West Midlands study of NMP had appointed a NMP lead, all of whom undertook this role as part of their duties within their existing job. Half of the Trusts had established a Non-Medical Prescribing (NMP) committee and Acute Trusts were more likely than PCTs to have done so (Blenkinsopp and Chatterton, 2007). However, Weiss *et al.* (2006) concluded from their national evaluation of PSP that 'lines of accountability seemed to be much clearer in primary care than in the hospital'. More recently, with regards to clinical governance of mental health nurse prescribing, 28 trusts (72%) reported having strategies in place to audit, register and support both NMP in general and nurse prescribing in particular (Dobel-Ober and Bradley 2009). Watterson *et al.*'s (2009) national evaluation of the expansion of nurse prescribing in Scotland concluded that although senior managers identified the need for education, supervision, and audit as essential, ' how extensive and exactly how effective such governance of nurse prescribers is may require further research'.

With regards to CPD for NMPs, some studies suggested this was under-developed for early cohorts of nurse and pharmacist prescribers. Only around half of the nurse prescribers in two national surveys reported having undertaken CPD since qualifying as a prescriber (Latter *et al.*, 2005; Courtenay *et al.*, 2007) and one in three reported being unable to access CPD (Courtenay *et al.*, 2007). There is some evidence that pharmacists may need more support in identifying and meeting their continuing professional development needs (Weiss *et al.*, 2006; Blenkinsopp and Chatterton, 2007). More recently, Winstanley (2009) confirmed that additional training undertaken by pharmacist prescribers has tended to be clinical; only a few people had accessed extra prescribing skills training since qualifying.

At the commencement of the present study, some 'risk management' strategies (e.g. requiring all non-medical prescribers to practice as a SP for at least six months prior to IP or requiring NMPs to submit their proposed formulary and scope of practice to the Trust's Non-Medical Prescribing Committee) were reportedly emerging in relation to nurse and pharmacist IPs. Stuttle (2009) stated 'Anecdotal evidence suggests that individual trust polices are hindering nurses in prescribing roles', but the extent to which these and other NMP risk management strategies were in operation across Trusts in England was unknown.

The continued rise in numbers of NIPs and PIPs, and the expansion of nurse and pharmacist independent prescribing to the entire formulary in 2006, places requirements on Trusts to ensure governance and risk management of prescribing (DH, 2006). The present study set out to provide a national picture of strategies in place, together with an evaluation of the comprehensiveness and strength of these strategies, through national surveys of NIPs, PIPs, and NMP Trust leads.

3.2.2.4 Cost effectiveness

No studies were found that had provided a cost effectiveness analysis of nurse or pharmacist prescribing since its introduction in the UK. Some relevant data are reported in some studies. For example, the cost effectiveness of PSPs' appointment length in primary care was questioned by some GPs in the Blenkinsopp *et al.* (2008) study, although others argued that the PSP was addressing a broader range of issues such as lifestyle changes in a patient whose hypertension was uncontrolled.

The effects of nurse and pharmacist prescribing on doctors' workload are difficult to disentangle. A study of nurse independent prescribing concluded that doctors 'were not able to unequivocally conclude that it had reduced their workload' (Latter *et al.*, 2005). While studies of pharmacist supplementary prescribing have found transfer of work from doctors to pharmacists they have not reported reductions in doctors' workload (Blenkinsopp *et al.*, 2008; Weiss *et al.*, 2006). Weiss *et al.* (2006) reports that work transferred was simply replaced by other demands. The aim of NMP to make best use of team skills suggests that as well as examining

inter-professional shifts in prescribing workload, the question of whether any doctor time saved as a result of NMP has been re-allocated to more complex work might now be more relevant.

Systems exist to examine the costs of medicines prescribed in primary care (Prescribing Analysis and Cost, PACT), but these data are not linked to diagnosis and similar information systems are not available in hospital settings. We found no studies which investigated the cost effectiveness of NMP or even comparative costs of the treatments prescribed by nurse or pharmacist prescribers.

The present study aimed to collect data on these issues that, triangulated with other data in the study, would inform an assessment of the cost and benefits of nurse and pharmacist prescribing models currently in operation in England.

3.2.2.5 Patients' views, experiences, and preferences

A number of literature reviews and national evaluations of both PSP and NIP report positively on patient views of NMP, with characteristics such as longer consultations and more discussion proving especially popular (Latter and Courtenay, 2004; Latter *et al.*, 2005; Bissell *et al.*, 2008; Watterson *et al.*, 2009; and Drennan *et al.*, 2009).

Although the picture is in the main positive from such studies, a number of findings within them are suggestive of some differential patient preferences that have yet to be thoroughly investigated. For example, a theoretical study with 'future patients' concluded that one in ten patients in that study said they would prefer to see a doctor rather than a nurse (Berry *et al.*, 2006). Latter *et al.* (2005) also found that some patients would prefer to see a doctor than a nurse prescriber for some conditions. Patients in the Hobson *et al.* (2009) study preferred a nurse prescriber to a pharmacist, whereas Stewart *et al.* (2009) reported that 'comfort levels for non-medical prescribing were highest for pharmacists, closely followed by nurses and lowest for radiographers'. Although the authors concluded that their findings demonstrated public confidence in nurse prescribing, the clinical and contextual conditions under which patients would prefer to see a nurse, pharmacist or doctor warranted further study. Others have suggested that certain patient groups may find NMP more problematic: Weiss has argued that single condition prescribing created the potential for fragmented care and potentially disadvantaged patients with co-morbidities (Weiss *et al.*, 2006) but the possible impact on patients is not known. Drennan *et al.* (2009) also reported that some patients, especially those reporting poorer health, would have liked to have spent more time with nurse/midwife prescribers in their study.

In the present study, we set out to obtain feedback from patients on their experience of, and satisfaction with, independent nurse and pharmacist prescribing, as well as to identify patient preferences for nurse, pharmacist, and doctor prescribing for specific conditions using Discrete Choice Experiments.

3.2.2.6 Attitudes of other health professionals

A number of studies, including recent national evaluations have reported positive attitudes to NMP, not only from the NMPs themselves, but also from doctors (e.g. Bissell *et al.*, 2008; Watterson *et al.*, 2009; and Drennan *et al.*, 2009). However, key themes emerge around possible concerns of doctors in some studies about nurses' and pharmacists' diagnostic responsibilities that may be associated with IP. For example, Bissell *et al.* (2008) report that although doctors' experiences of supplementary prescribing were positive, they were more cautious about nurses and pharmacists undertaking a diagnostic role. Weiss *et al.* (2006) also reported that doctors expressed concerns about pharmacist independent prescribing in relation to diagnostic skills and recommended that 'clear lines of responsibility need to be identified with those making the decisions taking responsibility for them'.

A second issue emerges concerning doctors' knowledge of NMP. Medical support has been found to be influenced by variable knowledge and understanding of how non-medical prescribing operates (Blenkinsopp and Chatterton, 2007; Buckley *et al.*, 2006). There is a widespread perception among pharmacist prescribers that awareness of the practicalities of non-medical prescribing among doctors remains low (Weiss *et al.*, 2006; Black and Blenkinsopp, 2007). This perception is confirmed by research, and in the Avery *et al.* (2006) study of nurse prescribing, 'the more common experience was that understanding of supplementary prescribing among doctors was poor and this created a significant barrier to implementation' and 40% of nurse prescribers agreed that 'lack of understanding from colleagues' was a barrier. Weiss and colleagues also reported that 'there was a general lack of awareness and understanding of the supplementary prescribing role by both patients and other health care professionals in the pharmacists' prescribing setting' (Weiss *et al.*, 2006).

It might be expected that doctors directly involved in non-medical prescribing would have a better understanding than those with no experience of it. Thus the expansion of IP that has occurred since these studies were conducted might have contributed to improved knowledge among doctors. The present study aimed to collect data on health care professionals' views on these and a range of other issues in relation to nurse and pharmacist independent prescribing.

3.2.2.7 Educational preparation for independent prescribers

A number of studies report positive evaluations by nurses of prescribing preparation, especially the time spent in practice with a Designated Medical Practitioner (DMP) – for example, Latter *et al.* (2007d) found that nurses were largely satisfied with both the Higher Education Institution (HEI) based teaching and their time in practice with a DMP. A study conducted with the DMPs of nurse prescribers also found that in most cases there were 'pre-existing professional working relationships which appeared to be founded on mutual respect and understanding of each other's roles' (Avery *et al.*, 2004). The recent national evaluations of nurse independent prescribing in Scotland (Watterson *et al.*, 2009) and Ireland (Drennan *et al.*, 2009) also report largely positive experiences of prescribing education and training in the period leading to qualification as a prescriber. However, nurses' pharmacological and therapeutic knowledge has been questioned by researchers (Offredy *et al.*, 2008) and by nurses themselves (Bradley *et al.*, 2006; Lewis-Evans and Jester, 2004). Whether these concerns are currently reflected in nurse prescribers' education and practice and what implications this may have for patient safety are unclear.

Research indicates that pharmacists feel their preparatory training programme for supplementary prescribing was fit for purpose, with the period in practice seen as the most valuable component (Warchal *et al.*, 2006; Weiss *et al.*, 2006; Blenkinsopp and Chatterton, 2007). PSPs were initially least confident in their clinical examination skills (Weiss *et al.*, 2006; Blenkinsopp and Chatterton, 2007). Those in primary care who had spent time in practice nurses' clinics during their period of learning in practice reported that this, rather than time with the GP, was the main source of learning clinical skills.

However, little is known about the adequacy of educational preparation of pharmacists for independent prescribing practice, or about the preparation of NIPs for prescribing after the opening up of the BNF. At the same time, as the roll out of prescribing has continued, a greater range of both nurses and pharmacists with different degrees of experience and clinical backgrounds are undertaking training, and different models of education have emerged, such as multi-professional training and distance-learning courses. The present study aimed to evaluate views on the current quality and fitness-for-purpose of initial prescribing education as well as identifying examples of innovative practice.

In summary, the review of nurse and pharmacist independent prescribing literature highlighted key policy developments in NMP and health care, as well as existing knowledge and gaps in the evidence base. The backdrop of continued expansion of NIP and PIP, together with the key issues for further investigation identified through our review of research, led to the aims, objectives and research questions that the present study set out to address. These are detailed below.

4 Methods

4.1 Overview of study design and research plan

The study design had three phases:

Phase 1: National overview

A. National questionnaire survey of NIPs and PIPs
B. Telephone survey of NMP Trust leads
C. Focus group discussions with HEI education leads and DMPs
D. Secondary analysis of national datasets on safety incidents[1].

Phase 2: Case studies of practice

At each case site:

A. Analysis of clinical appropriateness of NIP and PIP prescribing consultations using the Medication Appropriateness Index (MAI)
B. Case record analysis of NIPs' and PIPs' consultations against national prescribing standards
C. Patient surveys of experiences, outcomes, and preferences
D. Critical review of existing audits of prescribing
E. Interviews with health care professionals.

Phase 3: Multi-stakeholder workshop

Up to 50 participants to consider and prioritise the preliminary study findings and implications.

1 At a research team meeting with DH policy customers and the Policy Research Programme liaison officer in May 2008, it was agreed that the secondary analysis of national datasets would be best conducted later in the second year of the study. This decision was taken to increase the time period over which safety incidents might have occurred.

4.2 National survey of Nurse Independent Prescribers (NIPs) and Pharmacist Independent Prescribers (PIPs)

4.2.1 Aim

A postal questionnaire survey of NIPs and PIPs was undertaken to provide a national overview of current IP activity and to contribute to addressing research questions 1, 2, 3, 4, 6 and 7:

1. What is the scope and scale of independent prescribing (IP) by nurses and pharmacists?
2. What is the quality of, how safe, and how clinically appropriate is independent prescribing by nurses and pharmacists?
3. Are the operational arrangements for clinical governance and risk management for IP by nurses and pharmacists adequate and sufficiently robust to ensure patient safety?
4. What are the prescribing models in current practice, their associated resources, and patient utility?
6. Do any changes need to be made to existing educational programmes for nurse and pharmacist independent prescribers?
7. What is the response of other health professionals to nurse and pharmacist IP?

4.2.2 Method

4.2.2.1 Questionnaire development

The questionnaire was developed based on the review of literature together with input from our Advisory Group and other key stakeholders recommended by DH. The questionnaire followed the design of Latter *et al.*'s (2005) evaluation of an NIP questionnaire. The use of a single questionnaire to collect data from both nurses and pharmacists was used to strengthen the national picture of practice, facilitate comparisons between NIPs and PIPs, enhance potential generalisability, and facilitate a unified analysis. In addition to data-generating questions, respondents were also asked whether they would be willing to take part in the next phase of the research.

4.2.2.2 Main sample

a) NIPs

The Nursing and Midwifery Council (NMC) holds the register of nurses with a prescribing qualification and agreed to support the survey by randomly selecting nurses with the V300 (independent and supplementary prescribing) qualification from the national database, providing name and address labels for the sample of nurses to be sent the questionnaire. Data Protection Act requirements meant that the NMC was not able to supply us with an electronic contact list. A random sample of 1,680 nurses (approximately 10% of total registrants in England at the time) registered as NIPs in England between 2002 and 2007 were identified from the national NMC database and sent a questionnaire by post. Random sampling was chosen as it was likely to ensure the inclusion of NIPs practising in primary, secondary and tertiary settings, rural and urban areas, and across a range of clinical conditions and was also likely to enhance the potential generalisability of the survey results to the wider population of NIPs. The year 2007 was chosen as the cut off point for registration as a prescriber for inclusion in the sample in order to ensure that all our respondents had a minimum period of practice as a prescriber at the time of the survey in late 2008. In our original proposal we planned to send questionnaires to 462 NIPs who had qualified in 2006–7 (based on power calculation to provide an estimate of the proportion giving a particular response, to within 4% at the 95% confidence level). On the recommendation of the Advisory Group the period of qualification was extended to 2002–2007. This, and the lower than expected response rate in the pilot study, necessitated an increase in sample size from 462 to 1,680 to maintain the statistical power of the study.

b) PIPs

The Royal Pharmaceutical Society of Great Britain (RPSGB) is the registering body for pharmacists. The planned distribution time for the survey was autumn 2008 and we sampled at an earlier time point to ensure a minimum period of practice as an IP before participating in the survey (as with NIP participants, above). The RPSGB was able to supply us with a contact list for all 388 pharmacists in England registered as an IP at 1st May 2008, including postal and email addresses.

4.2.2.3 Piloting the questionnaire

Prior to formal piloting, comments were sought on the draft questionnaire from colleagues (NIPs, PIPs and HEI staff) and further revisions were made following discussion at the June 2008 Advisory Group. With regard to both the pilot and main study surveys, advice on REC approval was sought from the chair of Southampton and SW Hants REC. The research team were advised that the survey was considered to be classified as service evaluation and therefore REC approval was not required. The questionnaires were then piloted in August 2008 with 30 NIPs and 30 PIPs. NIPs were randomly sampled from the NMC database of NIP registrants; PIPs were randomly sampled from the RPSGB database of PIP registrants. In addition to the questionnaire, participants received a single sheet with questions on ease of completion and time taken to complete. The response rates were 47% (NIPs) and 37% (PIPs). The percentages of respondents who were prescribing were 50% (NIPs) and 45% (PIPs). The pilot was conducted in late summer with one follow-up and it was considered likely that this would have contributed to the response rates being lower than anticipated.

The majority of respondents said they found the questionniare easy to complete (84%), easy to comprehend (94%), the length of the questionnaire to be 'about right' (67%), and were 'fully able' to answer the questions honestly (73%). Respondents had no suggestions for further revision of questions. A database was designed for the questionnaires and the pilot data were entered. Analysis showed the questions to have produced data that could address the relevant objectives.

Based on this feedback and the analysis, the questions, layout and design of the piloted questionnaire remained broadly similar for the main survey. An online version of the questionnaire was developed using Survey Monkey, to give both NIPs and PIPs the option to complete the survey electronically[1].

Copies of the final versions of the questionnaires are at Appendices 11.2 and 11.2.

4.2.2.4 Main survey

The questionnaire was sent by post and email to the 358 pharmacists in October 2008; two follow-up questionnaires and one email reminder were sent to non-responders in November and December 2008. The initial mailout to NIPs was undertaken in November 2008, two follow-up questionnaires were sent to non-responders in December 2008 and January 2009.

4.2.2.5 Data entry and analysis

All data from main survey closed questionnaire items were entered into SPSS Version 18. The data from Survey Monkey were downloaded from the website as a Microsoft Excel file and then imported into SPSS. Frequencies and cross tabulations were used to analyse these data. Comments and responses to main survey open-ended items were extracted and a simple thematic analysis (Taylor and Bogdan, 1998) performed to derive main themes and frequencies. In the Report, quotes from the national survey data are coded as '(NIP)' or '(PIP)' data.

An interim analysis was conducted to report to the Janaury 2009 Advisory Group meeting and to inform case study site selection.

1 Survey Monkey is a proprietary software package enabling user friendly online survey design.

4.3 National survey of non-medical prescribing (NMP) Trust leads

4.3.1 Aim

The survey aimed to provide a national overview of NMP leads' views on a range of key NMP issues and contributed to addressing research questions 1, 3 and 4:

1. What is the scope and scale of independent prescribing (IP) by nurses and pharmacists?
3. Are the operational arrangements for clinical governance and risk management for IP by nurses and pharmacists adequate and sufficiently robust to ensure patient safety?
4. What are the prescribing models in current practice, their associated resources, and patient utility?

4.3.2 Method

4.3.2.1 Survey development

The survey instrument was developed by the research team members, in consultation with key NMP contacts in England to collect Trust-wide data on:

– the impact of IP on service delivery and patient care;

– clinical governance and risk management strategies in operation;

– trust provision of CPD opportunities;

– views on prioritizing IP models and future workforce planning on prescribing; and

– enhancing and hindering factors in operation at Trust level that impact on IP.

The interview schedule drew on issues identified from policy on NMP, the literature review and existing tools including the 'London SHA Non-Medical Prescribing (NMP) Clinical Governance Self-Assessment and Action Planning Tool' (2008) and the RPSGB (2007) 'Clinical Governance Framework for Pharmacist Prescribers and organisations commissioning or participating in pharmacist prescribing'.

A key focus of the survey was the models of services operating within the Trust, for example NIP or PIP prescribing in general practice clinics, outpatients, for inpatients, in A & E departments, Walk-in Centres (WiC), out-of-hours (OOH) services, family planning clinics, etc. The evaluation overall intended to collect data as part of the economic analysis of NIP and PIP services, e.g. key staff associated with each model, their training, accommodation, opening times, waiting times, consultation length, and numbers of service users. If data were available on these issues from the NMP leads it could be used to supplement that from the NIP and PIP surveys to inform the economic analysis. Therefore questions were included in the pilot NMP survey on these aspects.

The pilot interview schedule is at Appendix 11.4.

4.3.2.2 Identifying Trust NMP Leads

The intention was to identify all Trusts in England and stratify them according to type of Trust (primary, mental health, acute and care) and Strategic Health Authority (SHA) to ensure a national representation of all Trust types. Following stratification, a 50% sample would be randomly selected to take part. For each Trust, the person with responsibility for NMP would be identified and invited to participate.

The contact details of the NMP leads for the 10 SHAs in England were obtained from the Department of Health Non-Medical Prescribing Programme website (*http://www.dh.gov.uk/en/Healthcare/Medicinespharmacyandindustry/Prescriptions/TheNon-MedicalPrescribingProgramme/index.htm*) in September 2008. An up-to-date list of the Trust NMP lead names and their contact details was requested from each SHA lead (in some cases more than one lead per SHA). All but one SHA NMP lead agreed to support the survey in this way (one SHA had commissioned its own research into non-medical prescribing and this was underway at the time of the ENPIP study). One SHA did not have a current list of NMP leads and a list was compiled by the researcher sending an individual email to each Trust (to the Head of Medicines Management or Chief Pharmacist) to request the name and contact details of the relevant NMP lead. This method resulted in a list of NMP leads for all but one of the Trusts in the SHA.

4.3.2.3 Piloting the survey

Piloting of the survey was undertaken in November 2008 in six SHA areas. Respondents were randomly selected from the compiled NMP Trust leads list and were emailed by the research team, inviting them to take part in the pilot. The leads were asked to complete the survey and were also asked for comments on the questionnaire as a whole, i.e. length, content, etc. Sixteen NMP Trust leads covering the different Trust types were invited to participate. Non-respondents were followed up three times, once by email and twice by telephone. Ten of the 16 responded (Table 4.3.2.3.1).

Table 4.3.2.3.1: Number of Trust NMP leads that were invited and responded to the pilot study

Type of Trust	No. invited	No. participated
PCT	6	5
Acute NHS	2	2
Acute Foundation	3	1
Care	2	1
Mental Health / Foundation	3	1
Total	**16**	**10**

The pilot showed that some of the data we had hoped to collect was difficult or impossible for the Trust NMP leads to obtain (for example: data on waiting times, consultation lengths, and estates and equipment costs associated with independent prescribers in the Trusts). It was also found that some data needed to be gathered in advance by the lead. For example the number of NIPs/PIPs who prescribed in different models/ locations. The final survey was modified to reflect these issues and some questions were re-worded where the pilot showed some clarification was required. The invitation to participate was also amended to suggest that it would be useful for participants to collect data on the numbers of NIPs and PIPs working in different practice settings within the NMP lead's Trust area before starting the survey.

The pilot showed that some NMP leads covered more than one Trust, hence the opening question sequence was changed so that the respondent could specify the Trust they were providing information about. A copy of the final version is at Appendix 11.5.

The pilot uncovered difficulties in arranging and completing telephone interviews with the NMP leads, most of whom combined this role with other duties. Some were not able to complete their scheduled telephone interview necessitating numerous follow up contacts and interviews sometimes had to be rebooked several times. To enable best use of available resources it was decided to offer respondents in the main survey the option of completing the survey by telephone or online.

An online version of the interview schedule was created using proprietary survey software (Survey Monkey). This was used in two ways in the main study: the researcher could enter data during the telephone interview or the respondent could self complete the survey online.

4.3.2.4 Main survey

Three hundred and seventeen Trust NMP leads were identified. The total number was lower than the number of trusts in England (225 secondary care + 153 Primary Care Trusts) for three reasons: one SHA did not participate; some NMP leads covered more than one Trust; and some Trusts did not have an NMP lead (either permanently or temporarily).

The NMP leads sample was stratified according to SHA and type of Trust (primary, mental health/foundation, acute NHS, acute foundation and care) to ensure a national representation of all Trust types. A 50% sample of Trust leads from acute foundation, acute NHS, and primary care Trusts was randomly selected. A decision was made by the research team to invite all leads for mental health Trusts and care Trusts to take part because due to the smaller numbers of these Trusts a 50% sample would not have provided sufficient respones for meaningful analysis.

4.3.2.5 Conducting the survey

Before the research team contacted the NMP leads, the respective SHA leads were asked to email the leads in their SHA to alert them to, and promote their involement in, the study and to encourage them to respond. Trust NMP leads (total n=168) were sent an email invitation from the research team within a few

days of the SHA lead email explaining the background to the study and asking them to participate in the survey. The invitation explained that they could choose to complete the survey via a telephone interview or online. The invitation email included a link to the online survey. If the respondent chose to complete the survey by telephone they were contacted by one of the research team to arrange a convenient time for the interview. Telephone interviews took approximately 20 minutes to complete and the interviewer entered the participant's responses directly into the Survey Monkey screens during the call.

All non-responders were followed up by email and telephone if they had not contacted the researcher to arrange a telephone interview or completed the survey online within two weeks. Further follow ups were conducted at approximately two week intervals, with up to four reminders.

The Survey Monkey software produced a database in which it was possible to see where a respondent had started but not completed the survey. These respondents were identified by their Trust name, which they selected at the beginning of the survey, and were sent an email asking them to complete the survey, either online or by telephone interview. At the time of the research the software did not permit respondents to save and return to their earlier responses, so if they did not complete on the first occasion they had to re-start the survey.

If, after four follow ups there had been no response, or the Trust lead had not completed the survey, they were then emailed by one of the project co-leads who promoted participation in the study.

4.3.2.6 Data analysis

The data from Survey Monkey were downloaded from the website as an Excel file and then imported into Statistical Package for the Social Sciences (SPSS) software. Qualitative and quantitative responses to the questionnaire items were coded and inputted into an SPSS Version 18.0 database. Descriptive and quantitative statistics were undertaken to provide an analysis of the data and qualitative comments were used to illustrate the results.

4.4 Focus groups with HEI prescribing course leads and DMPs

4.4.1 Aim

The evaluation design included elements relating to education and training within the national surveys of NIPs and PIPs and in the national survey of NMP leads. Research with HEI leads and DMPs was included to ensure that the perspectives and experience of education providers were taken into account.

The overall aim of the focus group discussions with HEI leads and DMPs was to address research question 6 specified in the study proposal: 'Do any changes need to be made to existing educational programmes for nurse and pharmacist independent prescribers?'.

4.4.2 Method

4.4.2.1 Development of the interview guide

The initial areas identified for exploration (based on the outline specification for the study and our preliminary literature search) were:

- quality and availability of current education and training
- adequacy of trainees' pharmacological knowledge base
- entry level competencies in assessment and diagnosis
- adequacy of clinical examination skills
- identification of best practice in IP training
- challenges
- views on improvements
- views on future training models

The topic guide was further developed from the objectives of this strand of national survey data collection, within the wider evaluation, from the key issues emerging from the research team's literature review and with subsequent feedback from two NMP HEI programme providers (Appendix 11.6).

4.4.2.2 Sample

Table 4.4.2.2.1 overleaf provides an overview of the programmes available in HEIs in England in terms of numbers of our national PIP and NIP questionnaire survey respondents who had completed a course there, SHA, programmes offered and main learning mode.

Sampling was conducted to produce maximum variation and the criteria were:

- Professional group/s trained
- Modes of learning (mainly face to face; mainly distance learning; and mixed)
- Frequently cited by survey respondents as their prescribing training HEI
- Geographical location

Data from the NIP and PIP surveys were used to identify the programmes most frequently completed by respondents and sampling focused on these HEIs in order to enhance the potential for capture of data from experienced respondents. In addition this sampling strategy enabled data on NIPs' and PIPs' reported experiences of educational preparation for prescribing to be considered alongside those from the HEI providers that had trained the largest numbers of NIPs and PIPs. Survey respondents had completed their training at over 50 HEIs providing NIP training and 18 offering PIP programmes. The majority were concentrated in some 25 NIP and 10 PIP providers, with some overlap from institutions providing both. The resulting sample contained 28 HEIs and the professional groups for whom they offered programmes are shown in Table 4.4.2.2.2. Some HEIs in the sample had more than one programme lead and where this was the case both were invited.

Invitations to participate were sent by email, with up to three follow-ups. All potential participants were asked to invite a DMP to join them at the focus group. Three locations were decided for the focus groups:

York, Birmingham and London. Individuals were invited to attend the location which was nearest to them, with the others offered as alternative options where needed. Reimbursement of travel expenses was offered for those participants whose employers were not able to offer reimbursement.

Table 4.4.2.2.1: Characteristics of HEI NMP programmes and numbers of NIP and PIP respondents trained

HEI	NIPs	PIPs	SHA	Programmes offered	Main learning mode
Anglia Ruskin	14		EE	N	Face-to-face (26 days)
Bath	-	31	SW	P	Mixed (DL + 10 F2F days)
Bolton	14		NW	N	Face-to-face (26 days)
Bournemouth	13		SW	N	
Brighton	13	7	SE	P + N + AHP	?
Chester	15	6	NW	N + P	
CPPE		N/A	NW	P	DL support materials
De Montfort	19		EM	N+ P	DL or Face-to-face
Hertfordshire	14		EE	N	
Huddersfield	18		YH	N	Mixed (13 F2F days)
Hull	17	-	YH	P + N	Face-to-face (?20 days)
Keele	-	32	WM	P	DL
Kings London	22	29	L	P + N	DL
Leeds University	14	11	YH	P + N	Face-to-face (26 days)
Medway	6	4	SE	P + N	
Northampton	17		EM	N	Face-to-face (26 days)
Northumbria	18		NE	N + Physio, Radiog, Podiatrists	Face-to-face (26 days)
Nottingham	24		EM	N + P + Physio, Radiog, Podiatrists	Face-to-face (26 days)
Oxford Brookes	21		SC	N + AHPs	?
Reading		27	SC	P	Face-to-face (26 study days)
Sheffield Hallam	36		YH	N	Face-to-face (26 days)
South Bank	37	-	L	N + P + AHP	
Southampton	16		SC	N	Mixed (?16 days)
Staffordshire	27		WM	N +	?
Sunderland	-	23	NE	P	DL
Surrey	19		SE	N	Face-to-face (27 days)
Teesside	25		NE	N + AHP	Face-to-face (26 days)
UCE	16		WM	N	Face-to-face (26 days)
UCLan	16	5	NW	P	Mixed
University of West of England	20		SW	N + Physio, Radiog, Podiatrists	Face-to-face (?26 days)
Wolverhampton	23		WM	N	?

Table 4.4.2.2.2: HEI sample by professional groups for whom programmes were offered

Professional group	Number of HEIs in sample
Nurses only	11
Pharmacists only	5
Nurses + Pharmacists	5
Nurses + AHPs	4
Nurses + Pharmacists + AHPs	3
Total	**28**

Analysis of information from individual HEI websites was used to systematically collect information about target audiences and delivery method of programmes. The modes of programme delivery for HEIs in the sample are shown in Table 4.4.2.2.3 below.

Table 4.4.2.2.3: HEI sample by mode of programme delivery

Mode of delivery	Number of HEIs in sample
Mainly face to face (20 days or greater)	13
Mixed	4
Mainly distance learning (fewer than 10 face-to-face days)	3
Separate face-to-face and distance learning options offered	1
Not known	7
Total	**28**

4.4.2.3 Main study data collection

In May and June 2009, two focus groups and one interview with two participants were convened in locations across England. Focus groups enabled exploration of similarities and differences among HEIs providing programmes for different professional groups and using different delivery methods. Written informed consent was taken for each participant at the beginning of the group. The focus groups each lasted for 90 minutes, and the paired interview for an hour. The focus groups were moderated by research team members.

4.4.2.4 Data analysis

Each focus group discussion was recorded on digital audio, and transcribed verbatim. The transcripts were checked and anonymised by the focus group moderator. An initial framework for analysis had been developed from the topic guide. The transcripts were loaded into NVivo 8 qualitative data management software. The focus group lead undertook detailed coding of the transcripts, using the original framework to guide the coding, but noting emergent issues of interest. A 2,500-word, five-page extract from each transcript was dual coded from the initial framework, followed by a discussion of the results by the coders. This was to explore the validity of the framework themes, the rigour of the analysis process, and to discuss other emerging issues while data analysis and report writing were being undertaken. In the Report, quotes from the focus group data are coded as 'FG' + number of Focus Group + letter representing each respondent in that Focus Group e.g. FG3A. Quotes from the interview data are coded 'I2' + letter of respondent in the interview.

4.5 Analysis of national safety datasets

4.5.1 Aim

A secondary analysis of available national datasets of safety incidents relating to prescribing was planned including the National Patient Safety Agency's (NPSA) National Reporting and Learning System, incidents and claims data held by professional indemnity insurers for doctors, nurses and pharmacists, and professional Fitness to Practise (FtP) cases by the pharmacy and nursing regulators. This analysis aimed to address the research question: 'What is the quality of, how safe, and how clinically appropriate is IP by nurses and pharmacists?'.

4.5.2 Method

4.5.2.1 Regulators

Individual contacts were identified at the Nursing and Midwifery Council (NMC) and the Royal Pharmaceutical Society of Great Britain (RPSGB). These were contacted by email with information about the study and a request for information about completed Fitness to Practise cases relating to prescribing. In addition NMC Annual Fitness to Practise Reports for 2008–9 and for 2007–8 and the RPSGB Annual Fitness to Practise Reports for 2008 (the most recent report published) were reviewed, and online searches of the regulators' websites were conducted to identify any relevant cases.

4.5.2.2 NHS organisations

Contact was established with the NPSA and a request made for data from the National Reporting and Learning System and any other relevant sources held by the NPSA on safety incidents relating to prescribing by doctors, nurses and pharmacists. In addition, the Annual Report of the Health Ombudsman for England 2008–9 was reviewed.

4.5.2.3 Professional indemnity insurers

Individual contacts were identified at the Medical Defence Union, Royal College of Nursing and the National Pharmacy Association, and a request was made for information about settled claims relating to prescribing.

4.6 Phase 2: case studies of NMP practice

4.6.1 Aim

The overall aim of Phase 2 was to evaluate the quality and safety of NIP and PIP, its clinical effectiveness, and its impact on patient experience, outcomes, and preferences using ten case studies of IP practice and multiple methods of data collection at each site.

4.6.2 Objectives

Phase 2 addressed study research questions 2, 4, 5, 6 and 7:

2. What is the quality of, how safe, and how clinically appropriate is IP by nurses and pharmacists?
4. What are the prescribing models in current practice, their associated resources, and patient utility?
5. Is IP by nurses and pharmacists acceptable to patients, and what are patients' experiences of the impact of IP on choice, access, and clinical outcomes?
6. Do any changes need to be made to existing educational programmes for nurse and pharmacist independent prescribers?
7. What is the response of other health professionals to nurse and pharmacist IP?

4.6.3 Design

A cross-sectional survey of ten case study sites, using multiple methods of quantitative and qualitative data collection at each site, was used.

4.6.4 Sample of case study sites

Each case site comprised a clinical setting in which one or more IP was prescribing and the selection of case sites was made using a number of inclusion criteria.

Across the ten sites:

– A range of prescribing models and settings to be represented

– Geographical spread across different SHAs in England

– A focus on prescribing for both long-term and acute conditions

– Six nurse prescribing sites and four pharmacist prescribing sites[1]

Within each site:

– A focus on one of four specified clinical conditions that NIPs and PIPs were commonly prescribing for. Conditions were identified from the national survey as asthma and diabetes (NIPs and PIPs), infection prescribing (NIPs only), and coronary heart disease prevention prescribing (PIPs only) and, following confirmation with the study Advisory Group, formed the foci of the patient record audit at the site.

– Regular prescribing by the IP at the site

Initially, the team also planned to select sites on the basis of whether local audit at the site was routinely conducted, to enable the team to critically review these, as part of data collection. However, Advisory Group members suggested that selecting only sites where an audit had been conducted might detract from their representativeness. Additionally, fulfilment of all of the above criteria for sampling led to a limited sampling pool in some cases and it was not feasible to further limit selection on the basis of audit at the site.

The initial sample frame for the selection of case sites was derived from IP participants in the national survey. The respondents were asked if they would be interested in taking part in Phase 2 of the study; 43.6% (n=389) of NIPs and 52.8% (n=75) of PIPs stated that they would be interested, and composite details relating to the selection criteria for the sites were then extracted onto a database for each of these IPs. Details included: the type of prescribing setting; location within England; the two conditions that IPs stated they were prescribing for most frequently; the typical number of patients prescribed for each week; and the typical number of items prescribed.

1 As discussed and recommended by the study Advisory Group

IPs were then stratified according to profession and type of setting (e.g. general practice, walk-in centre, hospital) and those that met the criteria of prescribing for the focus clinical condition and regular prescribing were then consecutively sampled and approached to participate. The Advisory Group considered whether and how it might be possible to include NIPs and PIPs working in hospital settings given the need for clinical audit across settings. Within the scope of the 10 case study sites the Group advised that as pharmacist prescribing in hospitals was still at a relatively early stage and in many cases was in specialist areas, that it might not be possible to include a case study.

For some case sites, a number of IPs were approached and declined prior to an IP agreeing to participate. Details of eligible sites and number of IPs who declined participation for each site type are outlined in Appendix 11.7.

For details of the final sites and a summary of the data collected from each site see Section 5.1.2.

4.6.5 Research ethics approval

NHS Research ethics approval for Phase 2 was obtained from Dorset Research Ethics Committee in February 2009, REC Ref No 08/H0201/163.

4.6.6 Overview of data collection process

Following approval from each Trust's research management and governance department, data were collected from each site by members of the research team. Data were collected between July 2009 and February 2010. Further details of each method are given below.

4.7 Analysis of clinical appropriateness of NIP and PIP prescribing using the Medication Appropriateness Index (MAI)

4.7.1 Aim

The aim of the analysis of prescribing consultations at the case sites was to evaluate the clinical appropriateness of medicines prescribed by NIPs and PIPs. The application of the MAI to audio-recorded consultations addressed research question 2: 'What is the quality of, how safe, and how clinically appropriate is IP by nurses and pharmacists?'

4.7.2 Method

4.7.2.1 Sample of consultations and medicines

At each case study site, an opportunistic sample of the NIP or PIP's prescribing consultations were audio-recorded. The aim was to sample ten consultations from each of the ten sites, to give a total of 100 consultations for analysis. The only inclusion criterion was that a prescription was issued by the NIP or PIP during the consultation. No restrictions were imposed on the type of clinical condition prescribed for. However, consultations/prescriptions for patients under the age of 16 were excluded. Likely sessions (e.g. NIP- or PIP-led clinics) for prescribing were identified in discussion with the NIP or PIP prior to site visits. Such sessions were purposively sampled for data collection. Sessions were sampled until the requisite number of consultations in which a medicine was prescribed had been audio-recorded at the site. Prior to and/or during site visits, a member of the research team prepared the processes of patient consent and audio-recordings. NIPs or PIPs self-recorded consultations with or without a member of the research team at the site, depending on the preference of the site NIP or PIP. For completeness of data to facilitate analysis, the NIP or PIP was asked to complete a proforma on additional details of the patient history, e.g. all current medications prescribed for the patient, for each audio-recording (see Appendix 11.8). Consultations were recorded between July and November 2009. All consultations were transcribed verbatim; each transcription was supplemented by a summary of additional patient details constructed from the pro forma details provided by the NIP or PIP. For consultations in which more than one medicine was prescribed, the medicine that related to the patient's presenting condition was normally selected by the research team as the focus for the analysis.

4.7.2.2 Medication Appropriateness Index

The MAI (Hanlon *et al.*, 1992) was selected to measure the clinical appropriateness of the medicines prescribed by the sample of NIPs and PIPs. The MAI outlines ten key questions that measure clinical appropriateness dimensions of a prescribed medicine on a range of indicators:

1. Is there an indication for the medication?
2. Is the medication effective for the condition?
3. Is the dosage correct?
4. Are the directions correct?
5. Are the directions practical?
6. Is the duration of therapy acceptable?
7. Are there clinically significant medication interactions?
8. Are there clinically significant medication-disease/condition interactions?
9. Is there any unnecessary duplication with other medication(s)?
10. Is this drug the least expensive alternative compared to others of equal utility?

Although a number of other tools exist for measuring prescribing appropriateness, the MAI was selected as the tool of choice. There is no gold standard method of measuring prescribing appropriateness; however, the MAI is acknowledged to have accumulated the most clinimetric and psychometric data (Kassam *et al.*, 2003) and, importantly, was used successfully in a previous study evaluating nurse prescribing by one of the authors

(Latter *et al.*, 2007b). A modified version of the original MAI, similar to that used in Latter *et al.* (2007b) was applied to each of the transcribed prescribing consultations in this study. In addition to the ten MAI indicators, the modified tool was designed to include raters' overall comments on the safety and effectiveness of the prescribing episode (see Appendix 11.9).

4.7.2.3 Raters

The sample size of raters was determined by estimates of reliability. To include an adequate assessment of inter-rater reliability as part of the overall analysis required multiple assessments for each consultation. Published tables specify the sample size required in such contexts which are specific to the level of intraclass correlation coefficient (ICC) expected, the number of raters and the level of precision required for 95% confidence intervals. Four repeat assessments of each of 100 consultations (400 assessments) would require each of 20 experts to assess 20 consultations. The numbers involved would ensure a high level of precision in estimating inter-rater reliability.

Inclusion criteria for rater selection were that the raters should have known prescribing expertise, should be current prescribers with awareness of the realities of everyday clinical practice and with clinical and prescribing experience which could be applied across a range of conditions. A balance of medical, pharmacy and nursing raters was also sought. Raters were identified by recommendation of the project Advisory Group, as well as through research team members' national networks of prescribers.

Transcripts of the recorded consultations were consecutively numbered within and by site. The transcripts were then allocated at random among the 20 raters, each one rating 20 transcripts, a total of 400 ratings, each transcript being assessed four times. The allocation of transcripts to raters was made on the basis of random numbers generated in a spreadsheet, including a stratification that ensured that each transcript was sent to four different raters. Transcripts were distributed to raters in November and December 2009. For details of raters see Appendix 11.10.

4.7.2.4 Pilot study

Three raters each received transcripts of four consultations. Raters comprised one pharmacist prescriber external to the project, one medical prescriber member of the Advisory Group, and one medical prescriber research team member (PL). An instruction pack and a feedback form were included. Pilot raters were asked to provide feedback on the instructions to the raters, the fullness of the transcripts and the ease/appropriateness of using the MAI, and the overall process/time taken. The results of the pilot indicated that overall the process was feasible and satisfactory for raters and likely to yield data that addressed the objectives of the MAI evaluation of the prescribed medicines. Two changes were made following the pilot to aid clarity of process and of ratings: one point of clarity on the origin of the supplementary data provided by the NIP/PIP was added to the cover letter, and an additional response category was added to items 6 and 7 of the MAI (drug-drug interactions, and drug-condition interactions) to allow for the fact that such interactions may have been a possibility, but were recognized and addressed by the prescriber.

4.7.2.5 Data analysis

In addition to the standard MAI codes, additional codes were used to describe rater responses of Not Known and Not Applicable. No response by the rater was also allocated a code. Data were entered into a computerised database and checks were completed on the codes entered for each variable. A small number of data entry errors were corrected. Missing values were checked against the rating sheet provided by the rater. Data were analysed using STATA software and were tabulated, with descriptive statistics prepared for the full set of 400 ratings. A STATA procedure was written to combine the four assessments of each transcript and produce counts of approval ratings. In addition, a summated or weighted total MAI score was calculated, using weights applied to each indicator as validated and used in previous research (Samsa *et al.*, 1994; Kassam *et al.*, 2003). The following weights were used: 3 for indication and effectiveness, 2 for dosage, directions, drug-drug interaction and drug-disease interaction, 1 for practical directions, duplication, duration and cost. Inter-rater reliability was calculated using percent positive agreement (p-pos) and percent negative agreement (p-neg) for each MAI indicator. Agreement was defined as previous studies, i.e. when at least two raters gave the same rating for a medicine on a particular indicator. Cohen's Kappa for the coding of individual indicators was also calculated. The intraclass correlation coefficient (ICC) for assessments of total scores was assessed using SPSS and analysis of variance which assessed the overall variation in the data as the sum of the random variation and the variation due to raters. The ICC was then computed as the ratio of true variation to the overall variation.

Textual comments received from raters in response to open items were extracted and pasted onto a spreadsheet. A simple thematic analysis (Taylor and Bogdan, 1998) was applied to identify key themes, with quantification where appropriate.

4.8 Case record audit of NIP and PIP prescribing

4.8.1 Aim

The aim of the patient record audit was to evaluate NIP and PIP adherence to national prescribing standards using case analysis of prescribing records for four clinical conditions for which NIPs and/or PIPs were frequently prescribing. The patient record audit addressed research question 2: 'What is the quality of, how safe, and how clinically appropriate is IP by nurses and pharmacists?'.

4.8.2 Method

As described above in Section 4.6.4, the four clinical conditions were identified from the national survey as asthma and diabetes (NIPs and PIPs), infection prescribing (NIPs only), and coronary heart disease (CHD) prevention prescribing (PIPs only), and confirmed as appropriate with the study Advisory Group. These formed the foci of the case record audit at the site.

4.8.2.1 Development of the audit tools

The clinical conditions and the recognised prescribing guidance used to develop the audit tool are as shown in Table 4.8.2.1.1 below.

Table 4.8.2.1.1: Clinical conditions and related prescribing guidance used to develop the audit tool

Clinical condition	Guidance
Lipid modification: secondary prevention	National Institute for Health and Clinical Excellence (NICE) clinical guideline 67. Lipid modification. Cardiovascular risk assessment and the modification of blood lipids for the primary and secondary prevention of cardiovascular disease. Issue date May 2008
Chronic asthma	NICE technology appraisal guidance 138. Inhaled corticosteroids for the treatment of chronic asthma in adults and children aged 12years and over. Issue date May 2008
Type 2 diabetes: oral blood glucose lowering medication	NICE clinical guideline 66. Type 2 diabetes. Issue date May 2008.
Lower urinary tract infection in non-pregnant women between 16 years and 65 years.	Scottish Intercollegiate Guidelines Network (SIGN) national clinical guideline 88. Management of suspected bacterial urinary tract infection in adults. Issue date July 2006

The audit tools for each of the clinical conditions were developed using a staged approach.

Stage 1: Production of 'hard copy'

NICE produce and publish dedicated 'Audit support' documents as an adjunct to its guidance documents. These include audit criteria and standards based on the key priorities for implementation of individual guidance, plus an audit template which is intended to support data collection and to be used or adapted to meet the needs of individual users.

For the clinical conditions where NICE guidance was used as an indicator of appropriate prescribing (that is lipid modification, type 2 diabetes, and chronic asthma), the audit criteria, standards, and template contained within the corresponding NICE 'Audit support' documents provided the basis for developing the 'hard copy' audit tools for each of these three conditions.

As the SIGN guideline 88 – Management of suspected bacterial urinary tract infection in adults – does not include audit support, the audit criteria and data collection tool for lower urinary tract infection (LUTI) in non-pregnant women between 16 years and 65 years were developed for the study from the recommendations of the guideline (see Appendix 11.11: Clinical condition: lower urinary tract infection in non-pregnant between 16 years and 65 years and Appendix 11.12: Draft patient data collection tool for suspected bacterial LUTI in non-pregnant women between 16 years and 65 years).

Stage 2: Conversion of 'hard copy' to electronic format

In order to facilitate the collection of data and accurate and efficient analysis, the individual hard copy audit tools were amalgamated and converted into electronic format, utilising the standard data collection form

function in Excel. A 'User Guide' was produced to support individuals in using the tool (see Appendix 11.13).

Stage 3: Piloting the electronic tool and 'User Guide'

During March 2009, five sites, representing a range of clinical settings, took part in piloting the audits. These are detailed in Appendix 11.14. Each site was requested to test the tool on between three and six case notes.

The purpose of this stage was to test the electronic audit tool and 'User Guide' for 'ease of use' and reliability. Information on the ease of extracting information from patient records was also sought.

In addition to the electronic tool and 'User Guide' each site was sent covering information outlining what was needed (see Appendix 11.15) and a feedback form (see Appendix 11.16). Telephone support was also available.

The tools were piloted by pharmacist and/or nurse clinicians directly involved in patient care, most of whom were independent prescribers. The settings were an OOH centre and WiC for LUTI, a hospital for the diabetes tool, and general practices for asthma and lipid modification.

Feedback from this exercise included:

- Some technical problems were encountered in terms of opening the tool. These were covered in the 'User Guide' and could have been avoided which indicated the covering information may not have been read.
- Once the tool was opened it was easy to use.
- Some of questions needed rephrasing and reordering.
- Some of the 'skip logic' within the data collection form needed improving.

No reports of difficulties extracting information were made.

Stage 4: Review for accuracy and validity

In tandem with Stage 3, the audit tool was circulated to recognised clinical experts within the study Advisory Group (Professor Tony Avery) and the research team (Professors Steve Chapman and Paul Little) to confirm the accuracy of the questions and whether the data they would generate would be a valid measure of prescribing by nurse and pharmacist prescribers in the identified clinical conditions.

This exercise highlighted that, in order to meet the objectives of Phase 2 of this study, several changes to the wording of the audit questions were needed to transform them from their original purpose to one which would meet the evaluative aims of the study, i.e. original NICE/SIGN statements needed to be made more specific to enable accurate and reliable recording of performance. For example the NICE audit template for asthma asked whether 'patients were prescribed the least costly product suitable for that individual?'. The reviewer pointed out that this prescribing choice 'is not a straightforward decision and unless you have clear criteria I suspect there will be quite a lot of variability in how this is answered between the different people doing the data collection'. In response to this feedback the data collection tool was revised to ask which preparation was prescribed and the dose.

Stage 5: Refinement of the electronic audit tool

The electronic audit tool was subsequently refined in the light of the feedback from Stages 3 and 4 to produce the final version of the tool.

4.8.2.2 Main study data collection

Data were collected between July 2009 and February 2010. At each site, a member of the research team, administrative staff or a member of the health care team accessed the site's electronic patient records to obtain a sample of records for the audit. Each system was used to identify patients prescribed for by the NIP/s or PIP for the focus clinical condition for that site (i.e. diabetes, asthma, LUTI or CHD prevention). Depending on the volume of NIP/PIP prescribing for the specified clinical condition at the site, all prescribing records for the preceding 12 or 18 months were accessed. As the template for the audit of diabetes prescribing was derived from NICE guidelines issued prior to the most recent NICE guidance in May 2009, only records prior to May 2009 were retrieved and analysed at the diabetes audit sites. At the OOH site, the second audit conducted in February 2010 sampled only records pre-November 2009, due to a changeover at that time in the electronic system used at the site. Records retrieved were either ordered alphabetically by patient name or chronologically by date of prescription. Consecutive records were then checked and data extracted either by a member of the research team or member of the health care team until the required minimum number of 40 per site was achieved.

4.8.2.3 Data analysis

The data were collected through a number of data entry forms linked to Excel spreadsheets.

On receipt of the data for each of the four clinical conditions it was decided that the most appropriate method for analysing the data was to import the data from the spreadsheets into four data tables in a Microsoft Access database.

Data validation checks were performed on the raw data tables to ensure that they met with the inclusion criteria of the project. For example, ensuring that all LUTI data related to female patients, who were over 16 and under 65 and who were not pregnant. Any records that did not meet the criteria, or where this information was not identified, were excluded from the validated dataset tables.

A number of simple structured queries were then set up to extract all the information required from the validated tables. Each query related to a specific question(s) within the report notes that had previously been provided to the analyst. The results of these queries were then copied to an Excel spreadsheet and summarised accordingly.

4.9 Discrete Choice Experiments

4.9.1 Background

Economic evaluations have traditionally focussed on the 'QALY' (Quality-adjusted life year) measure as a means of valuing benefits from health care. Such an approach limits the value measured to changes in health status. Whilst this may be appropriate in the evaluation of some health care interventions it is not well suited in others. There is a growing body of evidence showing that patient experiences can influence the utility (benefit) patients derive from health care interventions (see, for example, de Bekker-Grob, 2009; Ryan *et al.*, 2005). Such factors as information, reassurance, location of treatment, doctor-patient relationship and continuity of care are currently being referred to as patient experience factors. This broadening of the benefit measure seems particularly pertinent in the area of prescribed medicines where the patient may prefer consultations with a non-medical prescribing (NMP) professional (see Tinelli *et al.*, 2004 for insights into the developing role of the community pharmacist).

The Discrete Choice Experiment (DCE) method used in this study is an attribute based approach that allows for the possibility that benefits can be broader and quantifies strength of patients' preferences. Such data is important from a policy and planning point of view. The results identify attributes which are significant in the decision to choose and may be used to value the impact of changing the levels of one or more attribute as a way of considering the impact of quality improvements to current (or emerging) models of care.

The DCE method has been validity applied to health care (de Bekker-Grob *et al.*, 2010) and is based on the premise that all decisions involve choice and all choices involve sacrifice.

This section details the methods used for an evaluation of patients' preferences for non-medical IP using Discrete Choice Experiments.

4.9.2 Aim

The main aim of this preference study was to quantify patients' preferences for alternative models of providing non-medical prescribing compared with usual care. The DCEs contributed to addressing the study research questions 4 and 5: 'What are the prescribing models in current practice, their associated resources and patient utility?' and 'Is independent prescribing by nurse and pharmacists acceptable to patients, and what is patients' experience of the impact of IP on choice, access, and clinical outcomes?'

4.9.3 Methods

4.9.3.1 Development of the survey

A DCE survey asks individuals to make hypothetical (yet as realistic as possible) choices about their most preferred option from a choice of options that are described in terms of unique combinations of attribute levels. This format forces them to value attributes against each other. Typically, respondents are asked to complete a series of such choices. Underpinning this approach are the assumptions that the individual can make informed choices by weighing up the differences in such attributes and will consider all the information provided before selecting the alternative with the highest utility. The choice data are then used to estimate an appropriate utility function to elicit preferences.

The field work for this DCE was undertaken as a cross-sectional survey of patients attending sites accessed for Phase 2 of the study. The key stages of the DCE study (two linked experiments) are reported below.

4.9.3.2 Characterising the health care setting for the choice decision

A crucial aspect of designing a valid DCE instrument is to understand the health care setting(s) in which respondents are most likely to identify with when making choices. In this case, there was little existing empirical evidence to understand the nature of and extent to which current and emerging models of the NIP and PIP function in the NHS in England. Rather we used the primary data collected in the national surveys of independent prescribing (IP) by nurses and pharmacists to inform a realistic and familiar back drop for the exercise.

The relevant data revealed that both NIP and PIP were most likely to practise in general medical practice in primary care settings (42.7% and 55.2% of all responses respectively – see Section 5.2.3.2) and that both were

likely to be used by patients as substitute consultations for seeing a GP. We know over 90% of a local resident population is registered with a GP and sees a GP at least once a year (RCGP, 2004). From this it was surmised that describing NMP choices in the context of a general practice and then asking respondents to choose between NMP and GP would be feasible, plausible, and provide familiar context to our intended sample.

4.9.3.3 Characterising the health conditions (vignettes) for the choice decision

As there is evidence that patients' priorities for attributes of primary care vary depending on the reason for consulting (Schers *et al.*, 2002; Baker *et al.*, 2006; and Gerard *et al.*, 2008) it seemed reasonable to expect the same to hold when patients consult different IP for prescribed medicines. Further data from the national surveys informed our selection of health conditions representing typical situations for a patient to choose either to be seen by prescribing nurse or GP or to choose between prescribing pharmacist and GP.

The national surveys showed that a significant proportion of non-medical prescribing is done in key treatment areas (for NIP the most frequent is acute infections, followed by asthma and diabetes, and for PIP it is hypertension followed by cardiology and asthma– see Section 5.2.3.3). There is little evidence from the surveys to suggest NIP and PIP worked in areas where they directly substituted for each other.

This evidence suggested that two separate vignettes were required to recognise the key roles of nurse and pharmacist prescribing in a general practice setting. One vignette depicted a common scenario for an acute but non-life threatening episode of infection that could be managed by either prescribing nurse or GP. (After careful debate a 'headache and fever' scenario was described as the experienced symptoms.) A second vignette depicted a pre-existing chronic condition that needed regular review of prescribed medication and, possibly, review more generally that could be undertaken by either prescribing pharmacist or GP. Previous studies have shown that respondents can handle being asked to think about, and make, choices relating to two different vignettes in the same survey (Gerard *et al.*, 2008; Baker *et al.*, 2006) which encouraged the same approach to be used in this study.

The vignettes were further refined by reviewing the empirical DCE literature on prescribing (Tinelli *et al.*, 2004; Caldow *et al.*, 2006; and Tinelli, 2009) and others set in general practice (Baker *et al.*, 2006; Gerard *et al.*, 2008). The vignettes are presented in Figure 4.9.3.3.1 below.

Vignette 1
Imagine you have had high blood pressure (hypertension) for some time and it is now time for your regular review at your general practice surgery. This will involve your blood pressure being measured and may involve some changes to your medication.

Vignette 2
Imagine you have a headache and fever, your bones are aching and your throat is sore. You are still able to do all the things you usually do but are more tired than usual. The symptoms started to appear about 3 days ago and were slightly worse when you woke up this morning. Your symptoms won't get better quickly without help from a professional about your diagnosis and their advice including any prescription medicine to treat the condition. PLEASE NOTE THIS IS NOT A CASE OF SWINE FLU.

Figure 4.9.3.3.1: Discrete Choice Experiment: vignettes

4.9.3.4 Characterising the choice question

Another important aspect of setting up a valid DCE study is the way the choices are asked; how many options should be presented in a choice; and whether there should there be an opt-out choice. Indeed, to be convincing to the respondent, the framing of the question needs to imitate real life choices as closely as possible. In health care this can mean that individuals may prefer not to take up certain services whatever the levels of the attributes (Ryan and Skåtun, 2004). If opting out is a realistic choice but is not taken into account then results will be overestimated and the correct method of analysis may not be applied. Opting out can mean a number of things: do nothing; choose the status quo; choose the usual (current) situation; or delay the decision until a later date. As such it is important that the researcher selects the most appropriate 'opt-out' and in so doing understands what the respondent is thinking about with respect to attribute levels of this choice.

For this study, choices were framed differently for the pharmacist prescribing experiment and the nurse prescribing experiment. This reflected realistic differences in prescribing roles and health conditions managed. In the former, the respondent was asked to choose between three options for managing a pre-

existing hypertension condition – i.e. prescribing pharmacist or two alternative medical services; seeing 'your own (family) doctor' or the next 'available doctor'. It is known that patients tend to prefer to see their own family doctor rather than an unknown, unfamiliar one (National GP Survey, 2009) therefore the 'available doctor' option was characterised to represent a worst case scenario. The detail needed to inform the attribute levels for this option was obtained from the pilot study (see Section 4.9.3.6 below).

The options in the nurse prescribing experiment were slightly different. Here it was considered that the 'do nothing' option was a realistic alternative as some may prefer to wait and see whether the symptoms of headache and fever cleared up in a short time (i.e. watchful waiting). The three options were thus prescribing nurse', 'your own (family) doctor' and 'do nothing'. In this case there were no relevant attribute levels to consider.

Table 4.9.3.4.1 summarises how the choice set was characterised in both choice experiments.

Table 4.9.3.4.1: Discrete Choice Experiment: characterising a choice set

	Option 1	**Option 2**	**Option 3 (Opt-out)**
(Experiment 1) Pre-existing hypertension (high blood pressure):			
Which would you choose? Tick one box only	Prescribing pharmacist ☐	Your own doctor ☐	Available doctor ☐
(Experiment 2) Acute infection:			
Which would you choose? Tick one box only	Prescribing nurse ☐	Your own doctor ☐	Do nothing ☐

4.9.3.5 Identifying attributes and the assignment of levels

As the DCE task requires individuals to choose their preferred option from choices described in terms of unique combinations of attribute levels, it follows that attributes and their levels must be identified. These need to describe the key important features of the alternatives from the perspective of the patient in a way that can be amenable to change by the provider. However a prior decision was whether to present the experiments as 'unlabelled' or 'labelled' as this influences the overall design and analysis of the experiment (Louviere *et al.*, 2000; Hensher *et al.*, 2005).

As the choice of which professional prescriber to consult (GP or NMP) is such a key influence in choice, this factor may at first glance appear to be an obvious attribute to include. Others have highlighted its importance (e.g. Baker *et al.*, 2006; Caldow *et al.*, 2006; Porteous *et al.*, 2006; and Gerard *et al.*, 2008). Upon closer inspection however, it became clear to present the alternatives as labelled ones as it was anticipated these labels would have intrinsic value in themselves and would act somewhat like an attribute for a given alternative (Hensher *et al.*, 2005). This is shown in Table 4.9.3.4.1 above, where the first two options (Option 1 and Option 2) in the choices vary by label – i.e. 'prescribing pharmacist' and 'your doctor' (first experiment) and 'prescribing nurse' and 'your doctor' (second experiment). Option 3, as explained in Section 4.9.3.4, represents the 'opt-out' choice and is fixed.

Having decided to use labelled experiments in both cases, four attributes were selected for each experiment to characterise remaining differences anticipated to be important to patients in their decision to choose.

The initial focus on the primary care consultation was to capture relevant patient experience factors (i.e. not outcomes, effectiveness, or safety attributes as these are assumed equivalent across the alternatives). Stated policy guided initial ideas. Relevant aspirations of the current non-medical prescribing policy include: to make better use of nurses' and pharmacists' skills; to make it easier for patients to get access to the medicines that they need; to develop the nurses' and pharmacists' role in delivering frontline care and a patient-centred service; and the nurse or pharmacist to be competent to assess, diagnose and make treatment decisions for the patient (Department of Health, 2006). Further evidence from DCE studies supported the view that it would be important to consider development of general patient experience attributes in primary care settings (such as, 'access', 'continuity of care', 'quality of care' in Baker *et al.*, 2006). As a DCE of four attributes is considered of a manageable scale for respondents to assimilate, this was the number used in the present study.

Common to both the experiments was the attribute 'time spent in the consultation'. Gerard and Lattimer (2005) showed that providing a consultation slot that was uninterrupted with enough time to discuss the

problem at hand were significant determinants of utility in making appointments to see a GP in general practice. As a key policy aim of non-medical prescribing is to make better use of the skills of health professionals and enabling patient-centred services, consultation time appeared as one critical aspect of how NIP and PIP may develop patient-centred services. As regards length of NIP consultations for acute infections and PIP consultations for hypertension, the national NIP and PIP surveys reported a mean general consultation duration of 21 minutes and 18 minutes respectively (Section 5.2.3.6). These data support the view that NMP spend, on average, longer with their patients than the 5–10 minute consultations offered by GPs (and reported in the pilot study, see Section 4.9.3.6).

Three further attributes used in the prescribing experiment for managing hypertension focused on different aspects of quality of care. These were: 'professional's words and explanations about medication'; 'attention paid by the professional to the patient's views about medicines'; and 'the extent of review undertaken'.

There is a substantial body of evidence showing the quality of patient-professional interaction matters to patients. For example, in other DCE studies of primary care different aspects of the interaction between doctor and patient has been highly significant – Scott *et al.* (2003) demonstrated the importance of the attribute 'whether the doctor seemed to listen' and Morgan *et al.* (2000) showed how 'doctors manner' mattered. Another survey of patient attitudes and satisfaction with pharmacist supplementary prescribers and doctors showed a concerned about such things as whether the professional was interested in the patient *per se* not just the illness, was able to make the patient understand their illness better, and 'knowing' the patient (Stewart *et al.*, 2008). In a study of pharmacists' preferences for extending the community pharmacy role, Scott *et al.* (2007) identified the undertaking of regular medication review by pharmacists as a significant influence on choice. This was later endorsed in a study of patient preferences for pharmacy-based medicines management services (Tinelli, 2008) where patients valued pharmacist advice on all aspects of their medication, general health and lifestyle. Further qualitative studies suggest that other possible benefits of a prescribing nurse consultation (which may also apply to PIP) is their ability to offer a more 'holistic, educative and informative' consultation than typical busy GPs have time for (Luker *et al.*, 1997, 1998; Brooks *et al.*, 2001; Drennan *et al.*, 2009; and Watterson *et al.*, 2009).

Furthermore, promotion of greater patient-centred care is encouraged by policy makers as it is believed to improve patient adherence to their medication (NICE, 2009).

Three further attributes were used in charactering the visit for managing acute headache and fever. One of these attributes reflected a similar aspect of quality of care; 'professional's attention to your views on problem/medicines'. Again, qualitative evidence from studies cited in Latter and Courtenay's (2004) literature review on nurse prescribing such as Luker *et al.* (1997) and Luker *et al.* (1998) supported the importance of the new nurse prescribing role to be more approachable and thus able to understand the patient's needs better and, ultimately, by also emphasising an interest in the patient's views on taking medicine this may encourage better adherence to medications (NICE, 2009).

The other two attributes included reflected important aspects of current and emerging practice for nurse prescribing. First, was the notion that it may be easier to access a NIP than GP for minor conditions. This was reflected in the attribute 'access', describing it in terms of where the patient can be seen (i.e. in general practice or NHS WiC) and how long patients wait to be seen (from same day appointment to waiting up to 2 days for an appointment). WiCs can provide an alternative to general practice care for patients who need access to a health professional quickly for advice and treatment of minor illnesses and injuries. A growing number of nurse prescribers work in WiC settings.

An important new aspect of the NIP role covered in the experiment for managing acute infection is acceptability of the prescribing nurse's role to not only prescribe but diagnose. It was dealt with using the attribute 'help offered by the professional' and was considered key to understanding the potential success of rolling out NMP across the NHS.

Each attribute must be assigned at least two levels and must be set so they are plausible, feasible, and capable of being traded. This means the researcher must ensure attribute levels are sufficiently varied to distinguish between the alternatives.

Many of the assigned levels were identified with the help of the NIP and PIP national surveys and further refined in the pilot study (Section 4.9.3.6). Table 4.9.3.5.1 presents the set of attributes and levels used in the current study. It is important to note that for headache and fever the levels set for accessibility and length of consultation are specific to the alternative.

Table 4.9.3.5.1: Discrete choice experiment: attributes and levels

Attribute [Short name]	**Levels**
Vignette 1: Pre-existing hypertension – choosing between PIP and GP	
Length of consultation (minutes) [LENGTH]	5, 10, 15, 20
Professional's words & explanations about your medicines [WORDS]	difficult to understand easy to understand
Attention paid by professional to your views about medicines [ATTENTION]	appears not to listen appears to listen
Health review covers [REVIEW]	high blood pressure only high blood pressure & review of overall health
Vignette 2: Acute episode of infection – choosing between NIP, GP or watchful waiting	
Accessibility [$ACCESS_{Nurse}$, $ACCESS_{YourGP}$]	same day at WiC/next day at surgery next day at surgery/two days later at surgery
Length of consultation (minutes) [$LENGTH_{Nurse}$ $LENGTH_{YourGP}$]	10, 20, 30, 40 for nurse Or 5, 10, 15, 20 for doctor
Professional's attention to your views on problem/medicines [ATTENTION]	appears not to listen appears to listen
Help offered by professional [HELP]	only advice provided diagnosis and advice provide

4.9.3.6 Pilot

A pilot study was used to develop the DCE instrument. Twelve patients attending a study site general practice in August and September 2009 were asked to complete the DCE questionnaire followed by a short evaluation form about the questionnaire (See Appendix 11.17).

Pilot study respondents were: on average aged 45 years; 50% were female; they typically described themselves as being in 'good health'; 41% attended expecting to get a prescription today; most spent 5–10 minutes in consultation with the GP today; and 40% had experienced medicines prescribed by a NIP or PIP. Importantly, respondents related to the alternatives as they were presented by choosing between them on different occasions. Of all choices made (12 individuals x 5 choices per experiment = 60), there was complete data for 48 choices (80%). Of these, 'prescribing pharmacist' was selected on 33% of occurrences, 'your doctor' selected 65%, and 'available doctor' 2% for the hypertension experiment. Similarly, 'prescribing nurse' was selected 29%, 'your doctor' 35%, and 'do nothing' 35% for headache and fever.

Respondents' evaluation of the questionnaire showed that the vignettes described were plausible; attributes accompanying each vignette were also judged to be plausible; and asking to make 10 choices (5 per vignette) was considered 'about right'. Only one respondent stated they found the questionnaire difficult to complete and it took an average of 9 minutes to complete.

Respondents gave information about a typical visit to the doctor which informed the attribute levels used in the main survey for the fixed opt-out option typical of seeing an 'available doctor' accompanying the hypertension vignette. This was set as a worst case – 10 minute consultation; GPs words and explanations about medicine difficult to understand; GP appears not to listen to patient's views about medicines; and only review of high blood pressure covered.

The final instrument is shown in Appendix 11.18. It incorporates two DCEs within a single instrument in order to estimate separate choice models for each vignette. The instrument contains three sections: making choices for managing high blood pressure (hypertension); making choices for managing headache and fever (acute infection); and information about the individual (demographics and socio-economic status, current health, use of prescriptions and past experience of NMP). An example of a choice is given in Table 4.9.3.6.1.

Table 4.9.3.6.1: Discrete choice experiment: an example of a choice

Hypertension	Prescribing pharmacist	Your own doctor	Available doctor
Length of consultation	20 min	5 min	10 min
Professional's words & explanations about your medicines	easy to understand	difficult to understand	difficult to understand
Attention paid by professional to your views about medicines	appears to listen	appears not to listen	appears not to listen
Health review covers	only high blood pressure	both high blood pressure & overall health	only high blood pressure
Which would you choose? Tick one box only	☐	☐	☐

Headache & fever	Prescribing nurse	Your own doctor	
Accessibility	see same day at WiC	see two days later at surgery	
Length of consultation	40 min	5 min	
Professional's attention to your views on problem/medicines	appears to listen	appears not to listen	
Help offered by professional	diagnosis & medicines advice	only diagnosis	
Which would you choose? Tick one box only	Prescribing nurse ☐	Your own doctor ☐	Do nothing ☐

4.9.3.7 Validity

As DCE responses are based on the intentions of individuals (stated preferences) and do not necessarily reflect how they would behave in a real situation (for example, answering choice questions do not require respondents to actually forfeit money or resources), this means there is an understandable concern over their validity. The problem of attempting to prove that the values obtained actually do reflect people's true preferences is common to all stated preference measures. In the absence of revealed preference information (i.e. actual choice data) with which to compare, validity checks may be conducted on the data.

A test of internal consistency was built in to the choice questions using two pseudo choices, one for each vignette. These were constructed to consider responses where a preference for 'more of a good thing' is violated (Ryan *et al.*, 2005) and by implication, were inconsistent. Each of these choices contained one clearly superior option, i.e. it dominated on all, or some of, the attribute levels and had equivalent levels for any remaining attributes for which preferences could not be predicted. Thus the test applied to each vignette and had two possible outcomes: 'pass' test (by selecting dominant option at least once); and 'fail' test (by selecting dominated options in both choices).

4.9.3.8 Experimental design

A key part of designing a DCE study is the experimental design. This is used to select the combinations of attribute levels that are to be presented in the survey and make choice sets. A design has known statistical properties and is used to estimate utility functions. Both current experiments made use of three attributes with two levels and one attribute with four levels (i.e. 2 x 2 x 2 x 4 = 32 unique combinations which then had to be made into choice sets). This number would require too many choices to present in a single survey. Experimental design theory was used to select a smaller purposeful sample of choices from the complete factorial solution and make into paired choice sets.

An online design catalogue was used to derive an orthogonal fractional factorial design (i.e. uncorrelated levels of attributes) with 16 profiles (*www.research.att.com/~njas/oadir/*). Then the second choice was created using the 'foldover' technique (a standard approach where design codes assigned to the attribute increases by a constant factor to produce a uniquely different set of alternatives). The same experimental design was repeated for each of the prescribing for hypertension and headache and fever experiments. As is

good practice, the experimental design was checked for level balance (levels appear with equal frequency), orthogonality (levels of each attribute vary independently), minimum overlap (alternatives in a choice set do not overlap) and d-error (a measure of statistical efficiency which minimises the variance and standard error of the parameter estimates). The third choice in the choice sets was added as a fixed and experiment-specific option (see Table 4.9.3.4.1). The total number of choices to individuals was minimised by blocking the experimental design into different questionnaire versions. In this case four different questionnaire versions were used to accommodate the 16 choices needed to estimate utility under each prescribing scenario. Appendix 11.19 provides technical details of the experimental design (16 profiles and foldover in total and broken into four blocks for questionnaire versions) and its statistical properties (correlation matrix, level balance and d-efficiency/d-error measure).

4.9.3.9 Survey and sample

The main survey of patient preferences was conducted between September and November 2009 in five general practices that were part of the field sites used in the wider evaluation (Section 5.1.2). Members of the research team visiting the practices conducted the survey over consecutive days until they had received sufficient responses. Patients were included if they were attending a consultation to see a GP, NIP, or PIP and excluded if they were under 16 years old, if they or their companion could not complete a questionnaire in English, if they were a temporary resident, or if they were medically unable to complete a questionnaire. Patients completed the questionnaire in the waiting room or posted completed questionnaires back if they ran out of time.

As size and type of experimental design, the number of vignettes, and, hence, number of independent variables, was unknown in advance a minimum estimate of 100 responses per sub-group of interest was stipulated. At each site, researchers aimed to hand out 150 questionnaires, 38 of each version, with a minimum target response of 105 questionnaires (70%) and an overall target of 525. This is appropriate compared to similar studies and to cover analysis of anticipated models (Pearmain *et al.*, 1991).

4.9.3.10 Choice models and analysis plan

Alternative econometric models are used for analysing multiple-choice health care data. With choice sets of size three (or more) these include the conditional logit (CL) model (the workhorse for predicting the impact of attributes and contextual variables on discrete choice data), nested logit (NL), and mixed logit models (MXL) (Louviere *et al.*, 2000; Hensher *et al.*, 2005). The analysis plan for the current study was to start with the application of the CL model, examine how well the data fitted and if it was demonstrated that the strong assumptions underpinning CL are invalid then to investigate the goodness of fit of the less restrictive NL and MXL models. The analysis was undertaken using LIMDEP (*www.limdep.com*) and BIOGENE (*http://transp-or.epfl.ch/page63023.html*) software packages.

Underpinning the CL model is the assumption of independent errors which leads to the independence of 'irrelevant alternatives' (IIA). This is a strong behavioural assumption; it infers that alternatives are considered perfect substitutes. Of course this may not be the way respondents choose between alternatives in practice, as Ryan and Skatun (2004) have clearly demonstrated in the case of screening decisions. Other assumptions are that there is no heterogeneity across individuals and unobserved factors are independent over time for each respondent.

Developments of the CL model relax some or all of these three restrictions. For example, the IIA assumption can be partially relaxed to allow for more flexible substitution patterns as in the NL model. This model assumes the data can be grouped into sub-groups in a hierarchical way, so that the IIA assumption holds within sub-groups. However there are different ways in which sub-groups can be structured and it is important to select the best fitting structure. Alternatively, the MXL model fully relaxes the IIA assumption, introduces heterogeneity across individuals and allows multiple observations for each respondent. The parameters associated with each observed variable are allowed to vary randomly across respondents, and the variance in the unobserved, respondent-specific parameters induces correlation over alternatives in the stochastic part of the utility.

The choice of which model to use becomes an empirical issue. The best fitting model is selected, in this case, on the basis of information about Log-likelihood, Adjusted Rho-square, Hausman test, and Inclusive Value Parameter (IVP) test (see Hensher *et al.*, 2005). More details on the alternative models applied and the criteria adopted to choose the preferred model for analysing the data are presented in Appendix 11.20.

The CL model was applied in the first instance using a linear, main effects specification, where utility for a

particular alternative (V_i) is described by the contribution (i.e. size, sign, and statistical significance) of each attribute (β_i) and the alternative specific constants (ASC_i). This is referred to as the basic model. Utility equations based on this model are described below for each prescribing vignette. In essence the size and statistical significance of coefficient estimates (β_i) determine the relative importance of individual attributes. The sign on the estimates provides the direction of the effect. In many cases this relationship can be hypothesised. 'Correct' results then provide evidence of theoretical validity.

CL basic utility model for estimating choice of prescriber for managing hypertension

In this model subjects decide which prescriber they most prefer, with the alternatives considered simultaneously. Utility is measured compared to the reference alternative 'any doctor' and estimates obtained for the two ASC terms show how much more/less preferred seeing a 'prescribing pharmacist' or 'your own doctor' are in comparison. The utility functions are thus defined as:

$$V_i = ASC_{PH} + ASC_{yourGP} + \beta_1 \text{ LENGTH} + \beta_2 \text{ WORDS} + \beta_3 \text{ ATTENTION} + \beta_4 \text{ REVIEW}$$

Where:

V_i = utility for a particular alternative;

ASC_{PH} is the constant term for alternative 'prescribing pharmacist';

ASC_{yourGP} is the constant for alternative 'your own doctor';

β_1-β_4 = regression coefficients for attributes (1=LENGTH; 2=WORDS; 3=ATTENTION; 4=REVIEW)

CL basic utility model for estimating choice of prescriber for managing headache and fever

In the model for headache and fever utility is compared to the 'do nothing' option and estimates obtained for the two ASC terms show how much more/less preferred seeing a 'prescribing nurse' or 'your own doctor' are in comparison. The utility functions are defined as follow:

$$V_{nurse} = ASC_{nurse} + \beta_1 \text{ ACCESS} + \beta_2 \text{ LENGTH} + \beta_3 \text{ ATTENTION} + \beta_4 \text{ HELP}$$

$$V_{yourGP} = ASC_{yourGP} + \beta_5 \text{ ACCESS} + \beta_6 \text{ LENGTH} + \beta_3 \text{ ATTENTION} + \beta_4 \text{ HELP}$$

Where:

V_i= utility for a particular alternative NURSE = 'prescribing nurse' or yourGP = 'your family doctor';

ASC_i is the constant term for a particular alternative (ASC_{nurse} or ASC_{yourGP});

β_1-β_6 = regression coefficients for attributes (1= $ACCESS_{nurse}$; 2= $LENGTH_{nurse}$; 3= ATTENTION; 4= HELP; 5= $ACCESS_{yourGP}$; 6= $LENGTH_{YourGP}$).

See Table 4.9.3.5.1 to link variable short names and attributes.

CL additional models tested

In addition to the basic main effects models considered a number of other specifications were investigated. (These included covariates about health status, presence of chronic disease, past experience of NMP, gender and paying for NHS prescription.) The series of models were estimated as before using 'consistent' responders.

Sub-group analysis

It was further hypothesised that different choices may result if a respondent had experience of a NMP service. For this reason we present comparative models between all valid respondents and those with/without experience of the relevant prescribing services (i.e. for the experiment using prescribing pharmacist to treat hypertension responses were broken down by experience or not with a prescribing pharmacist and similarly for the experiment using prescribing nurse to diagnose and treat headache and fever).

4.9.3.11 Using results for policy analysis

A model can be used to generate utility scores for a given (actual or hypothesised) level of a service. Policy analysts can use this model to assess the impact of, say, quality improvements to the service. For example, in a situation where there are no additional resources to improve a given service, the model can be used to explore

the trade-offs between more of one attribute and less of another. Having decided on a linear-in-parameters utility function changes in overall utility can be estimated by assigning levels to attributes pre- and post-service improvement, applying these levels to the estimated model and summing the product of marginal utilities and the given attributes. A comparison of utility scores enables the analyst to judge whether or not a supposed quality improvement did add value.

4.10 Economic evaluation

4.10.1 Aim

The economic evaluation aimed to provide data regarding the costs and consequences associated with non-medical prescribing services provided by nurse independent prescribers (NIPs) and pharmacist independent prescribers (PIPs).

4.10.2 Methods

Results from the national surveys showed that a significant proportion of independent prescribing is done in primary care in key treatment areas and the most frequent are acute infections for NIP and hypertension for PIP. As for the DCE experiment, these vignettes were chosen because they represented the most frequently reported prescribing consultations and also to allow integrating costing data to benefit data derived from the DCE output in this study (Section 5.5.2). In particular, to reflect the specific 'headache and fever' vignette proposed in the DCE analysis, the infection vignette in the analysis covered infections of the acute upper respiratory tract.

4.10.2.1 Intervention

Two different interventions were then assessed to cover:

(i) An independent nurse prescriber service for infection (infection vignette);

(ii) An independent pharmacist prescriber service for hypertension (hypertension vignette).

4.10.2.2 Setting

All prescribing services were provided to patients attending a consultation with the prescriber (either GP or independent prescriber) at the practice. This primary care setting was chosen to reflect the main work setting of both NIPs and PIPs and was the same setting as that covered in the DCE exercise.

4.10.2.3 Population

The population covered by the interventions was taken as all the individuals attending a general practice to consult with the professionals (either GP or independent prescriber) for an acute infection (infection vignette) or hypertension (hypertension vignette) within a one week time frame. Two different scenarios were considered: at Primary Care Trust (PCT) and practice levels.

- At PCT level: the average number of practices available from the NMP leads survey was considered and the percentage of practices including an independent prescriber varied according to the vignette (see Table 4.10.2.3.1). An overall number of professionals available was calculated considering practices with and without an independent prescriber.
- At practice level: the analysis looked at an average practice offering both GP and independent prescriber services. UK workload survey (2007) and the ENPIP study informed the average number of professionals available in the practice.

Table 4.10.2.3.1: Economic evaluation: parameters included in the modelling

Parameter	Value	Source of information
At PCT level		
Mean no. of practices	63.9	ENPIP study
% of practices per PCT that have a NIP (infection vignette)	33	ENPIP study
% of practices per PCT that have a PIP (hypertension vignette)	2	ENPIP study
At practice level*		
Average GP number per practice	5	UK workload survey 2007
Average independent prescriber number per practice (either NIP for infection vignette or PIP for hypertension vignette)	1	ENPIP study
Consulting with professionals		
Average hours of prescription consultations per week		
GP	38.2	UK workload survey 2007
NIP	25.6	ENPIP study
PIP	5.1	ENPIP study
Average consultation length with a patient (min)		
GP	11.7	UK workload survey 2007
NIP	21.1	ENPIP study
PIP	18.0	ENPIP study
Average number of consulting patients per week		
GP	195.9	UK workload survey 2007
NIP	72.8	ENPIP study
PIP	17.0	ENPIP study
% of weekly consultation for infection with either GP or NIP (infection vignette)	7.3	ISD data (% of consultations for infections of the acute upper respiratory tract, GPs and practice nurse)
% of weekly consultation for hypertension with either GP or PIP (hypertension vignette)	12.9	ISD data (% of consultations for hypertension, GPs and practice nurse)

* At practice level the analysis covered an average practice scenario with both GP and independent prescriber services (either NIP or PIP)

4.10.2.4 Alternatives

The ENPIP study showed that both independent prescribers could be used by patients as a substitute for seeing a GP. The alternatives to be compared were as follows:

(i) Infection vignette: either the GPs or NIP providing a prescribing service for acute infections (combined service) in the practice/PCT vs. only GPs providing prescribing service (GP only service) for acute infections in the practice/PCT.

(ii) Hypertension vignette: either the GPs or PIP providing a prescribing service (combined service) for hypertension in the practice/PCT vs. only GPs providing prescribing service (GP only service) for hypertension in the practice/PCT.

4.10.2.5 Perspective

The analysis was conducted from the perspective of the NHS (i.e. it only includes costs incurred by the NHS and not by patients and society).

4.10.2.6 The time frame

Data availability from the ENPIP study limited the time frame to one week.

4.10.2.7 Type of economic evaluation

A cost-minimisation analysis was performed to look at the change in costs when introducing an independent prescribing service alongside a conventional GP prescribing service (combined services) compared with GP service alone (GP only service).

As secondary analysis, we integrated utility data derived from the DCE exercise to evaluate the cost consequences of introducing the non-medical independent prescribing services.

4.10.2.8 The model

Given that the incremental costs and consequences of adding the non-medical independent prescribing service to the current GP prescribing service depends crucially on the extent to which independent prescribing service acts as a substitute for the GP prescribing service for the same conditions, we developed a simple decision analytic model which allowed us to vary assumptions surrounding GP and independent prescriber workloads. In each vignette we ran the model to consider:

- Differing workload between GP and independent prescriber (baseline scenario, see Table 4.10.2.3.1 above). The ENPIP study and the UK workload survey 2007 provided figures for the average number of patients consulting per week. The average number of weekly infection or hypertension patients consulted with each professional was derived considering the estimated annual contacts with GPs/practice nurses in a general practice reported by ISD Scotland. The percentages of annual patient contacts with GPs/practice nurses for acute upper respiratory infection and hypertension were assumed to be, respectively, the percentage of consultations for infection with NIPs (infection vignette) and the percentage of consultations for hypertension with PIPs (hypertension vignette). The same estimates were considered when consulting the GP for either infection or hypertension.
- Same workload between GP and independent prescriber (same workload scenario). The total weekly infection/hypertension visits for all professionals were then evenly distributed across professionals to allow for equal workload between the GPs and the independent prescribers.

Estimates were calculated at both practice and PCT levels.

The decision tree was populated using data collected as part of the NIP/PIP national surveys and with data available from the literature. The analysis was conducted using Excel 2007. Parameters incorporated into the model and their sources are listed in Table 4.10.2.3.1.

4.10.2.9 Costs

Costs included in the model were related to prescriber professional time, whilst prescription costs were assumed to be equal across alternatives. The cost of training was estimated for the independent prescribing services (either NIP or PIP), whilst the GPs cost used did not include the training component. Infrastructure costs were all assumed as sunk costs.

Professional time

Hourly costs for GPs and NIPs from the 2009 Personal Social Services Research Unit (PSSRU) report (Curtis 2009) were used as follows:

NIP: £61 based on the PSSRU primary care category Advanced Nurse because this is costed at Band 7, the level reported most frequently by NIPs in our survey.

GP: £140

PSSRU consultation costs were used as follows:

GP: £27

NIP: The PSSRU nurse consultation length for surgery based consultations is 15 minutes whereas our NIP survey showed the mean consultation length to be 21.1 minutes. We took this into account by using the PSSRU hourly rate and the consultation length from our survey to give a consultation cost of £21 which better reflects current practice of NIPs.

The PSSRU report does not have a dataset for practice based pharmacists. We considered the PSSRU figures for hospital and community pharmacists but discounted this as we felt neither were transferable to the GP practice setting. Therefore we constructed PIP costs as follows. The most frequently reported Agenda for Change (AfC) band by by PIPs in the survey was 8. We took median Band 8 salary costs from the PSSRU report and compared these with the median for Band 7, and found a difference of around 10%. We then added 10% to

the hourly rate for NIPs and calculated PIP consultation time costs based on the mean of 18 minutes from our PIP survey. The figures were thus £67 per hour and £20 per consultation.

Training costs

NIP and PIP time:

The model includes 140 hours' training time to represent the 28 days required by the regulators. This time is, in practice, split between attendance at the HEI and personal study by distance learning and the split varies between HEIs. For the purposes of the model we have taken an average of two courses (Keele for PIPs and Southampton for NIPs) which represent relatively higher and lower percentages of distance learning. Studying using distance learning may or may not be done on the general practice premises and could be in work or personal time. Thus all, some or none of the personal study may be done in protected time allocated by the practice, making it difficult to calculate the cost to the NHS. Furthermore there are no data about what happens to the practice nurse or practice pharmacist caseload if they are out of the practice attending training, i.e. whether their caseload is transferred to someone else or deferred until they return. Taking all of these factors into account, we have costed all 140 hours at the hourly rate for consulting with patients in the practice, which is £64.

NIP and PIP training also includes a 12 day period of supervised learning in practice. We do know from our surveys of NIPs and PIPs that the vast majority did have at least 12 days. No detailed data are available on how this time is spent. Comments by individual NIPs and PIPs in the survey suggest that a substantial proportion is spent shadowing the GP and other clinical staff to observe consultations and prescribing. Some but not all respondents reported that some of their consultations were observed by their Designated Medical Practitioner (DMP). Some additional work is involved for the DMP, particularly assessing and signing off the required NMP competencies. We considered the level of uncertainty to be too high to allow a quantity of DMP time in the model.

In the PSSRU report on NHS staff costs, the costs of training pre and post-registration have been calculated and then allocated across the expected working life of the nurse to give an 'equivalent annual cost'. For primary care nurses of the level we found in our survey to be involved in prescribing as NIPs the equivalent annual cost of training without prescribing training is £10,587 per year with an additional annuitised cost of £3,676 for 'postgraduate training including prescribing training'. However the PSSRU report does not include a breakdown of how much of this additional cost is accounted for by prescribing training, nor how this figure was derived. On the basis of £10,587 per year figures the nurse costs are stated as: cost per hour £36 or £42 including training; cost per hour in surgery £61 or £73 including training; cost per hour of client contact £55 or £65 including training; and cost per surgery consultation £14 or £16 including training. Costs including postgraduate training would be higher, but are not specified.

Therefore in our model we have used the lower figure of £61 for cost per hour in surgery.

GP training time:

The PSSRU hourly rate of £140 is used, which excludes qualification costs.

Utility data

(i) Infection vignette. The DCE experiment did not present any comparison between the NIP and 'any doctor at the surgery' and utility data could not be derived for such a vignette.

(ii) Hypertension vignette. Benefit data on patient-derived utility from the GP and PIP services were derived from the DCE analysis (Section 5.5.2). Comparison between the PIP and 'any doctor in the surgery' was considered and utility measures attached for the services were calculated.

4.10.2.10 Sensitivity analysis

In addition to assessing how the costs varied according to an increased workload for the independent prescribers (see above), the sensitivity of findings to changes in salary costs was assessed. Overall estimates were also provided when excluding the training costs from the analysis.

4.11 Patient Experience Survey

4.11.1 Objective

The objective of the patient survey was to obtain:

'Views on the impact of NIP/PIP on access to medicines, quality of care, experience of the consultation and the impact of these on knowledge, adherence and patient choices and clinical outcomes'.

4.11.2 Method

4.11.2.1 Constructing the survey questionnaire

In designing the patient questionnaire we drew on two previous surveys of patients under the care of pharmacist and nurse supplementary prescribers (Stewart *et al.*, 2008; Bissell *et al.*, 2008). Although our study relates to pharmacist and nurse independent prescribers the principles are sufficiently relevant and applicable to be transferable. We contacted the researchers who had developed these questionnaires and obtained permission to use specific questions. The survey was intended to cover access to medicines, quality of care, experiences of the consultation, impact on knowledge, impact on adherence, and impact on clinical outcomes. After analysis of coverage of these issues by the existing questionnaires we formulated a small number of additional questions to cover the gaps identified. The new questions focused on clinical outcomes and on impact on adherence to explore issues from the NICE (2009) guideline on medicines adherence, together with some questions exploring access to medicines.

A key issue was how the survey might gather data on the clinical outcomes of prescribing by NIPs and PIPs and on adherence. The scope of the survey thus raised the question of whether the questionnaire could capture patient experiences relevant to both long-term and acute conditions. From our surveys of NIPs and PIPs we were aware that PIPs were prescribing mainly for long-term conditions while NIPs were prescribing for acute and long-term conditions. At the time we were piloting, the survey Stewart *et al.* were planning a Great-Britain-wide survey of patients covering all types of conditions. We therefore decided to focus our patient survey on long-term conditions in order to explore impact on adherence and patient reported experience of how well their condition was controlled when under the care of a NIP or PIP compared with their usual doctor, and also in the context of the patient's extent of prior experience of consultations with a NIP or PIP.

We considered including the MARS (Medication Adherence Report Scale) and Satisfaction with Information about Medicines Scale (SIMS) to provide additional data on patient adherence and knowledge. These were included in the patient survey for the evaluation of nurse and pharmacist supplementary prescribing. Their inclusion in the current survey would have lengthened it considerably (thus raising a concern about possible effects on response rate) and after discussion with the researchers from the supplementary prescribing evaluation we decided not to include the scales (Bissell, P., personal communication).

The pilot questionnaire was structured as follows:

- You and your health, to cover patient characteristics (including gender, age, ethnic background), number of previous consultations with the same prescribing nurse (or pharmacist), reason for consultation.
- Your views and experiences based on your most recent consultation with your prescribing nurse (or pharmacist) collected using 6 items structured on a 5-point Likert scale (from strongly agree to strongly disagree).
- You and your prescribing nurse (or pharmacist), collected using 9 items on 5-point Likert scale (from strongly agree to strongly disagree).
- Comparing your prescribing nurse (or pharmacist) to the doctor who would usually prescribe your medicines, to cover safety of care, quality of care, medicines accessibility, and patient-professional relationship. Preferences on 12 different statements were collected asking the patient to choose between the independent prescriber, their doctor or no difference.

There were ten questions from the Stewart *et al.* survey, nine from Bissell *et al.* and eight new questions, giving 27 in total. The draft questionnaire was sent to two patient representatives for review and comment. Some changes were made to the wording of questions as a result, for example the word 'treatment' was replaced with 'medicines'.

4.11.2.2 Piloting

A questionnaire evaluation pro forma was designed for the pilot survey for patients to complete after they had completed the questionnaire. Patients were asked about ease of completion, ease of comprehension, length of the survey, and confidentiality (extent to which patients felt able to answer the questions honestly), with space for comments after each question and at the end of the pro forma for any further comments or suggestions. The questionnaire was piloted with patients who saw a NIP and received a prescription in the first two pilot sites to come onstream, a WiC and an OOH centre. Questionnaires were handed to 15 patients and all were returned with the pro forma. The completed pro formas showed the questionnaire to be easy to understand and complete, of reasonable length and that patients felt comfortable answering the questions. No changes were made to the questionnaire as a result of the pilot.

In the pilot we also tested different distribution methods for the questionnaire. We excluded the handing of questionnaires to patients by the NIP or PIP because we thought this had the potential to bias responses. We therefore considered two methods of distribution: firstly the researcher handing a copy to patients while at the case study site, and secondly posting the questionnaire to a sample of the NIP or PIP's patients. We trialled the method of the researcher handing questionnaires to patients during the site visit. This was tried in the WiC, the OOH, and one general practice site and showed that this method of distribution was not feasible for several reasons. The usual pattern of practice of NIPs and PIPs was that clinics for long-term conditions were held on specific days and in many cases the throughput of patients meant that the equivalent of several weeks' clinics were needed. In one case study site the NIP worked PCT-wide and across the general practices in the PCT, visiting patients at home.

4.11.2.3 Main survey

A sample of patients from the NIP or PIP's caseload was drawn from the practice clinical system and the questionnaire (see Appendix 11.21) was sent by post with a postage paid return envelope. Records were selected if there was prescribing by a NIP/PIP in the last 12 months and then ordered either consecutively or alphabetically and names and addresses were 'pulled' until the minimum target numbers for each site were met. In total 1,010 questionnaires were posted to patients from seven primary care case study sites. It was not possible to use this method for the NIP who worked across practices in the PCT so instead she was given 35 packs to distribute to patients during her visits. The different NHS Research & Development offices set differing conditions and requirements for some aspects of the case study research. Some declined to give permission for the researcher to have access to patient contact details which meant it was not possible to conduct follow up mailings in those sites. In order to be consistent across sites, we decided not to send follow-up questionnaires.

4.11.2.4 Collecting, entering, and checking data

The questionnaires were reviewed before data entry for completeness of responses and 14 were found to have some uncompleted questions. These questionnaires were reviewed by the research team and found to have between one and four questions where there was no response. Following discussion it was decided to include these questionnaires in the analysis as the number of missing responses was low.

Data were entered into a Survey Monkey data form designed for the questionnaire with a 10% accuracy check.

4.11.2.5 Data analysis

Data were exported into SPSS. For each survey, findings were reported from the whole sample and from sub-group analyses. Information on responses, respondent characteristics, number of previous consultations with the same prescribing nurse (or pharmacist), and reasons for the most recent consultation with the prescribing nurse (or pharmacist), were analysed. Their views on (and experience of) their most recent consultation with their prescribing nurse (or pharmacist), their relationship with their prescribing nurse (or pharmacist), and the comparison between the services provided by their prescribing nurse (or pharmacist) and their doctor were also investigated. Frequencies and valid percentages were reported for the categorical data. Differences between groups were tested with Chi-squared statistics.

Sub-groups analyses: differences on their views and experiences from the prescribing services delivered by their prescribing nurse (or pharmacist) were tested according to: gender, age (older than 55 year vs younger), ethnic background (white vs others), and whether they had already experienced at least two consultations with the same prescribing nurse (or pharmacist) they were consulting that day.

Differences between groups were tested with Chi-squared statistics. Given the numbers of tests performed for both the whole sample and the sub-group analyses, significance was considered at 99% ($p<0.01$). Findings from the prescribing nurse and pharmacist surveys were then compared.

4.12 Interviews with prescribers at case sites

4.12.1 Aim

Interview data were collected at case sites in order to contribute to addressing research questions 2, 3 and 7 as specified in the original proposal:

2. What is the quality of, how safe, and how clinically appropriate is IP by nurses and pharmacists?
3. Are the operational arrangements for clinical governance and risk management for IP by nurses and pharmacists adequate and sufficiently robust to ensure patient safety?
7. What is the response of other health professionals to nurse and pharmacist IP?

Data were collected on views on prescribing quality and safety, adequacy of clinical governance of IP and the views of other health professionals on nurse and pharmacist independent prescribing. Additionally, contextual details to inform the description and interpretation of the case site, the audio-recorded consultations, and the patient record audit were collected (see summary of case site sample, MAI results and case record audit sections).

4.12.2 Method

4.12.2.1 Sample

Each of the ten nurse and pharmacist IPs at the case sites were invited to participate.

4.12.2.2 Tool development

A list of questions to capture views on key issues on safety, quality, clinical governance arrangements and the views of others on nurse and pharmacist IP was developed following early fieldwork at the first case sites, as described below. A copy of the questions is included at Appendix 11.22.

4.12.2.3 Data collection procedure

Initially, it was anticipated that each IP would take part in a semi-structured interview with a member of the research team. However, during data collection at the first sites, it became apparent that the required data on IPs' views on a range of issues was being captured during informal discussion between the site researcher and the IP. These early discussions and fieldwork both highlighted the key issues pertinent to the above questions, and also indicated that a different method of data capture could more appropriately be used. As data collection was progressing at the first sites, a schedule of questions and a pro forma to capture these views was developed (see Appendix 11.22). At each site, this was either completed by the researcher in discussion with the IP, or, if the IP was unavailable for discussion during the site visit, the IP was asked to self-complete the questions.

4.12.2.4 Data analysis

Relevant contextual, quantitative data were extracted and added to case site descriptions and results as appropriate. Qualitative comments were pasted onto a spreadsheet and subject to a simple thematic analysis (Taylor and Bogdan, 1998) using the interview topic guide as an analysis framework, to identify main themes with quantification where appropriate.

4.13 Phase 3: multi-stakeholder workshop

4.13.1 Objectives

The objectives of the multi-stakeholder workshop were to:

1. Share top-line findings and discuss their interpretation with input from wider knowledge and expertise;
2. Elicit stakeholders' views on actions needed in response to the study findings, and their priorities for these actions; and
3. Support the formulation of recommendations from the study.

4.13.2 Sample

A list of stakeholder groups was compiled by the research team. Individual members of the team then identified possible invitees using personal networks and internet searches. The collated list of individuals was then mapped across stakeholder groups with their organisations and 'constituencies' to arrive at a mix of regulators, patients, and the public

Table 4.13.2.1: Stakeholder categories for the multi-stakeholder workshop

Stakeholder group	Number invited	Additional information
NMP leads	14	12 were SHA leads; 2 were Trust leads
Regulators	2	Pharmacy and nursing regulators
Patients & the Public	6	
DH/NHS management	4	Including DH Medicines and Pharmacy Branch
PIPs	6	2 were also PCT Medicines Management leads
NIPs	4	
HEIs	8	Invitations drew on a mix of participants in the HEI focus groups and others involved in academic research into NMP (including Scotland, Northern Ireland, and Wales)
British Medical Association (BMA)/ Royal College of General Practitioners (RCGP)	3	Including Chair of GPC Prescribing Committee and RCGP Prescribing Champion
Royal College of Nursing (RCN)	3	
Pharmacy organisations	2	
National Prescribing Centre	2	
Modernising Pharmacy Careers	4	
National Patient Safety Agency (NPSA)	1	
Centre for Pharmacy Postgraduate Education (CPPE)	1	
Total	**60**	

4.13.3 Data collection

Prior to the day, participants were sent an overview of the study design and key findings on the scope and scale of nurse and pharmacist independent prescribing. The programme for the workshop comprised short inputs from the research team interspersed with structured, facilitated table discussion sessions based on a series of tasks (Fig 4.13.3.1). The inputs comprised top-line findings on Quality and Safety and on Workforce Planning and Development. Participants were seated in multi-stakeholder groups to enable discussions to incorporate different perspectives. A member of the research team was allocated to each group to facilitate discussion and write notes on the discussion. The groups were told at the beginning of the event that these notes would be part of the data collection process and they were collected at the end of the event. Each group was also asked to record key outputs onto flipcharts. Time was allocated in the programme for the groups to view each others' outputs, and a summary of key themes for suggested actions was presented back to the group prior to the final table discussion on priorities and contributions that could be made from the organisations and individuals present.

Table Discussion I: What needs to be done to continue to improve the quality and safety of nurse and pharmacist independent prescribing?
a. What changes might be needed in quality assurance of nurse and pharmacist independent prescribing? Are these any different from those for medical independent prescribing?
b. What levers and incentives might be applied, and to whom?
c. What else could be done?
Table Discussion II: What needs to be done to continue to improve workforce planning and implementation of nurse and pharmacist independent prescribing?
a. What needs to be done to strengthen workforce planning?
b. What needs to be done to ensure that Trusts are making best use of nurse and pharmacist independent prescribing?
c. What else could be done?
Table Discussion III: Priorities and actions after today
(Table discussion)
a. What priority actions are needed? Please list your top five priorities.
b. For each of your priorities in (a), who needs to be involved?
(Individuals)
c. What three things can you/your organisation do to contribute? Please write these on a Post It

Figure 4.13.3.1: Tasks for group discussion

Individuals who were not able to attend on the day were asked to contribute by completing a pro forma with the same tasks and questions addressed at the workshop.

4.13.4 Data analysis

A content analysis of the recorded outputs was conducted to identify common themes relating to recommended future actions and to identify the areas of strongest consensus for priorities.

4.14 Data triangulation

Throughout the study, we used a process of triangulation to provide a check on the integrity of inferences drawn from the data (Ritchie 2003). Our qualitative and quantitative, multiple method, study allowed the opportunity for triangulation across methods, data sources and analysts. Throughout the process of data analysis we cross-checked across methods, sources and analysts to look for similarities and differences in emerging findings. In the results chapters that follow, data from different sources and methods are organised and presented together to address key study objectives, together with triangulation of data to enhance understanding of results, as appropriate.

5 Results

5.1 Demography of participants

5.1.1 Phase 1

5.1.1.1 Survey of nurse and pharmacist independent prescribers

Response rates from NIPs and PIPs were similar at 58.0% (976 of 1462) for NIPs and 58.1% (208 of 358) for PIPs. 93% of nurse prescribers and 80% of pharmacist prescribers had used their independent prescribing qualification. A higher percentage of NIPs (86%) were prescribing independently at the time of the survey compared with PIPs (71%). The year of qualification as IP of those respondents who reported they were currently prescribing independently is shown in Table 5.1.1.1.1. Roughly half of NIPs had qualified by 2005 and half after 2005. Over three quarters of PIPs qualified in 2007, soon after conversion courses from SP became available.

Table 5.1.1.1.1: Year that NIPs (n=823) and PIPs (n=143) currently prescribing independently completed their IP course

	Pre 2003	2003	2004	2005	2006	2007	2008	2009
NIPs	4.5%	7.9%	17.6%	16.9%	25.0%	23.2%	1.5%	-
PIPs					5.6%	74.1%	18.2%	1.4%

The HEIs where NIPs completed their qualifying IP course are shown in Fig 5.1.1.1.1.

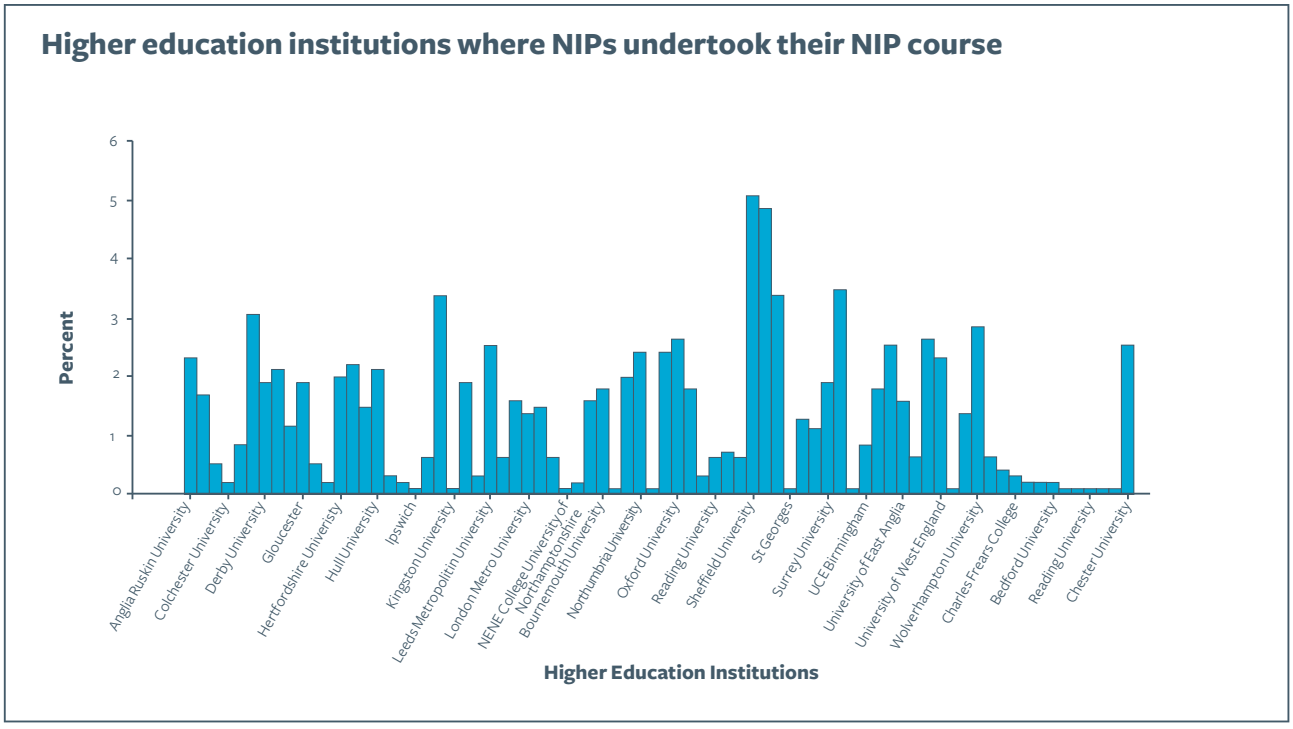

Figure 5.1.1.1.1: Higher education institutions where NIPs undertook their NIP course

The 15 HEIs at which PIPs completed their IP qualifying course are shown in Table 5.1.1.1.2. Most PIPs had completed a conversion course from SP, which was to be expected at the time of the survey, since combined SP/IP courses were accredited on a rolling programme. Based on information on the regulator's (RPSGB) website, almost all of the HEIs in England that offered conversion courses were represented among our respondents, and most of those offering combined courses from which PIPs could have qualified by the time our sample was drawn.

Table 5.1.1.1.2: HEIs at which PIPs completed their qualifying IP course (n=204)

	Conversion	Combined	Total
Keele University	36	3	39
King's College London	25	4	29
University of Bath	10	20	30
University of Bradford	3	-	3
University of Brighton	5	2	7
University of Cardiff	-	2	2
University of Central Lancashire	5	-	5
University of Chester	3	3	6
University of Derby	1	-	1
University of Hertfordshire	4	-	4
University of Leeds	13	-	13
University of Medway	4	-	4
University of Portsmouth	6	1	7
University of Reading	20	10	30
University of Sunderland	24	-	24
	159	45	204

The age profiles of survey respondents showed some differences (Table 5.1.1.1.3). Overall PIPs are younger than NIPs with almost 60% of PIPs aged under 45 compared with 40% of NIPs.

Table 5.1.1.1.3: Ages of NIP (n=976) and PIP (n=208) survey respondents

Age	NIP %	NIP no.	PIPs %	PIPs no.
Under 25	0.0%	0	0.0%	0
26-30	0.0%	0	5.3%	11
31-35	1.5%	15	19.2%	40
36-40	12.4%	121	17.3%	36
41-45	26.3%	257	16.3%	34
46-50	28.7%	280	18.8%	39
51-55	21.6%	211	17.3%	36
56-60	7.5%	73	4.8%	10
61-65	1.8%	18	1.0%	2
Over 65	0.1%	1	0.0%	0

Most respondents prescribe independently in general medical practices in primary care (one-third of NIPs and over half of PIPs). The next most frequent setting was NHS Acute Trusts with more than one-third of PIPs and one-quarter of NIPs reporting this setting. Together these two settings accounted for 91% of PIPs and 59% of NIPs. The other settings reported by substantial numbers of NIPs were home visits to patients (10.5%) and NHS WiCs (4.4%). Very small numbers of either NIPs (7) or PIPs (2) reported prescribing independently in Mental Health Trusts.

Table 5.1.1.1.4: Settings in which NIPs (n= 840) and PIPs (n=143) prescribe independently

Settings in which NIPs and PIPs worked	NIPs %	NIPs no.	PIPs %	PIPs no.
General medical practice in primary care	34.8%	340	55.2%	79
NHS Acute Trusts	24.2%	236	36.4%	52
Home visits to patients	10.5%	102	2.8%	4
NHS Walk-In Centre	4.4%	43	0.7%	1
NHS Mental Health Trust	0.7%	7	1.4%	2
Mental health service users	0.6%	6	-	0
Community midwifery	0.1%	1	-	0
Care homes	0.2%	2	1.4%	2
Nursing homes	0.1%	1	0.7%	1
Prison	0.4%	4	-	0
Hospice	0.4%	4	1.4%	2
Private hospitals	0.1%	1	-	0
Private clinics	0.6%	6	1.4%	2
Family planning clinic	2.0%	20	-	0
Sexual health clinic	0.8%	8	1.4%	2
Other	6.0%	59	12.6%	18

A range of recordable qualifications was reported by NIP respondents and the results are shown in Table 5.1.1.1.5. The most frequent were registered nurse (adult) by 52.4% and registered nurse (general) by 43.9%. Specialist practitioner qualifications were reported for general practice nursing by 14.0%, district nursing (13.1%) and health visiting (13.1%).

Table 5.1.1.1.5: Recordable qualifications reported by NIPs (n=952)

Qualification	Response Percent	Response Count
Registered Nurse Adult	52.4%	499
Registered Nurse Mental Health	7.8%	74
Registered Nurse Learning Difficulties	1.6%	15
Registered Nurse Children	6.1%	58
Registered Nurse General	43.9%	418
Registered Nurse Fever	0.9%	9
Midwifery	11.3%	108
Specialist Community Public Health Nursing - HV	6.3%	60
Specialist Community Public Health Nursing - SN	0.3%	3
Specialist Community Public Health Nursing - OH	0.2%	2
Specialist Community Public Health Nursing - RFHN	0.0%	0
Lecturer/Practice Educator	4.5%	43
Specialist Practitioner - Adult Nursing	5.8%	55
Specialist Practitioner - Mental Health	0.8%	8
Specialist Practitioner - Children's Nursing	1.5%	14
Specialist Practitioner - Learning Disability Nurse	0.1%	1
Specialist Practitioner - General Practice Nursing	14.0%	133
Specialist Practitioner - Community Mental Health Nursing	0.7%	7
Specialist Practitioner - Community Learning Disabilities Nursing	0.0%	0
Specialist Practitioner - Community Children's Nursing	0.5%	5
Specialist Practitioner - District Nursing	13.1%	125

Respondents were also asked to report their academic qualifications and the results are shown in Table 5.1.1.1.6. Almost two-thirds of NIPs reported having a degree. Pharmacy has been a degree entry profession since the 1960s, so the 65 PIPs who reported having gained a degree are likely to be reporting a degree in addition to their pharmacy first degree. Overall a higher percentage of NIPs reported having been awarded a Masters (22.3% vs 16.8% for PIPs) and a higher percentage of PIPs reported having been awarded a Diploma (65.9% vs 52.3%) or a PhD (2.9% vs 0.3%).

Table 5.1.1.1.6: Academic qualifications reported by NIPs (n=976) and PIPs (n=208)

Academic qualifications	NIP %	NIP no.	PIPs %	PIPs no.
Certificate	41.4%	404	49.5%	103
Diploma	52.3%	510	65.9%	137
Degree	62.1%	606	31.3%	65
Masters	22.3%	218	16.8%	35
PhD	0.3%	3	2.9%	6
Other	8.3%	81	6.7%	14

65% of NIPs reported that they worked full-time and 35% part-time; the percentages were almost identical for PIPs with 66% and 34% respectively.

5.1.1.2 Survey of Trust non-medical prescribing leads

In total, 87 of the 168 NMP trust leads invited to participate completed the survey – a 52% response rate (range 35–100% at SHA level). A further 16 respondents started the online version of the survey but did not complete it. These responses were not included in the final data analysis, due to large amounts of missing data (most respondents only answered the first one or two questions from a total of over 30). A detailed breakdown by SHA of numbers of Trusts with NMP leads, numbers of Trust NMP leads approached, and those responding is shown in Table 5.1.1.2.1.

Table 5.1.1.2.1: Breakdown of Trusts approached and responding by SHA

		a	b	c (response rate)	d (representativeness)
SHA	Type of Trust	Trusts with NMP leads	Trust NMP leads invited to take part† N (%)	Trusts responding N(%)	Responding Trusts as % of Trusts with NMPLs*
N.East	Foundation/Acute	9	4 (44)	2 (33)	22%
	PCT	7	3 (43)	0	0
	Mental Health	2	2	2	100
	Care	1	1 (100)	1 (100)	100%
	Total SHA	19	10 (53)	5 (50)	26%
Yorks & Humber	Foundation/Acute	9	5 (56)	2 (40)	22%
	PCT	6	3 (50)	3 (100)	50%
	Mental Health	2	2 (100)	1 (50)	50%
	Care	1	0	0	0
	Total SHA	18	10 (56)	6 (60)	33%
East Midlands	Foundation/Acute	8	1 (12.5)	1 (100)	13%
	PCT	2	1 (50.0)	1 (100)	50%
	Mental Health	2	2 (100)	2 (100)	100%
	Care	0	-	-	-
	Total SHA	12	4 (33)	4 (100)	33%

		a	b	c (response rate)	d (representativeness)
SHA	**Type of Trust**	**Trusts with NMP leads**	**Trust NMP leads invited to take part† N (%)**	**Trusts responding N(%)**	**Responding Trusts as % of Trusts with NMPLs***
West Midlands	Foundation/Acute	14	8 (57)	3 (38)	21%
	PCT	14	7 (50)	2 (29)	14%
	Mental Health	4	4 (100)	1 (25)	25%
	Care	1	1 (100)	1 (100)	100%
	Total SHA	33	20 (61)	7 (35)	21%
East of England	Foundation/Acute	18	12 (67)	5 (41)	28%
	PCT	14	4 (29)	2 (50)	14%
	Mental Health	6	6 (100)	4 (50)	50%
	Care	0	-	-	-
	Total SHA	38	22	11 (24)	29%
South West	Foundation/Acute	18	9 (50)	5 (56)	28%
	PCT	13	7 (54)	3 (43)	23%
	Mental Health	5	3 (60)	3 (100)	60.0%
	Care	1	1 (100)	0	0
	Total SHA	37	20 (54)	11 (55)	30%
SE Coast	Foundation/Acute	14	8 (57)	5 (63)	36%
	PCT	12	6 (50)	6 (100)	50%
	Mental Health	4	4 (100)	2 (50)	50%
	Care	0	-	-	-
	Total SHA	30	18 (60)	13 (72)	43%
South Central	Foundation/acute	11	6 (55)	4 (67)	36%
	PCT	10	3 (30)	2 (67)	20%
	Mental Health	1	1 (100)	1 (100)	100%
	Care	0	-	-	-
	Total SHA	22	10 (46)	7 (70)	32%
London	Foundation/Acute	34	14 (41)	6 (43)	18%
	PCT	34	16 (47)	4 (31)	15%
	Mental Health	6	6 (100)	6 (100)	100%
	Care	1	1 (100)	0	0
	Total SHA	75	37 (49)	16 (43)	21%
North West (Cheshire & Mersey) **	Foundation/Acute	19	9 (47)	4 (44)	21%
	PCT	12	6 (50)	3 (50)	25%
	Mental Health	1	1 (100)	0	0
	Care	1	0	0	0
	Total SHA	33	16 (49)	7 (44)	21%

* (column **c** divided by column **a**)
** North West (Cumbria, Lancashire, and Greater Manchester) did not participate
† excludes NMP leads invited to participate in the pilot survey

The response rate by type of Trust ranged from 46% for PCTs to 63% for Mental Health (Table 5.1.1.2.2).

Table5.1.1.2.2: Response rate by type of Trust

Type of Trust	Total number approached	Participating NMPLS (response rate %)
Primary Care	56	26 (46%)
Foundation/Acute	76	37 (49%)
Mental Health	35	22 (63%)
Care	3	2 (67%)

5.1.1.3 HEI focus groups

Twenty-three people took part. They participated in two focus groups (n=9 and n=12), and one interview with two people (due to low attendance in one area, but providing a useful detailed case study of one programme). The geographical distribution of HEIs in the sample and participants is shown in Table 5.1.1.3.1 below.

Table 5.1.1.3.1: HEI distribution across SHAs in terms of sample and participants

SHA	HEIs in sample	Individuals invited to participate	Agreed to participate	Participated
East Midlands	3	3	1	1
East of England	2	3	3	2
London	2	4	3	3
North East	3	3	3	3
North West	3	4	3	3
South Central	3	4	-	-
South West	3	2	2	2
West Midlands	4	5	3	3
Yorks & Humber	4	5	5	4
South East	3	3	3	3
Totals	28	36	26	23

The participants were:

- Nineteen programme providers from 15 different HEIs, of varying experience, professional background and role;
  - Twelve nurses, of whom one was IP-qualified and in active IP practice
  - Seven pharmacists, of whom one was IP-qualified but not practising, one was IP-qualified and practising, and one who suggested they were working towards IP
  - Most had considerable experience of providing NMP programmes, but three stated a new or changing role
  - Most were working part-time on NMP programmes
- Two current DMPs (one from primary and one from secondary care), and one previous DMP (primary care) who is now a medical adviser to a NMP programme;
- A NMP lead from a pharmacy organisation, who was IP-qualified and in active practice.

The programme providers included regulatory perspectives, as one was a member of the RPSGB Independent Prescribing Panel (who also contributed teaching to one of the programmes), and another was a participant in the NMC's current review of NMP programmes for nurses.

The participants thus reflected the diversity of programme providers in terms of professional background, geographical region, and experience. The analysis of the data resulted in consistent themes that drive the structure of the results section in this report. The success of the maximum diversity sampling, and the strength of major themes, provide a strong basis upon which to form conclusions and recommendations that

are likely to be reflective of, and relevant to, the concerns of the wider group of providers.

Analysis of information from individual HEI websites was used to systematically collect information about target audiences and delivery method of programmes. The modes of programme delivery for HEIs in the sample are shown in Table 5.1.1.3.2 below.

Table 5.1.1.3.2: HEI sample by mode of programme delivery

Mode of delivery	**Number of HEIs in sample**
Mainly face-to-face (20 days or greater)	13
Mixed	4
Mainly distance learning (fewer than 10 face-to-face days)	3
Separate face-to-face and distance learning options offered	1
Not known	7
Total	28

Table 5.1.1.3.3: HEI sample by professional groups for whom programmes were offered

Professional group	**Number of HEIs in sample**
Nurses only	11
Pharmacists only	5
Nurses + Pharmacists	5
Nurses + Allied Health Professionals (AHPs)	4
Nurses + Pharmacists + AHPs	3
Total	28

Table 5.1.1.3.4: Programme characteristics (source: data extracted from focus group discussions)

HEI	Student cohort	Pre-requisites	Teaching and learning	Assessment
FG1 HEI1	Pre-reg Nurses 500 per year			
FG1 HEI2	Nurses and midwives Some podiatrists Maybe an OT as well All M level	Clinical skills Knowledge of drugs in their area	12 days of contact – one day per week for 12 weeks General principles of prescribing e.g. pharmacokinetics and pharmacodynamics	Practice portfolio Extended essay Unseen exam Online numeracy test
FG1 HEI3	Pharmacists only But may expand Combined SP/IP Top-up also – estimate 2 years to run	Top-up – Start within 5 years of attaining SP status	8–9 days of contact Open learning methods Clinical work Directed reading	
FG1 HEI4	Nurses and AHPs (Physios, podiatrists) Combined IP/SP for nurses (SP for AHP) area 2 cohorts per year	Clinical diagnosis skills	16- or 27-week formats Numeracy Generic programme – specifics and clinical skills come from time in practice and mentor	
FG1 HEI5	Nurses and pharmacists 60 per year Combined SP/IP for nurses SP for pharmacists will add IP later in 2009 No AHP applicants despite validation Top-up also Degree level	Pre-course diagnostic numeracy test (no calculators allowed)	Visit to student and DMP in practice Strong physiology theme Half of time in practice should be spent with DMP	
FG1 HEI6	Nurses, midwives and pharmacists (equal numbers), taught together 60 per year 2 cohorts per year Top-up course once a year Degree level	Numeracy for nurses	Blended learning 8 days face-to-face for pharmacists Nurses – 2 days a week for 3 months, then 3 months in practice Online materials on pharmacokinetics, pharmacodynamics and calculations Modules on clinical skills – taught by clinicians Optional modules on advanced diagnostic technique and triaging course (Option to create Masters from NMP + one optional module) Visit to student and DMP in practice (pharmacists only)	Objective Structured Clinical Examination (OSCE) Case-based discussion in practice Practice portfolio – 20–30 cases

HEI	Student cohort	Pre-requisites	Teaching and learning	Assessment
FG1 HEI7	Nurses, pharmacists and AHPs (no interest from midwives) Combined SP/IP for nurses and pharmacists (SP for AHP) IP top-up for pharmacists	Pre-acceptance numeracy test (80% pass mark)	Six months' duration 14 days contact, 12 days using Regional interactive DVD One-day course for top-up pharmacists – very prescriptive Minimum 45 hours with DMP stipulated	Top-up – practice portfolio
Int2 HEI2	Pharmacists IP 20 students per cohort 45 credits	Competence in knowledge of clinical area in which they wish to prescribe Current CPD	Clinical skills study days supported by clinicians Predominantly distance learning – extensive pack, VLE Six study days Six months' duration – two intakes in Sept and Jan Study day practical sessions include: Taking a history, completing an examination, making an assessment, using equipment DMPs invited to first study day Some time in practice spent with NMP 'buddy'	One study day is an assessment day – OSCE – 3 stations of 20 mins each to test skills as SP, IP and as pharmacist! Manned stations – patient and assessor in room Assessed skills include use of equipment, and ability to refer Case assessment with DMP in practice Reflective portfolio (double marked by DMP and academic assessor at HEI) Three recorded review meetings with DMP – competency book to sign off
FG3 HEI1	Nurses, pharmacists (30:2) Level 3 prescribing course 40 credits at level 3 Cohort of 70 Separate M programme (shorter duration) 20 credits for M level	Pre-admission statement by the Trust that applicants meet the professional criteria e.g. Criminal Records Bureau (CRB) check, satisfactory assessment skills	16 days Blended learning 7 full days of pharmacology for nurses Pharmacists go down a more work-based, portfolio line than nurses, who have set days and big group work Pharmacists access a 20-credit level 3 full physical assessment module (joining a cohort of nurses, but not the NMP nurses – they could also join the M level if they wish, but most opt not to)	Pharmacology exam Practice portfolio Piece of work from the portfolio Assessment slightly different for level 3 and M level

HEI	Student cohort	Pre-requisites	Teaching and learning	Assessment
FG3 HEI2	Nurses, pharmacists, AHPs (radiographers, physios and podiatrists)		Traditional, not blended – 26 taught days Learning contract – opt-outs NW CD VLE – Blackboard, Student Central	
FG3 HEI3	Multi-disciplinary 8 months' duration		Distance learning Supported by 8 study days	Narrative assessed that is drawn from practice portfolio
FG3 HEI4	Pharmacists, nurses, midwives V100, V150, V300 Two cohorts per year 60 students per cohort 6 months duration	Nurses – have usually done physical assessment skills module pre-admission	Blended approach Learning contract Four pharmacology tutorials for nurses, and one advanced one for pharmacists (pre-tutorial web-based learning) Two online seminars Supporting material on Blackboard VLE One 3-hour tutorial every week for first 3 months, then two more after that 12 days in practice	Practice portfolio Case study drawn from practice portfolio is used to distinguish degree from M level OSCEs different Nurse – in practice with DMP using NMC-validated OSCE form Pharmacist – in HEI with actors as patients
FG3 HEI5	Pharmacists 30 weeks duration	Need PCT endorsement	Blended learning VLE – forum for students, assessors and DMPs (which students can't see) 10 face-to-face days Communication skills (use Calgary Cambridge guide for shared decision-making), consultation skills, clinical examination skills (medical practitioner lead) Advanced – giving bad news, capacity and consent, recognising alcohol misuse	One face-to-face day is assessment 4 assessment methods: Portfolio from time in practice OSCE Oral presentation Therapeutic medication review
FG3 HEI6	Nurses and AHPs	Need PCT/trust endorsement	Twelve taught days in first 3 months (VLE pre-tutorial work) Practice portfolio in second 3 months, supported by discussion boards and tutorials	

HEI	Student cohort	Pre-requisites	Teaching and learning	Assessment
FG3 HEI7	Nurses V100, V150, V300		Traditional – 26 taught days One study day each week – morning is practice, afternoon is pharmacology Some distance learners, with 8 tutorials supported by VLE (Blackboard, sharepoint)	Practice portfolio (min. two case studies) OSCE Prescribing practice exam Pharmacology exam Numeracy test

5.1.1.4 National safety datasets

The participants from regulators, professional indemnity insurers and NHS organisations are shown in Table 5.1.1.4.1.

Table 5.1.1.4.1: Participants in the review of national safety datasets

Regulators	
Royal Pharmaceutical Society of Great Britain	Wendy Harris, Deputy Registrar
Nursing and Midwifery Council	Adrian Daghorn, Head of Registration
Professional indemnity insurers	
National Pharmacy Association	Gareth Jones, NHS Liaison Manager
Royal College of Nursing	Chris Cox, Director of Legal Services
Medical Defence Union	Dr Karen Roberts, Clinical Risk Manager
NHS organisations	
National Patient Safety Agency	Bruce Warner, Head of Primary Care
NHS Litigation Authority	Documentary analysis

5.1.2 Phase 2: case study sites

The ten case study sites are summarised below in Table 5.1.2.1.

Table 5.1.2.1: Characteristics of case study sites

	NIP, diabetes, trust wide	NIP, asthma, Outpatients	NIP, asthma, GP	NIP, diabetes, GP	NIP, infection OOH	NIP, infection WiC	PIP, asthma, GP	PIP, diabetes, GP	PIP, CHD prevention, GP	PIP, CHD prevention, GP
Most common area	COPD	Respiratory	Infections	Family Planning	Infections	Emergency care	Asthma	Hypertension	Hypertension	Hypertension
2nd most common area	Care of the older person	–	Asthma	Asthma	ENT	Infections	COPD	CHD prevention	CHD prevention	CHD prevention
Number of patients per week	6–10	6–10	41–50	51+.	51+	11–20	11–20	21–30	<5	31–40
Number of items per week	11–20	11–20	41–50	51+	51+	11–20	31–40	21–30	21–30	41–50
Audio-recorded consultations for MAI	-	1	20	8	12	11	11	12	12	13
Audit Conducted	No	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Multiple prescribers	Yes, NIP and PIP	Yes – NIP	No	Yes	Yes – NIP	Yes – NIP	No	Yes	Yes – NIP	Yes – NIP
Patient experience survey	1	No	44	49	No	No	30	25 (PIP); 47 (NIP)	30	54
DCE conducted	No	No	Yes	No	No	No	Yes	Yes	Yes	Yes
IP interview	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Study Site Code	TW	HOSP01	GP02	GP06	OOH01	WiC01	GP05	GP04	GP03	GP01
Job Title (as defined by NIP/PIP)	Advance case manager/ Community Matron	Supported Early Discharge Nurse	Nurse Practitioner	Specialist practitioner general practice	ANP/ Matron for Unscheduled Care	Consultant nurse in unscheduled care	MD of 3 community pharmacies/ teacher practitioner/ IP	Clinical Manager	Practice based pharmacist	Medicines Management Pharmacist & Teacher Practitioner

5.1.2.1 Discrete Choice Experiment

5.1.2.1.1 Responses and background characteristics of respondents

It was not possible to calculate a response rate as such as it was not possible to keep track of total numbers of questionnaires handed out at each site. The final survey involved the return of completed questionnaires from 451 patients attending five GP practices. Ninety-five (21.1%) of respondents failed the consistency test in choices for hypertension and 96 (21.3%) failed the consistency test in choices for managing headache and fever. We report model estimates using consistent responses only. This was 356 (78.9%, 356/451 hypertension vignette) and 355 (78.7%, 355/451 headache and fever vignette). We found no significant differences in information about socioeconomics characteristics, their prescription today and experience with a NMP between the groups of 'consistent' and 'all' responders. The exception to this was consistent responders were possibly less experienced with prescribing nurse (24.3%) compared with all responders (31.3%; $p<0.05$). See Table 5.1.2.1.1.1.

Table 5.1.2.1.1.1: Raw choices and characteristics of sample

	All sample		Consistent sample	
Raw choices – hypertension vignette	n	%	n	%
Prescribing pharmacist	761	42.8	698	49.7
Your own doctor	984	55.3	686	48.8
Any doctor	34	1.9	21	1.5
Raw choices headache and fever vignette				
Prescribing nurse	722	40.8	694	49.7
Your own doctor	823	46.5	580	41.6
Do nothing	225	12.7	121	8.7
Female	217	51.9	185	52.0
Age – Median [IQR]	48	[35–62]	48	[34–58]
Chronic disease	181	40.3	146	40.9
Health Very good	50	11.2	45	12.5
Good	137	30.7	118	33.2
Neither good nor poor	118	26.5	90	25.4
Poor	121	27.1	84	23.7
Very poor	20	4.5	19	5.2
Usually pay for your NHS prescription	289	72.3	252	70.9
Income Up to £20,000	119	28.2	94	26.5
£21,000 – £40,000	165	39.1	134	37.6
More than £40,000	138	32.7	128	35.9
Expecting to get a prescription written?	250	56.1	199	55.9
Expecting to see pharmacist (hypertension)	50	19.9	79	22.2
Expecting to see nurse (headache/fever)	26	10.4	42	11.7
Reporting past experience of medicines prescribed by pharmacist (hypertension)	166	43.0	156	43.9
Reporting past experience of medicines prescribed by nurse (headache and fever)	121	31.3	86	24.3

5.1.2.2 Case record audit

The records audited are summarised in Table 5.1.2.2.1 below.

Table 5.1.2.2.1: Case record audit: summary of records audited

	No. of cases	Type of prescriber & no. of cases	Setting	Setting codes
Asthma NICE TAG 138 (2008)	85	1 x PIP (44) 1 x NIP (41)	2 general practices	GP02, GP05
Lipid modification NICE CG 67 (2008)	80	2 PIPs	2 general practices	GP01,GP03
Diabetes	77	2 x NIP	2 general practices	GP04, GP06
Lower urinary tract inection	79	2 x NIPs	2 OOH providers	OOH1, OOH2

In our original study proposal we had planned to review and describeprevious audits of NMP and medical prescribing that had been conducted in the case study sites. The Advisory Group advised against selecting only case study sites that had conducted audits in case this introduced bias.

Responses from NMPs in six of the ten case study sites indicated that some audit had been conducted in their clinical setting. Due to this possibility of atypicality and as six exemplar audits would anyway be too small a sample from which to draw conclusions, this aspect of the study was not progressed further.

5.1.2.3 Patient experience survey

A total of 273 questionnaires (141 from patients of NIPs; 132 from patients of PIPs) were collected and analysed. A small number of questionnaires presented questions with multiple answers (ten from patients of NIPs and three from patients of PIPs). Such responses were entered and questions with double answers were coded as missing data and are included in the totals.

Response rates ranged from 19% to 53% across sites (Table 5.1.2.3.1). At the site where the NIP worked PCT-wide visiting patients at home there was only one completed questionnaire.

Table 5.1.2.3.1: Patient experience survey: response rates

Primary NMP	Location (code)	No. of NMPs	No. surveys sent	No. returned	Response rate
PIP	GP01	1	100	53	53%
NIP	GP02	2	175	33	19%
PIP	GP03	2	125	30	24%
PIP + NIP	GP04	2	300	72	24%
PIP	GP05	1	75	27	36%
NIP	GP06	2	200	45	22.5%
NIP	TW	1	35	1	2.8%
			Total 1,010	273	

The majority of responses from patients of NIPs were equally collected from three participating sites (30.5%; 33.3%; 34.8%), with only 1.4% from the fourth site. One site provided almost 41% of the overall responses from patients of PIPs, whilst the remaining responses were similarly distributed across the three other participating sites (21.2%; 17.4% and 20.5%). The limited sample size did not allow testing for differences across sites. More details are reported in Table 5.1.2.3.2.

Table 5.1.2.3.2: Responses according to participating sites and patient characteristics

	Patients of NIPs		Patients of PIPs	
	n	%	n	%
Sites				
1	-	-	54	40.9
2	43	30.5	28	21.2
3	-	-	-	-
4	47	33.3	23	17.4
5	2	1.4	27	20.5
6	49	34.8	-	-
Gender				
1	47	33.3	62	47.0
2	87	61.7	65	49.2
Age				
24 years & under	7	5.0	1	.8
25 to 34 years	7	5.0	2	1.5
35 to 44 years	7	5.0	6	4.5
45 to 54 years	22	15.6	12	9.1
55 to 64 years	29	20.6	29	22.0
65 to 74 years	37	26.2	51	38.6
75 to 84 years	23	16.3	21	15.9
85 years & over	6	4.3	7	5.3
Ethnic background				
White	119	84.4	114	86.4

	Patients of NIPs		Patients of PIPs	
	n	%	n	%
Black	8	5.7	11	8.3
Asian	4	2.8	1	.8
Mixed	1	.7	3	2.3
Other	4	2.8	1	.8
I have consulted this	**....prescribing nurse**		**....prescribing pharmacist**	
Only Once	11	7.8	27	20.5
Twice	16	11.3	29	22.0
3 or 4 times	34	24.1	26	19.7
5 or more times	69	48.9	44	33.3

5.1.2.4 Interviews at case study sites

Interviews were completed with the primary prescriber at each of the ten case study sites. The research team discussed interviewing other prescribers at the sites, including medical prescribers. Medical prescribers were not employed on-site at three of the ten sites (Out-of-Hours service, Walk-In Centre, and the Trust-wide site). Potentially, this would have meant only interviewing seven medical prescribers and data saturation; the meaningfulness of interviews with a small sample of doctors with NMPs already established in their teams may have been limited. Additionally, due to delays in accessing sites caused by research governances approval processes, time at sites was limited and the feasibility of conducting interviews with medical prescribers would also have been problematic. For these reasons, further research across a larger sample of doctors who are more representative of doctors as a whole, is recommended in order to provide a meaningful analysis of their views on NIP and PIP.

5.1.3 Phase 3: multi-stakeholder workshop

In total 60 individuals were invited to participate, of whom nine contributed in writing and 34 attended the workshop (72% participation overall). The stakeholder groups represented are summarised in Table 5.1.3.1.

Table 5.1.3.1: Multi-stakeholder workshop: stakeholder groups

Stakeholder group	Number participating	
NMP leads	9/14	9 were SHA leads; 2 were Trust leads
Regulators	2/2	
Patients & the Public	4/6	
DH / NHS management	2/4	
PIPs	4/6	2 were also PCT Medicines Management leads
NIPs	2/4	
HEIs	6/8	
BMA/RCGP	3/3	
RCN	1/3	
Pharmacy organisations	2/2	
National Prescribing Centre	2/2	
Modernising Pharmacy Careers	3/4	
NPSA	1/1	
Centre for Pharmacy Postgraduate Education (CPPE)	1/1	
Total	43/60	

5.2 Scope, scale, and models of independent prescribing by nurses and pharmacists

5.2.1 Key points

- Primary care remains the predominant setting in which nurse prescribing operates; secondary care NHS Trust settings are also increasingly a context in which NIP takes place. Smaller proportions of NIPs were prescribing in a wide range of settings.
- For PIPs, primary care remains the predominant setting for prescribing. Over one-third of PIPs were also prescribing in secondary care NHS Trust settings.
- The majority of Trusts reported having NIPs, with only six reporting no NIPs in comparison to the 35 of 87 reporting no PIPs.
- The mean number of NIPs per Trust was 35.5 and of PIPs 1.6. For nurse SPs this was 17.7 and pharmacist SPs 1.6. Mean numbers of nurses per Trust using PGDs was 151.1 and for pharmacists 5.9.
- Mean numbers for Acute/Foundation Trusts were 21.4 NIPs and 2.0 PIPs and for Primary Care Trusts were 74.9 NIPs and 1.9 PIPs.
- The mean number of general medical practices per Trust with one or more NIPs was 23.6 (approximately one in three practices) and the mean number with one or more PIPs was 1.2 (just under 2% of practices).
- In Acute/Foundation Trusts, NIPs were reported to be working in 23% of inpatient and 23% of outpatient wards/departments. The equivalent figures for PIPs were 4.8% and 4.4%.
- In Mental Health/Foundation Trusts, NIPs were predominantly working in community mental health settings (47.7% of community units). NIPs were reported to be working in 5.5% of mental health inpatient wards/units. The equivalent figures for PIPs were 1.2% and 1.3%.
- Infections were cited as the most frequent area of prescribing by NIPs (15.3%), with asthma (9.8%), diabetes (7.9%), and COPD (6.1%) in the top five most frequently prescribed for treatment areas.
- PIP prescribing was focused in cardiovascular treatments, with hypertension cited as the most frequent area by the greatest proportion of respondents (25.0%), cardiology by 9.6%, and CHD prevention by 5.8%.
- Clinical conditions which showed largest increases in numbers of NIPs reporting involvement after qualifying as a prescriber were: dermatology (46.3%), pain management (44.6%), and infections (41.6%). For PIPs these were hypertension (38%), CHD prevention (47%%), and diabetes (36%).
- Consistent with the nature of conditions frequently prescribed for, 73.8% of NIPs reported making the diagnosis on most occasions in their prescribing practice, whereas most PIPs (77.6%) reported that they mainly work from a diagnosis made by another health care professional on most occasions.
- Two-thirds of the NIP sample prescribed for 11 or more patients per week. 15.5% of the sample prescribe for more than 50 patients per week.
- Just over two-thirds (71%) of PIPs prescribe for up to 20 patients per week, 39% of these prescribe for less than ten patients per week and few (6%) prescribe for above 40 per week.
- 66.4% of NIPs and 42.7% of PIPs said that they prescribe instead of a medical independent prescriber in their most frequent treatment area.
- The predominant form of supplying medicines to patients is independent prescribing. However, many NIPs (41.4%) use PGDs and smaller proportions use supplementary prescribing (17.6%). For PIPs supplementary prescribing is used by 35.7% and PGDs by 17.5%.
- On average 88.5 % of a NIP's prescribing practice is via IP, 3.5% via PGDs, 5.4% via SP, and 2.3% via prescription signed by others. For a PIP, on average 80.4% of their prescribing practice is via IP, 7.1% via PGDs, 2.3% via SP, and 10.1% via prescription signed by others.

This Chapter will present results addressing the study question, 'what is the scope and scale of independent prescribing by nurses and pharmacists?' Results are presented from the national survey of NMP Trust leads as well as the national survey of NIPs and PIPs in order to outline key dimensions of the scope and scale of NIP and PIP and to describe prescribing models in operation.

5.2.2 National survey of NMP Trust leads

Data from the national survey of NMP Trust leads provides a picture across Trusts to triangulate with information from individual NIPs and PIPs. In addition the NMP Trust leads' data enable contextualistion of implementation of independent prescribing alongside supplementary prescribing and the use of Patient Group Directions (PGDs).

5.2.2.1 Numbers of prescribers and prescriber type in Trusts

Respondents were asked to state the total numbers of medical, nurse and pharmacist prescribers and also nurses and pharmacists using PGDs. The results are shown in Table 5.2.2.1.1.

Table 5.2.2.1: Mean number of prescribers in survey Trusts

Type of Prescriber	Responses (of Total N=87)	Mean	Range min.	Range max.
Medical Independent Prescribers	51	159.7	0	1500
Nurse Independent Prescribers	86	35.5	0	400
Nurse Supplementary Prescribers	84	17.7	0	146
Pharmacist Independent Prescribers	86	1.6	0	10
Pharmacist Supplementary Prescribers	82	1.6	0	51
Nurses using PGDs	49	151.1	0	2000
Pharmacists using PGDs	59	5.9	0	100

The mean number of NIPs per Trust was 35.5 and of PIPs 1.6. The majority of Trusts (81) reported having NIPs, with only six reporting no NIPs in comparison to the 35 of 87 reporting no PIPs.

Four of these respondents said that their Trusts had not yet implemented independent non-medical prescribing:

– 'Awaiting approval to develop independent non-medical prescribing'
– 'Trust currently does not support IP prescribing as SP supports good practice in most areas of psychiatry'
– 'There are ten Supplementary/Independent Nurse Prescribers but none has started independent prescribing yet. At the moment only two are actively prescribing as supplementary prescribers'
– 'All our nurses and pharmacists are qualified as independent prescribers, however our trust places additional demands before they are placed on our register and before they can apply to practice at an independent level'

In addition to ascertaining the actual numbers of different prescribers within Trusts we had also hoped to be able to calculate relative proportions of non-medical and medical prescribers.

The majority of respondents were able to state the numbers of nurse and pharmacist prescribers working in their Trust. Fewer respondents were able to state the numbers of medical independent prescribers or of nurses and pharmacists using PGDs.

– 'Nor do I keep records of Medical Independent Prescribers'
– 'I cannot give figures for MIPs'

In relation to PGDs, respondents' comments suggested they were often widely used and difficult to keep track of when they were in different parts of the organisation.

– 'We do use PGDs extensively throughout the Trust but I cannot tell you how many practitioners use them'
– 'In order to ascertain how many nurses use PGDs I would have to audit about 100 across the Trust which would take me about 6 months!'
– 'Unable to identify the number of nurses using PGDs as registers held by various services'

– 'I do not keep records of those using PGDs although managers do'

Table 5.2.2.2 shows the numbers of different prescribers by type of Trust.

Table 5.2.2.2: Numbers of different prescribers by type of Trust

	Acute/ Foundation Trust	Care Trust	Mental Health/ Foundation Trust	Primary Care Trust
	Mean	Mean	Mean	Mean
Medical Independent Prescribers	249.2	1.0	103.5	119.0
Nurse Independent Prescribers	21.4	29.5	12.0	74.9
Nurse Supplementary Prescribers	9.0	.0	15.0	34.9
Pharmacist Independent Prescribers	2.0	1.0	.7	1.9
Pharmacist Supplementary Prescribers	.8	.0	.6	3.8

Table 5.2.2.3: Mean numbers of nurses and pharmacists using PGDs in Trusts

	Acute/ Foundation Trust	Care Trust	Mental Health/ Foundation Trust	Primary Care Trust
	Mean	Mean	Mean	Mean
Nurses using PGDs	154.9	255.0	53.5	249.2
Pharmacists using PGDs	1.0	.0	.0	22.7

The numbers of NMPs may depend on many factors including the overall number of nurse and pharmacist employees in the Trust, whether the Trust has a NMP strategy and also on local needs. PCTs were reported to have a mean of 74.9 NIPs, with Acute/Foundation Trusts having 21.4. Numbers of PIPs were substantially lower at 1.9 and 2.0 respectively. Supplementary prescribing by PIPs was more frequently reported in primary care than in secondary care.

5.2.2.2 NMPs in primary care

Respondents whose responsibility covered PCTs were asked about numbers of NIPs (specifically practice nurses and nurse practitioners) and PIPs working in general practices (Table 5.2.2.2.1).

Table 5.2.2.2.1: Non-medical prescribers in general medical practices

	Primary Care Trust Models		
	General medical practices in the Trust that have a practice nurse/s working as a NIP	General medical practices in the Trust that have nurse practitioner/s working as a NIP	General medical practices in the Trust that have one or more PIPs
	Mean (SD)	Mean (SD)	Mean (SD)
General medical practices with 1 NIPs	14.6 (11.71) (n=22)	7.7 (5.45) (n=12)	
General medical practices with 2 NIPs	4.2 (9.3) (n=20)	0.9 (1.46) (n=12)	
General medical practices with more than 2 NIPs	4.8 (11.71) (n=20)	0.5 (0.88) (n=12)	
General medical practices with 1 PIP			1.1 (1.41) (n=18)
General medical practices with 2 PIPs			0.1 (0.24) (n=17)
General medical practices with more than 2 PIPs			0 (n=17)

The respondents (n=23) reported the number of general medical practices in their PCT, the mean number was 63.9 (SD 33.26, range: 6–157, n=23).

The mean number of general medical practices with one or more NIPs was 23.6 (approximately one in three practices) and the mean number with one or more PIPs was 1.2 (just under 2% of practices).

Respondents were asked to state the numbers of different types of PCT service models (e.g. NHS Walk-In Centre) and the numbers of NIPs and PIPs working within these services (Table 5.2.2.2.2).

Table 5.2.2.2.2: Numbers of different service models per PCT with NIP and PIP prescribers

Primary Care Trust Models	Total of Each model	NIPs	PIPs	Both a NIP and a PIP
	Mean (SD)	Mean per model (SD)	Mean per model (SD)	Mean per model (SD)
NHS Walk-In-Centres in the trust (n=13 PCTs)	0.8 (1.20)	3.0 (4.94)	0	0
Family planning clinic in the trust (n=13 PCTs)	5.4 (4.35)	2.3 (2.93)	0.33 (1.41)	0.94 (1.96)
Sexual health clinics in the trust (n=10 PCTs)	4.1 (4.27)	1.7 (2.79)	0.26 (1.15)	0.42 (1.31)
Community Nurses (adult) (n=13 PCTs)	164.7 (93.21)	22.3 (34.72)	-	-
Specialist Community Nurse (n=16 PCTs)	27.8 (43.15)	10.2 (11.87)	-	-
Community Children's Nurse (n=9 PCTs)	6.2 (16.97)	0.88 (1.36)	-	-

5.2.2.3 NMPs in secondary care

Respondents whose NMP responsibility focused on Acute/Foundation Trusts were asked about numbers of departments/wards and numbers of NIPs and PIPs (Table 5.2.2.3.1).

Table 5.2.2.3.1: Numbers of non-medical prescribers in Acute/Foundation Trusts

	NHS inpatients	NHS outpatients
	Mean (SD)	Mean (SD)
Departments/wards in the trust	26.9 (13.66) (n=29)	15.2 (13.04) (n=26)
Department/wards with 1 or more NIP/s	6.2 (8.63) (n=32)	3.5 (2.17) (n=31)
Department/wards with 1 or more PIP/s	1.3 (1.65) (n=32)	0.68 (1.12) (n=34)
Department/wards with both a NIP and a PIP	0.8 (1.89) (n=34)	0.61 (1.73) (n=33)
Number of PIPs that work across various trust department/wards	1.2 (2.24) (n=33)	0.94 (2.15) (n=32)
Number of NIPs that work across various trust department/wards	6.3 (11.76) (n=33)	3.0 (4.73) (n=30)

NIPs were reported to be working in 23% of inpatient and 23% of outpatient wards/departments. The equivalent figures for PIPs were 4.8% and 4.4%. In addition, Trusts had a mean of 6.3 NIPs working across more than one inpatient ward/department and 3.0 across more than one outpatient ward/department. The equivalent figures for PIPs were 1.2 and 0.94.

Table 5.2.2.3.2: Numbers of non-medical prescribers in Mental Health Trusts

	Mental Health/Foundation Trusts	
	NHS inpatients	Community mental health
	Mean (SD)	Mean (SD)
Number of departments/wards in the Trust	51.1 (73.34) (n=15)	-
Number of potential prescribing units in the Trust (e.g. number of clinics)	-	15.5 (24.50) (n=19)
Depts/wards/units which have 1 or more NIP/s	2.8 (4.34) (n=20)	7.4 (12.37) (n=22)
Depts/wards/units which have 1 or more PIP/s	0.6 (1.17) (n=19)	0.2 (0.56) 0.3 (n=19)
Dept/wards/units which have both a NIP and a PIP	1.1 (4.36) (n=17)	0.1 (0.24) 0.2 (n=19)

NIPs were reported to be working in 5.5% of inpatient wards/units and 47.7% of community mental health units. The equivalent figures for PIPs were 1.2% and 1.3%.

5.2.3 National survey of NIPs and PIPs

The data presented here are from the 862 NIPs and 143 PIPs who reported that they were currently prescribing.

5.2.3.1 Changes to service delivery areas

We asked NIPs and PIPs about changes to service delivery areas they were involved in before and after undertaking the course to give an indication of the impact of the IP qualification on patterns of service delivery. Table 5.2.3.1.1 shows the areas for NIPs in which the largest changes were reported. Areas that relatively large numbers of NIPs were involved in which showed largest rises in numbers of NIPs reporting involvement now as opposed to before qualifying as a prescriber were: dermatology (46.3%), pain management (44.6%), and infections (41.6%). There were three areas with fewer NIPs involved prior to training and that showed substantial increases. Prior to qualifying as a prescriber, 68 NIPs reported they were involved in mental health – this increased to 118 (73.5%) after qualification. Gastrointestinal was an area of prescribing for 124 NIPs prior to qualifying and increased to 211 afterwards (70.1%). For ear, nose, and throat (ENT) the numbers were 142 and 215 (a 51.4% increase).

Table 5.2.3.1.1: Highest changes in NIP involvement in treatment areas following IP training

	No. of NIPs prior to training	No. of NIPs after training	% increase
Dermatology	231	338	46.3%
Pain management	222	321	44.6%
Infections	303	429	41.6%
Mental health	68	118	73.5%
Gastrointestinal	124	211	70.1%
ENT	142	215	51.4%

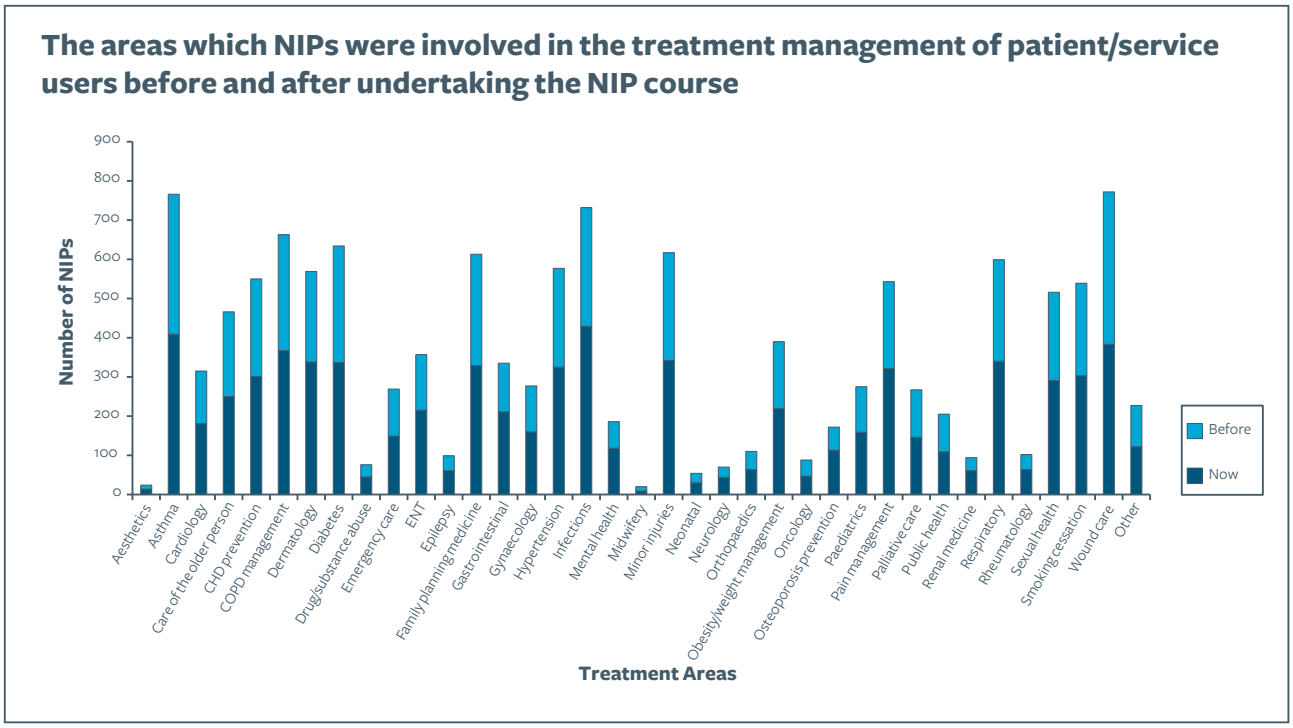

Figure 5.2.3.1.1: Changes for all treatment areas in which NIPs reported they were involved prior to and after training

Table 5.2.3.1.2 shows the areas where PIP showed the largest changes. Areas in which comparatively large numbers of PIPs worked in which showed largest rises in numbers of PIPs reporting involvement now as opposed to before qualifying as a prescriber were: hypertension (38%), CHD prevention (47%%), and diabetes (36%),

There were three areas with fewer PIPs involved prior to training and that showed substantial increases. Prior to qualifying as a prescriber, 24 PIPs reported they were involved in osteoporosis prevention and this increased to 38 (58%). Weight management was an area of work for 11 PIPs prior to qualifiying and increased to 27 afterwards (145%). For pain management the numbers were 26 and 35 (35% increase).

Table 5.2.3.1.2: Highest changes in PIP involvement in treatment areas following IP training

	No. of PIPs prior to training	No. of PIPs after training	% increase
Hypertension	53	73	38%
CHD prevention	38	56	47%
Diabetes	33	45	36%
Pain management	26	35	35%
Osteoporosis prevention	24	38	58%
Weight management	11	27	145%

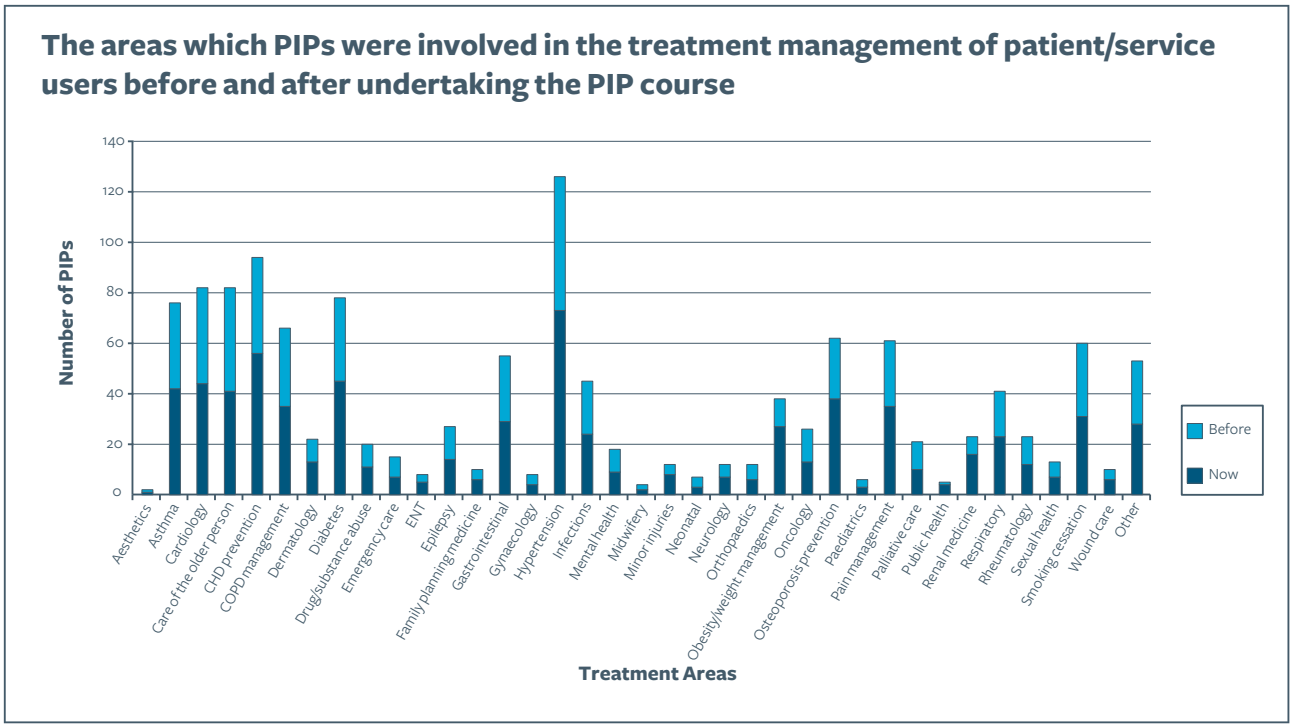

Figure 5.2.3.1.2: Changes for all treatment areas in which PIPs reported they were involved prior to and after training

5.2.3.2 Clinical settings in which NIPs and PIPs prescribe

Table 5.2.3.2.1 shows the settings in which NIPs are prescribing. Whilst primary care remains the predominant setting in which nurse prescribing operates, secondary care NHS Trust settings are also increasingly a context in which nurse independent prescribing takes place. A higher mean number of hours per week prescribing was also reported for secondary care compared to primary care settings. Smaller proportions of the sample were prescribing in a wide range of settings, consistent with the heterogeneous nature of the sample and the variety of contexts in which nursing is practised. A range of patient groups are clearly in receipt of nurse prescribing.

Table 5.2.3.2.1: Setting/s and mean number of hours per week in which NIPs prescribe independently (n=840)

Setting	%NIPs	Hrs / week
General medical practice in primary care	40.8% (n=343)	26.8 hours
NHS Trust	28% (n=235)	33.9 hours
Home visits to patients	20.9% (n=138)	16.1 hours
NHS Walk-In Centre	6.7% (n=56)	24.9 hours
Family planning clinic	4.8% (n=40)	8.2 hours
Care homes	3.6% (n=30)	6.4 hours
Nursing homes	3.5 % (n=29)	5.5 hours
Sexual health clinic	2.4% (n=20)	11.7 hours
NHS Mental Health Trust	1.0% (n=8)	16.7 hours
Mental health service users	0.7% (n=6)	8.4 hours
Community midwifery	0.4% (n=3)	1.7 hours
Prison	0.7% (n=6)	23 hours
Hospice	1% (n=8)	13.1 hours
Private hospitals	0.4% (n=3)	13.3 hours
Private clinics	0.7% (n=6)	21.2 hours
Other	12.1% (n=10)	14.3 hours

Table 5.2.3.2.2 shows the settings in which PIPs were prescribing. Primary care remains the predominant setting in which pharmacist prescribing operates. Over one-third were also prescribing in secondary care NHS Trust settings. Very small numbers of PIPs were prescribing in any other setting. The number of hours per week PIPs spent on prescribing was lower than NIPs.

Table 5.2.3.2.2: Setting/s and mean number of hours per week in which PIPs prescribe independently (n=143)

Setting	% PIPs	Hrs / week
General medical practice in primary care	54.5% (n=78)	5.1 hours
NHS Trust	35% (n=50)	4 hours
Home visits to patients	2.1% (n=3)	1.3 hours
Care homes	1.4% (n=2)	1 hour
Nursing homes	0.7% (n=1)	2 hours
Sexual health clinic	1.4% (n=2)	8.5 hours
NHS Mental Health Trust	1.4% (n=2)	2.7 hours
Other	12% (n=17)	3 hours

5.2.3.3 Treatment areas NIPs and PIPs prescribe for

Table 5.2.3.3.1 shows the most common treatment areas in which NIPs prescribe most frequently. These reflect a mix of acute and long-term conditions, as well as a range of specialities and mirror the diversity of roles in which nurses operate. Infections were cited as the most frequent area by the greatest proportion of respondents; the NIP contribution to long-term conditions management is also apparent, with asthma, chronic obstructive pulmonary disease (COPD), and diabetes in the top five most frequently prescribed for treatment areas. These are also likely to be linked to the predominant primary care emphasis of NIPs' prescribing settings.

Table 5.2.3.3.1: The treatment areas NIPs prescribe in most frequently

Treatment area	%	number
Infections	15.3%	(n=125)
Asthma	9.8%	(n=80)
Diabetes	7.9%	(n=64)
COPD	6.1%	(n=50)
Family planning	5.8%	(n=47)
Wound care	5.6%	(n=46)
Dermatology	4.2%	(n=34)
Pain management	4.0%	(n=33)
Minor injuries	3.9%	(n=32)
Cardiology	3.7%	(n=30)
Respiratory	3.3%	(n=27)

Table 5.2.3.3.2 shows the treatment areas in which PIPs prescribe most frequently. These primarily reflect long-term conditions and a range of specialities. Prescribing was focused in cardiovascular treatments, with hypertension cited as the most frequent area by the greatest proportion of respondents (25.0%), cardiology by 9.6%, and CHD prevention by 5.8%. Acute conditions were less apparent with infections reported as the most frequent treatment area by 4.4% of PIPs.

Table 5.2.3.3.2: The treatment areas PIPs prescribe in most frequently

Treatment area	% (n) PIPs
Hypertension	25.0% (34)
Cardiology	9.6% (13)
Asthma	6.6% (9)
CHD prevention	5.8% (8)
Care of older people	5.8% (8)
Oncology	5.8% (8)
Diabetes	4.4% (6)
Infections	4.4% (6)
Drug/substance misuse	3.7% (5)
Gastrointestinal	2.9% (4)

5.2.3.4 Prescribing for complex cases

A further indication of the contribution of NMPs to prescribing is highlighted by response to the question of prescribing for routine and complex cases: in relation to the treatment area most frequently prescribed in, 61.5% of NIPs reported prescribing for complex cases. For the second most common treatment area, prescribing for complex cases was reported by 52.3% of the NIP sample. For PIPs, 66.4% reported prescribing for complex cases in their most common treatment area. For the second most common treatment area, prescribing for complex cases was reported by 44.7% of the sample.

5.2.3.5 Volume of prescribing

Asked about the number of patients prescribed for weekly, one-third of NIPs prescribe for between 11 and 30 patients per week, and a further third prescribe for higher number of patients, above 40 per week (Table 5.2.3.5.1). That is, two-thirds of the sample prescribe for 11 or more patients per week. Higher proportions of NIPs who reported ENT ($p<0.03$), family planning ($p<0.003$), and infections ($p<0.0001$) as their main treatment area they prescribe in reported prescribing 51+ items per week. Whilst data need to be viewed in light of the fact that approximately one-third of NIPs were working part-time, Table 5.2.3.5.1 indicates that one-third of the sample prescribe for less than ten patients per week. NIPs who cited COPD ($p<0.0001$), care of the older person ($p<0.004$), and mental health ($p<0.03$) as the treatment area they prescribed in most were more frequently reporting prescribing for fewer than five patients per week. An overall similar pattern of volume of prescribing emerges for the number of items NIPs prescribe each week (Table 5.2.3.5.2).

Table 5.2.3.5.1: In a typical week how many PATIENTS do you prescribe for as a nurse independent prescriber?

Number of patients	% of NIPs
fewer than 5	19.3%
6–10	14.4%
11–20	17.3%
21–30	16.7%
31–40	7.6%
41–50	9.3%
51 plus	15.5%

Table 5.2.3.5.2: In a typical week how many ITEMS do you prescribe as a nurse independent prescriber?

Number of patients	% of NIPs
fewer than 5	17.7%
6–10	13.9%
11–20	16.1%
21–30	15.0%
31–40	8.7%
41–50	8.0%
51 plus	20.6%

When asked about the number of patients prescribed for weekly, just over two-thirds (71%) of PIPs report prescribing for up to 20 patients per week, and few (6%) prescribe for above 40 per week. Table 5.2.3.5.3 indicates that 39% of the sample prescribe for less than ten patients per week. A similar pattern emerges for the number of items PIPs prescribe each week. However, data need to be viewed in light of the limited number of hours per week PIPs spent prescribing.

Table 5.2.3.5.3: In a typical week how many PATIENTS do you prescribe for as a pharmacist independent prescriber?

Number of patients	% of PIPs
fewer than 5	29.4%
6–10	19.9%
11–20	22.1%
21–30	15.4%
31–40	7.4%
41–50	2.2%
51 plus	3.7%

Table 5.2.3.5.4: In a typical week how many ITEMS do you prescribe as a pharmacist independent prescriber?

Number of patients	% of PIPs
fewer than 5	21.0%
6–10	18.2%
11–20	16.8%
21–30	18.2%
31–40	10.5%
41–50	4.2%
51 plus	11.2%

5.2.3.6 Average consultation length

The average consultation time reported by NIPs for a prescribing consultation was 21.21 minutes and for PIPs 18.01 minutes.

5.2.3.7 Prescribing for children

Just over half of the NIP sample (52.5%, n=441) reported prescribing medicines for children and Figure 5.2.3.7.1 shows the main areas of this .

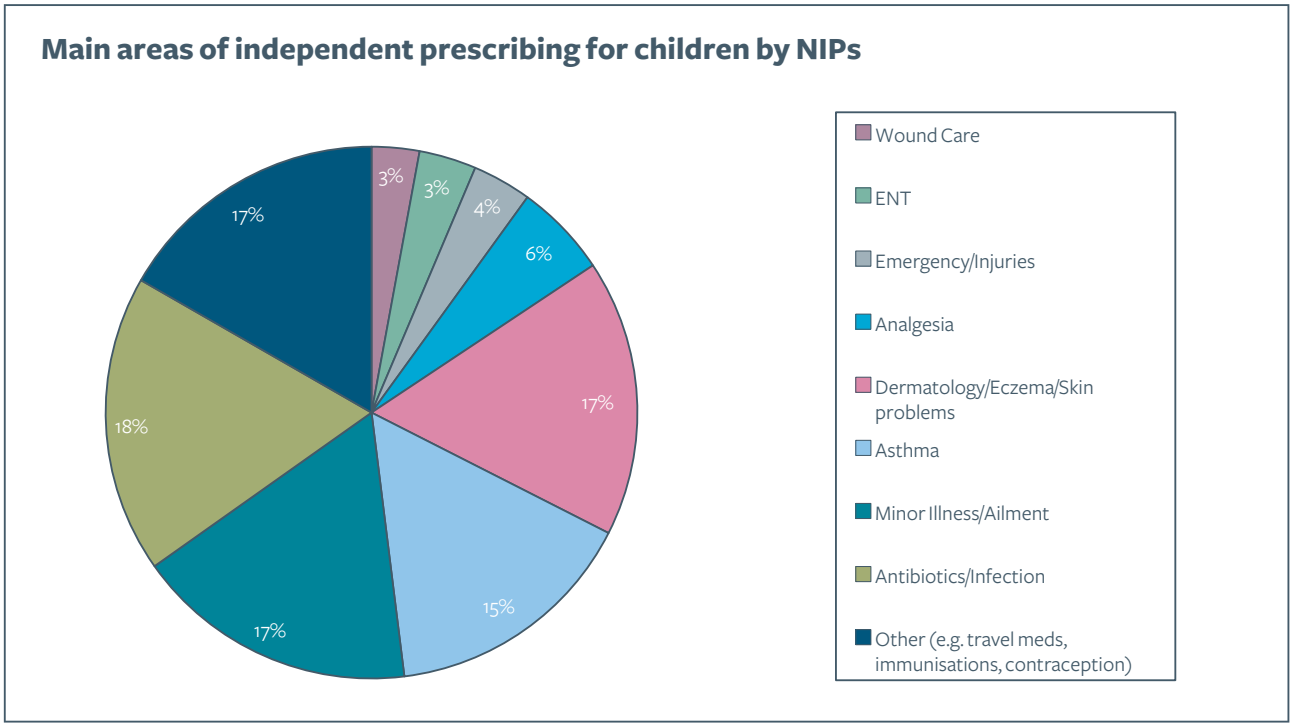

Figure 5.2.3.7.1 Main areas of nurse independent prescribing for children

Around one in five of the PIP sample, 18.2% (n=26) reported prescribing medicines for children. The main treatment areas were asthma/respiratory (13) and minor illness/ailments (8).

5.2.3.8 Forms of prescribing used

For respondents in our survey, the predominant form of supplying medicines to patients was via independent prescribing. However, many of the sample also used other forms. For NIPs, PGDs were used by 41.4%; smaller proportions used supplementary prescribing (17.6%) and printing-off a prescription for another prescriber to sign (15.8%). For PIPs, printing-off a prescription for another prescriber to sign was reported by 43.4%, supplementary prescribing is used by 35.7%, and in some circumstances PGDs (17.5%). On average 88.5 % of a NIP's prescribing practice was via IP, 3.5% via PGDs, 5.4% via SP, and 2.3% via prescription signed by others. For a PIP, on average 80.4% of their prescribing practice is via IP, 7.1% via PGDs, 2.3% via SP, and 10.1% via prescription signed by others.

5.2.3.9 Diagnosing and prescribing

Consistent with the use of IP to independently manage an episode of care, 73.8% (n=620) of NIPs reported making the diagnosis on most occasions in their prescribing practice, whilst 18.7% (n=157) reported working from a diagnosis made by another health care professional on most occasions. A higher proportion of NIPs who worked in primary care (85.5%) reported making the diagnosis on most occasions compared to those working in NHS Trusts (55.5%) and home visits to patients (65.7%). The prevalence of making diagnoses may be closely linked to the conditions (such as infections, dermatology and wound care) that NIPs report prescribing frequently for; it is probable that doctors remain the first point of contact for initial diagnoses of, for example, diabetes and asthma.

For PIPs, a contrasting model was reported: most respondents (77.6%) reported that they mainly work from a diagnosis made by another health care professional on most occasions. A higher proportion of PIPs who worked in primary care (20.5%) reported making the diagnosis on most occasions compared to those working in NHS Trusts (8.5%). Again, this is likely to be linked to the nature of conditions PIPs prescribe for and typical referrals patterns from doctors (who initially make a diagnosis for patients) onwards to pharmacist prescribers.

5.2.3.10 NMP substitution for medical prescribing

A further dimension of the impact of NMP is provided by responses to an item shown in Table 5.2.3.10.1. For NIPs, two-thirds said that they prescribe instead of a medical independent prescriber in their most frequent treatment area, and over half considered they were replacing doctor prescribing in their second most common treatment area. This pattern was consistent across all treatment areas NIPs prescribed in and gives some indication that there was been a workload shift in prescribing for areas commonly prescribed in by NIPs, such as infections, asthma, diabetes, and COPD.

Table 5.2.3.10.1: In relation to your two most common treatment areas, do you prescribe instead of, or in addition to, a medical independent prescriber for the same group of patients (NIPs)?

	Instead of	In addition to	Response Count
Most common treatment area	63.9%	36.1%	794
Second most common treatment area	55.4%	44.6%	729

More generally, over half (57%) of the sample responded that they thought that doctors in their own clinical setting were prescribing less as a consequence of their own prescribing.

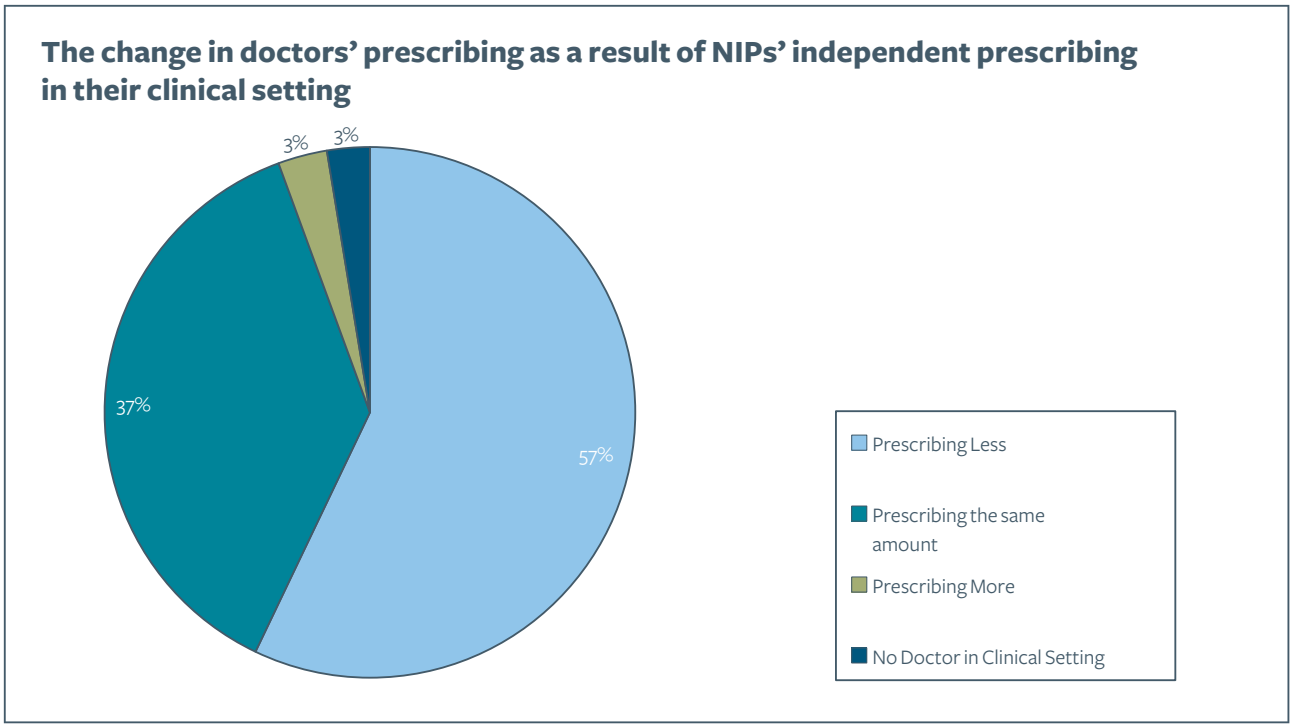

Figure 5.2.3.10.1: As a result of your independent prescribing, do you think that doctors in your clinical setting are prescribing...

39.7% of PIPs said that they prescribe instead of a medical independent prescriber in their most frequent treatment area, and a third considered they were replacing doctor prescribing in their second most common treatment area.

Table 5.2.3.10.2: In relation to your two most common treatment areas, do you prescribe instead of, or in addition to, a medical independent prescriber for the same group of patients (PIPs)?

	Instead of	In addition to
Most common treatment area	39.7% (54)	60.3% (82)
Second most common treatment area	33.0% (36)	67.0% (73)

More generally, almost half (48%) of the PIP sample responded that they thought that doctors in their own clinical setting were prescribing less as a consequence of their own prescribing.

5.3 Safety, quality, and clinical appropriateness of nurse and pharmacist independent prescribing

5.3.1 Key points

- The majority of NIPs and PIPs surveyed report that they have the requisite prescribing skills and knowledge and are prescribing only within their competence.
- However, a small minority of NIPs (6%) and PIPs (9.8%) had concerns that they were prescribing outside of their competence, and 25% of NIPs and 27.4% of PIPs 'feared making an incorrect diagnosis'.
- Nearly one-third of PIPs were either uncertain (21.8%) or agreed (10.5%) that 'I do not have the clinical examination skills to be a safe independent prescriber'.
- Nearly two-thirds of NIPs (58%) and one-third of PIPs (28.2%) have concerns about prescribing for patients with co-morbidities.
- The majority of NIPs (56%) would not feel confident prescribing a greater range of controlled drugs, whereas the majority of PIPs (59.2%) reported that they would feel confident to do this.
- When communicating about medicines to support adherence, most of the sample reported that they discuss patient concerns, misunderstandings, and side effects of medicines; however, less than two-thirds of both NIPs and PIPs reported discussing patients' beliefs about medicines and/or the necessity of medicines prescribed.
- Raters' analysis of a sample of NMPs' consultations using the MAI showed NIPs and PIPs were prescribing clinically appropriately across a range of prescribing indicators, although mean inappropriate ratings given for the costs of drugs prescribed by both NIPs and PIPs indicates that this area warrants further research.
- Many overall positive comments were made by raters on the safety and effectiveness of prescribing episodes; however over 25% of consultations attracted some comment about potential for improvements in NIPs' and PIPs' history-taking, assessment and diagnosis skills.
- In the case record review total 321 records were audited (Asthma 85; Diabetes 77; Lipid modification 80; Lower urinary tract infection 79) from seven NIPs and three PIPs.
- For asthma, lipid modification, and diabetes, team involvement in patient care and different points at which the NIP or PIP started to manage a patient's condition meant that some aspects of care were likely to have been initiated and/or modified by other clinicians.
- Recording of the provision of written information to patients and carers was variable although the audit found that some written information was provided to most patients.
- The audits found no evidence of use of the information produced by NICE for patients and carers.
- The asthma audit found that the least costly inhaled corticosteroid (ICS) was not prescribed in most cases; in lipid modification while most patients were initiated on simvastatin many were on doses lower than recommended by NICE; in the diabetes audit the NICE recommendations for initial prescribing were met in all cases and the treatment pathway followed in the majority; and in the audit of diagnosis and treatment of uncomplicated lower urinary tract infection, most prescribing was in line with guidance except in relation to treatment length.
- There was some evidence that prescribing influences at practice level may be overriding national guideline recommendations, and both NIPs and PIPs showed some brand prescribing preferences.
- There was some evidence that NIPs and PIPs may not challenge treatments already initiated by another team member within the practice.
- In the analysis of national safety datasets, national electronic databases proved not to be searchable to identify safety incidents relating to medical and non-medical prescribers.
- The regulators for nursing and pharmacy hold Fitness to Practise (FtP) records for cases investigated, dealt with, and decided upon by their relevant committees, but their systems cannot search for cases relating to prescribing.
- Documentary analysis and online searches identified one FtP case relating to non-medical prescribers.
- Available evidence suggests very few regulatory FtP cases relate to the safety of non-medical prescribing.

– No cases relating to the safety of non-medical prescribing were identified from reports of the Health Ombudsman or NHS Litigation Authority.

This Chapter will present results addressing the study question, 'What is the quality of, how safe, and how clinically appropriate is IP by nurses and pharmacists?'. Results are presented from the national survey of NIPs and PIPs, the MAI analysis of NIPs' and PIPs' consultations and the case record audit conducted at the case sites, and the analysis of national safety datasets.

5.3.2 National survey of NIPs and PIPs

5.3.2.1 Nurse independent prescribing

NIPs' views on a range of safety and quality issues were captured using Likert items in the national survey questionnaire. The results are presented in Table 5.3.2.1.1.

On the issue of patient safety, the data reveal few concerns. 91% of NIPs disagreed or strongly disagreed with the statement that they had concerns they are prescribing outside of their area of competence. Being asked by colleagues to prescribe outside of their area of competence was not an experience reported by most: 84% disagreed or strongly disagreed with this statement. Of interest, more than average numbers (24.2%) of NIPs whose most frequent area of prescribing was pain management agreed with this statement. Although numbers were too small for statistical comparison, this could perhaps reflect the limits on controlled drug prescribing at the time the survey was conducted. Being asked to prescribe outside of areas of competence was more commonly reported as coming from patients, with 36% of the sample agreeing or strongly agreeing with this statement. This could be reflective of a desire by patients to have all of their prescribing needs met by one health care professional, especially when they have co-morbidities (see also below). 90% of NIPs strongly disagreed or disagreed with the statement 'I do not have the pharmacological knowledge to be a safe independent prescriber' and a similar proportion (92%) strongly disagreed or disagreed with the statement 'I do not have the clinical examination skills to be a safe independent prescriber.' It would seem overall here that NIPs consider they have the requisite skills and knowledge and are prescribing only within their competence, despite the results elsewhere in the survey that suggest not all are exposed to monitoring and formal CPD.

The data indicate that approximately one-quarter (24%) of the sample are anxious about their prescribing responsibilities and 25% reported that they fear making an incorrect diagnosis. District Nurses were more likely (35.3%) to agree that they feared making an incorrect diagnosis in comparison to the sample as a whole, although the number of District Nurses in the survey was too small to enable statistical comparison. These results should not necessarily be interpreted as indicative of poor quality or unsafe practice – they may reflect a healthy apprehension and conscientiousness being applied by nurses when practising prescribing.

Given the increasing number of people living with multiple long-term conditions and the fact that older people are likely to be taking a number of different prescribed medicines, the finding that 58% agreed or strongly agreed with the statement 'I have concerns about prescribing for patients with co-morbidities' is of interest. Interestingly, Community Matrons were no less likely to report concerns regarding prescribing for co-morbidities – given the nature of their role in managing multiple long-term conditions in the community, this is somewhat surprising and of potential concern. More generally, this finding may be explained by the NIP model of prescribing within areas of competence consistent with a specific speciality (e.g. diabetes or asthma) which may not lend itself readily to prescribing for more than one condition, and where these cross different clinical specialities. Assuming this concern inhibits such prescribing, this may also explain the result (Section 5.7.2.1) that approximately one-third of NIPs did not consider that prescribing rights meant they could meet all of the patient's needs.

In light of the impending legislation on increasing the number of controlled drugs that nurses and pharmacists can prescribe, NIPs' views on this issue are interesting. Asked if they would feel happy prescribing a greater range of controlled drugs, only 20% agreed with this statement; the majority disagreed or strongly disagreed (57%), with the remainder (24%) uncertain about this. Although a somewhat high proportion of NIPs appear not to be happy to increase controlled drugs prescribing, the eclectic nature of the sample means that, for many, controlled drug prescribing would not be relevant to their area of practice or prescribing competence. This is borne out by the fact that a higher proportion (70.6%) of District Nurses agreed or strongly agreed with this statement and a lower proportion of Health Visitors (4.5%) agreed or

strongly agreed that they would feel happy prescribing a greater range of controlled drugs. (Numbers of District Nurses and Health Visitors were insufficient for statistical comparison.) Additionally, apparent preparedness for controlled drug prescribing should be viewed in light of findings reported in Section 5.4.2.5 that many NIPs engage in formal training or self-directed study to prepare themselves to prescribe competently when moving into a new prescribing area. Presumably many NIPs would therefore engage in this should the new legislation require them to do so.

A further dimension of NMP quality and effectiveness focuses on communicating with patients about medicines to influence patient adherence. Recent NICE (2009) guidance on supporting medicines adherence suggests that ascertaining patient concerns and beliefs about the necessity for taking medicines is a crucial determinant of medicine-taking. It is therefore important that IPs are regularly asking about such issues. Relatively high proportions of the sample indicated best practice was being followed in this respect: 80% agreed or strongly agreed that they ask patients whether they have any concerns about the medicines they prescribe and 80% also considered that they explore with patients what they think about medicines in general. 96% agreed that they always discuss any misunderstandings patients may have about medicines and 92% agreed that they always provide information about the side effects of medicines. A slightly more mixed picture emerges when NIPs were asked about whether they always ask patients whether they believe the medicine is necessary for them: 60% agreed or strongly agreed with this statement, 20% disagreed or strongly disagreed, and 20% were uncertain. Similarly, 56% agreed or strongly agreed with the statement 'I always ask patients about their beliefs about medicines' with 18% disagreeing and 25% uncertain. NIPs were more likely then average to disagree with this statement if they worked in family planning as their main treatment area ($p<0.01$). The latter may require less discussion of necessity beliefs due to the acute nature of the condition or the self-selected nature of presenting for a family planning prescription. More generally, it may be that medicines and necessity beliefs are considered more as a 'taken-for-granted' issue when prescribing for patients than concerns, misunderstanding, and side-effects information.

Table 5.3.2.1.1: NIPs' views on safety and quality of prescribing (n=862)

	Strongly Agree (%)	**Agree** (%)	**Uncertain** (%)	**Disagree** (%)	**Strongly Disagree** (%)
I have concerns that I am prescribing outside my area of competence	3	3	4	50	41
I am asked by colleagues to prescribe in an area outside my competence	4	11	1	47	37
I am asked by patients to prescribe in an area outside my competence	3	33	5	37	23
I do not have the pharmacological knowledge to be a safe independent prescriber	2	2	6	49	41
I do not have the clinical examination skills to be a safe independent prescriber	1	3	4	40	52
I find it difficult to ensure that I fully record a prescribing episode in patient notes	5	7	5	43	40
I am aware of the Nursing and Midwifery Council's guidance on good practice in record keeping for prescribing	71	28	1	0	0
As a nurse who can prescribe independently from the British National Formulary I am anxious about this responsibility	4	20	11	51	14
As a nurse who can prescribe independently from the British National Formulary I fear making an incorrect diagnosis	3	22	16	49	10
I have concerns about prescribing for patients who have co-morbidities	8	50	13	27	2
I would feel happy prescribing a greater range of controlled drugs	8	12	24	34	22
I ask patients about whether they have any concerns about the medicines I prescribe	30	50	7	11	1
I explore what patients think about medicines in general	20	60	13	6	1
I always discuss any misunderstandings patients have about medicines	46	50	3	1	0
I always provide information about the side effects of medicines	38	54	5	2	0
I ask patients about whether they think the medicines I prescribe are necessary for them	11	49	20	17	3
I always ask patients about their beliefs about medicines	12	44	25	17	1

5.3.2.2 Pharmacist independent prescribing

PIPs' views on Likert items related to quality and safety of their prescribing are shown in Table 5.3.2.2.1. The data reveal PIPs have few concerns about their prescribing safety: 81% disagreed or strongly disagreed with the statement that they had concerns they are prescribing outside of their area of competence. As with NIPs, being asked by colleagues to prescribe outside of their area of competence was not an experience reported by most: 76% disagreed or strongly disagreed with this statement. Being asked to prescribe outside of areas of competence was more commonly reported as coming from patients, with 42% of the sample agreeing or strongly agreeing with this statement. PIPs whose main prescribing setting was a general practice were more likely (46%) to agree with this statement than those in NHS Trusts (26%) ($p<0.0001$). 93% strongly disagreed or disagreed with the statement 'I do not have the pharmacological knowledge to be a safe independent prescriber.' A smaller proportion (65%) strongly disagreed or disagreed with the statement 'I do not have the clinical examination skills to be a safe independent prescriber' with 21.8% saying they were uncertain and 10.5% agreeing with this statement. In summary, most PIPs consider they have the requisite skills and knowledge and are prescribing only within their competence, despite the results elsewhere in the survey that suggest not all are exposed to monitoring and formal CPD. The proportion of PIPs uncertain about the adequacy of their clinical examination skills may warrant further discussion and evaluation.

The data indicate that approximately one in ten (11%) of the sample are anxious about their prescribing responsibilities and 27.5% reported that they fear making an incorrect diagnosis. The latter may be related to results reported elsewhere (Section 5.3.2.9 and Section 5.3.3) that the majority of PIPs are working from a diagnosis made by others when prescribing and are frequently engaged in medicine review consultations rather than diagnosis and initiation of treatment.

With regard to prescribing for people with co-morbidities, 28.5% agreed or strongly agreed with the statement 'I have concerns about prescribing for patients with co-morbidities' and 25% were unsure. Although the proportion is less than NIPs on this item, the PIP model of prescribing within a specific speciality (e.g. cardiovascular or asthma) may also not lend itself readily to prescribing for more than one condition across different clinical specialities. This may also explain the finding (Section 5.7.2.1) that approximately one-third of PIPs did not consider that prescribing rights meant they could meet all of the patient's needs.

In light of the impending legislation on increasing the number of controlled drugs, PIPs were asked if they would feel happy prescribing a greater range of controlled drugs, 60% agreed with this statement; 8% disagreed or strongly disagreed, with the remainder (22.5%) uncertain about this.

Items on communicating about medicines to promote adherence show a similar pattern to NIPs' views: relatively high proportions of the PIP sample indicated best practice was being followed: 77% agreed or strongly agreed that they ask patients whether they have any concerns about the medicines they prescribe. 71% also considered that they explore with patients what they think about medicines in general. 94% agreed that they always discuss any misunderstandings patients may have about medicines and 88% agreed that they always provide information about the side effects of medicines. More mixed results emerge when PIPs were asked if they always ask patients whether they believe the medicine is necessary for them: 57% agreed or strongly agreed with this statement, 18% disagreed or strongly disagreed, and 25% were uncertain. Similarly, 61% agreed or strongly agreed with the statement 'I always ask patients about their beliefs about medicines' with 15% disagreeing and 24% uncertain. Similar to NIPs, necessity beliefs may be more taken-for-granted by PIPs when prescribing for patients than concerns, misunderstanding, and side effects information.

Table 5.3.2.2.1: PIPs' views on safety and quality of prescribing (n=143)

	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
I have concerns that I am prescribing outside my area of competence	2.8%	7.0%	9.2%	54.9%	26.1%
I am asked by colleagues to prescribe in an area outside my competence	4.9%	15.5%	3.5%	52.8%	23.2%
I am asked by patients to prescribe in an area outside my competence	4.2%	38.0%	4.9%	40.1%	12.7%
I do not have the pharmacological knowledge to be a safe independent prescriber	3.5%	2.1%	0.7%	30.3%	63.4%
I do not have the clinical examination skills to be a safe independent prescriber	2.8%	7.7%	21.8%	54.2%	13.4%
I find it difficult to ensure that I fully record a prescribing episode in patient notes	1.4%	6.3%	4.2%	42.9%	45.0
As a pharmacist who can prescribe independently from the BNF I am anxious about this responsibility	1.4%	9.2%	8.5%	61.3%	19.7%
As a pharmacist who can prescribe independently from the BNF I fear making an incorrect diagnosis	4.9%	22.5%	14.8%	45.1%	12.7%
I have concerns about prescribing for patients who have co-morbidities	0.7%	27.5%	25.3%	38.0%	8.5%
I would feel happy prescribing a greater range of controlled drugs	27.5%	31.7%	22.5%	14.1%	4.2%
I ask patients about whether they have any concerns about the medicines I prescribe	30.3%	46.5%	7.7%	12.7%	2.8%
I explore what patients think about medicines in general	23.9%	57.0%	11.3%	6.3%	1.4%
I always discuss any misunderstandings patients have about medicines	35.2%	58.5%	4.9%	0.7%	0.7%
I always provide information about the side effects of medicines	30.9%	57.0%	6.3%	4.2%	1.4%
I ask patients about whether they think the medicines I prescribe are necessary for them	12.7%	44.4%	24.6%	14.8%	3.5%
I always ask patients about their beliefs about medicines	13.4%	47.2%	23.9%	13.4%	2.1%

5.3.3 Analysis of clinical appropriateness of NIP and PIP prescribing using the MAI

5.3.3.1 Overall ratings

Table 5.3.3.1.1 summarises the medicines that were prescribed and rated within each IP's sample of consultations. This indicates that the majority of medicines prescribed by PIPs were for long-term conditions, such as lipid management and hypertension. For NIPs, the type of medicines prescribed were more mixed: NIPs at the WiC and OOH sites were prescribing for acute conditions such as infections, and the NIPs in GP practices were also prescribing for a range of acute conditions, together with some medicines for long-term conditions. Over half (25) of the medicines in the PIP sample were for cardiovascular conditions, and over half (27) in the NIP sample were prescribed for infections (Table 5.3.3.2). Of the 100 consultations, 39% were review consultations, i.e. a consultation with a patient where an initial diagnosis and/or medicine had previously been prescribed by this or another prescriber for the presenting condition. Of these, 34% were PIP consultations (70.8% of all PIP consultations), and 5% were between a NIP and a patient.

Table 5.3.3.1.3 shows results of the 10 MAI indicators applied to all consultations and by IP profession. Results are percentages of appropriate and inappropriate ratings only, with 'don't know', 'not applicable', and missing data responses excluded.

Table 5.3.3.1.1: Medicines prescribed by site included in the MAI analysis

GP01	GP02	GP03	GP04	GP05	GP06	HOSP	WiC	OOH
PIP	**NIP**	**PIP**	**PIP**	**PIP**	**NIP**	**NIP**	**NIP**	**NIP**
Atorvastatin	Cefalexin	Symbicort	Irbesartan	Montelukast	Levemir Flexpen	Doxycycline	Amoxicillin	Naproxen
Doxazosin	Betnovate ointment	Felodipine	Diclofenac	Salbutamol	Penicillin		Chloramphenicol	Ventolin inhaler
Bendroflumethiazide	Cefalexin	Levothyroxine	Lansoprazole	Formeterol	Amoxicillin		Co-Amoxiclav	Trimethoprim
Lisinopril	Codeine phosphate	Finasteride	Co-codamol	Nicotinell Patch	Diprobase cream		Combivent inhaler	Trimethoprim
Simvastatin	Naproxen	Gaviscon	Ramipril	Clenil Modulite	Depo Provera		Trimethoprim	Penicillin
Simvastatin	Flucloxacillin	Azathioprine	Simvastatin	Nicotinell patches	Fusidic Eye Drops		Diclofenac	Flucloxacillin
Perindopril	Loestrin	Perindopril	Furosemide	Formeterol	Trimethoprim		Prednisolone	Difflam throat spray
Amlodipine	Nitrofurantoin	Simvastatin	Lisinopril	Varenicline	Microgynon 30		Trimethoprim	Trimethoprim
Gaviscon tablets	Chloramphenicol	Simvastatin	Lisinopril	Beclomethasone			Levonelle 1500	Penicillin
Amlodipine	Trimethoprim	Felodipine	Ramipril	Symbicort			Trimethoprim	Flucloxacillin
Simvastatin	Betnasol	Flucloxacillin	Labetalol	Varenicline			Co-Amoxiclav	Flucloxacillin
Doxazosin	Simvastatin	Furosemide	Ramipril					Diclofenac
Ibuprofen	Metformin							
	Mebeverine							
	Doxycycline							
	Softclix lancets one touch test strips							
	Flucloxicillin							
	Trimethoprim							
	Trimethoprim							
	Cilest Tablets							

Table 5.3.3.1.2: Medicines included in the MAI analysis categorised by type

	BNF section	NIPs	PIPs
GI	1	1	3
Cardiovascular	2	1	25
Respiratory	3	1	8
CNS	4	1	5
Infections	5	27	1
Endocrine	6	4	3
Obstetrics and Gynaecology	7	5	0
Malignant disease	8	0	1
Musculoskeletal	10	5	2
Eye	11	4	0
ENT	12	1	0
Skin	13	2	0

Table 5.3.3.1.3: Mean percentage of appropriate and inappropriate ratings of prescribing for 100 consultations (52 by nurse prescribers and 48 by pharmacist prescribers) ('Not Known', 'Not Applicable' and not recorded data excluded).†

MAI question	Nurse Prescribers (N=52 consultations)		Pharmacist Prescribers (N=48 consultations)		Combined nurse and pharmacist prescribers (N=100 consultations)	
	Appropriate rating	Inappropriate rating	Appropriate rating	Inappropriate rating	Appropriate rating	Inappropriate rating
Is there an indication for the medication?	93%	7%	94%	6%	94%	6%
Is the medication effective for the condition?	96%	4%	98%	2%	97%	3%
Is the dosage correct?	91%	9%	91%	9%	91%	9%
Are the directions correct?	88%	12%	89%	11%	88%	12%
Are the directions practical?	96%	4%	97%	3%	97%	3%
Are there clinically significant medication interactions?	97%	3%	94%	6%	96%	4%
Are there clinically significant medication-disease/condition interactions?	94%	6%	90%	10%	92%	8%
Is there any unnecessary duplication with other medication(s)?	98%	2%	98%	2%	98%	2%
Is the duration of therapy acceptable?	95%	5%	96%	4%	96%	4%
Is this drug the least expensive alternative compared to others of equal utility?	84%	16%	78%	22%	81%	19%

No statistically significant differences were found between ratings for nurse and pharmacist prescribers' consultations on any of the MAI indicators.

† For each MAI question applied to each consultation, the number of appropriate assessments given by the 4 raters were counted, giving a number in the range 0-4, or 0-3 or less if there are exclusions. (NApps). The number of inappropriate assessments were also counted (again producing a number in the range 0-4, or less if there were exclusions). (NNApps). The mean appropriateness rating for each consultation is calculated as Napps/(Napps+NNapps). The mean inappropriateness rating for each consultation is calculated as NNapps/(Napps+NNapps) This reduces the set of 4 separate assessments of appropriateness / inappropriateness down to a single assessment - mean appropriateness / inappropriateness. (Examples: Appropriateness: a consultation with 4 appropriate ratings would score 1.0 (100%) . A consultation with 3 out of 4 would score 0.7 (75%) . A consultation with 2 out of 3 and one missing would score 0.667(66%). An overall mean of appropriateness and inappropriateness for each MAI question was then calculated.

Table 5.3.3.1.3 shows that overall, raters judged NIPs and PIPs to be making clinically appropriate, as opposed to inappropriate, prescribing decisions across the range of MAI indicators. For all 100 consultations, 8 out of 10 questions received mean appropriate ratings in excess of 90%. For the indicators on correct directions and the cost of the drug prescribed, slightly lower rates were given, although these could still be considered high overall, at 88% and 81% respectively. The ratings for PIPs and NIPs on the MAI indicator for cost may potentially be explained by the fact that many of the consultations were focused on medicines prescribed for long term conditions. Thus an initial medicine may have been previously prescribed, in many instances by another health care professional. In such cases the NMP would not have been responsible for cost decisions about the drug prescribed and may have been reluctant to change an already prescribed drug to a less

expensive one. For PIPs the majority of consultations were review consultations. For NIPs the consultations were for a mix of acute and long term conditions. Agreement between raters for the cost indicator also showed a slightly lower level of agreement in relation to the other MAI indicators (see below). Nevertheless, further research into PIP and NIP decisions about costs of medicines prescribed may be warranted.

From a potential range of 0–18, with high scores indicating highest level of prescribing inappropriateness, the overall mean weighted score across all consultations was 1.003 (SD 1.854) with a median of zero, and range 0–11. The weighted score gives an indication of the importance of any prescribing inappropriateness, with differential weights applied to the MAI indicators. This therefore this indicates a low overall level of the importance of prescribing inappropriateness.

Analysis of appropriate and inappropriate ratings by consultation/medicine prescribed (i.e. across all MAI indicators) showed that 28% of medicines prescribed had no judgements of 'inappropriate'; in 32% of prescribed medicines one rater gave a disapproval rating for at least one indicator and three raters gave none; in 21% of medicines prescribed two raters gave a disapproval rating for at least one indicator and two gave none; in 15% three raters gave a disapproval rating for at least one indicator and one rater gave none; and there were four medicines where all four raters gave at least one disapproval rating.

Tables 5.3.3.1.4, 5.3.3.5 and 5.3.3.1.6 below show overall ratings of NIPs and PIPs combined (Table 5.3.3.1.4), NIPs only (Table 5.3.3.1.5) and PIPs only (Table 5.3.3.1.6) including 'not known', 'not applicable' and missing data. Raters were advised to record 'not known' when data were not available to underpin a judgement in either the transcript or the supplementary information provided by the prescriber. Ratings of 'not known' showed a range of between 3% and 7% for 8 of the ten indicators in the combined NIP and PIP data. This generally reflects incompleteness in some of the details provided by IPs to supplement the consultation details and/or the consultation itself did not cover a specific aspect of the prescribing decision, such as giving directions on using the drug prescribed. Some details, such as those related to other medicines the patient was taking or other conditions diagnosed, may have been viewed electronically on a computer during the consultation by some of the prescribers. However, not all such details may have been verbalised or added to the supplementary information requested by the research team. Higher proportions of 'not known' ratings were given for MAI indicators on duration of therapy and whether the drug prescribed was the least expensive alternative. Details on duration of therapy may have been absent as this was not specifically requested by the research team, and the prescriber may have relied on the written prescription as a means of conveying duration of therapy to the patient, or, for review consultations, the period to next review may have been self-evident to prescriber and patient. The higher proportion of 'don't knows' for drugs' comparative cost may have reflected raters' lack of knowledge on this issue. The data on PIPs only (Table 5.3.3.1.6) show that, in comparison to NIPs' consultations, slightly greater proportions of ratings were recorded as 'not known' for MAI indicators of indication, effectiveness, dosage, correct directions, practical directions and drug comparative costs. This may be explained by the fact that most medicines in the PIP sample were for long-term conditions and 70.8% of PIPs' consultations were review consultations. Therefore an initial diagnosis had previously been made, and/or as well as an initial prescription for the drug. Small proportions of the data were rated as 'not applicable' in relation to some specific medicines and/or consultations, and in a small minority of instances, lack of a recorded rating was coded as 'missing'.

Table 5.3.3.1.4: Overall ratings of clinical appropriateness applied to IPs prescribing decisions, including not known, not applicable, and not recorded data

MAI question	% appropriate	% inappropriate	Not known	Not applicable	Missing data
Is there an indication for the medication?	87.5% (n=350)	5% (n=21)	5.5% (n=22)	1% (n=4)	1% (n=3)
Is the medication effective for the condition?	90% (n=360)	2% (n=9)	5% (n=21)	2% (n=7)	1% (n=3)
Is the dosage correct?	82% (n=327)	8% (n=32)	6.5% (n=26)	3% (n=11)	1% (n=4)
Are the directions correct?	80% (n=321)	10% (n=40)	6% (n=24)	3% (n=13)	0.5% (n=2)
Are the directions practical?	85% (n=341)	2.5% (n=10)	7% (n=29)	4% (n=17)	0.5% (n=3)
Are there clinically significant medication interactions?	91.5% (n=367)	4% (n=15)	3% (n=12)	0.5% (n=3)	0.5% (n=3)
Are there clinically significant medication-disease/condition interactions?	87% (n=347)	7% (n=29)	5% (n=19)	1% (n=3)	0.5% (n=2)
Is there any unnecessary duplication with other medication(s)?	93.5% (n=375)	1.5% (n=6)	3.5% (n=14)	1% (n=4)	0.5% (n=1)
Is the duration of therapy acceptable?	79% (n=315)	3% (n=12)	11.5% (n=46)	6% (n=24)	0.5% (n=3)
Is this drug the least expensive alternative compared to others of equal utility?	69.5% (n=278)	13.5% (n=54)	14% (n=55)	3% (n=11)	0.5% (n=2)

Table 5.3.3.1.5: Overall ratings of clinical appropriateness applied to NIPs' prescribing decisions, including not known, not applicable, and not recorded data

MAI question	% appropriate	% inappropriate	Not known	Not applicable	Missing data
Is there an indication for the medication?	88% (n=184)	7% (n=14)	2% (n=5)	1% (n=2)	1% (n=3)
Is the medication effective for the condition?	90% (n=188)	3% (n=6)	4% (n=8)	1% (n=3)	1% (n=3)
Is the dosage correct?	83% (n=173)	8% (n=17)	5% (n=10)	2% (n=5)	1% (n=3)
Are the directions correct?	81% (n=169)	11% (n=23)	4% (n=9)	2% (n=5)	1% (n=2)
Are the directions practical?	87% (n=180)	3% (n=6)	5% (n=11)	4% (n=8)	1% (n=3)
Are there clinically significant medication interactions?	92% (n=191)	3% (n=6)	4% (n=8)	0.5% (n=1)	1% (n=2)
Are there clinically significant medication-disease/condition interactions?	87% (n=181)	6% (n=12)	6% (n=12)	0.5% (n=1)	1% (n=2)
Is there any unnecessary duplication with other medication(s)?	93% (n=193)	1% (n=3)	5% (n=10)	0.5% (n=1)	0.5% (n=1)
Is the duration of therapy acceptable?	78% (n=163)	4% (n=9)	11.5% (n=24)	4% (n=9)	1% (n=3)
Is this drug the least expensive alternative compared to others of equal utility?	75% (n=157)	11% (n=22)	10% (n=21)	3% (n=6)	1% (n=2)

Table 5.3.3.1.6: Overall ratings of clinical appropriateness applied to PIPs' prescribing decisions, including not known, not applicable, and not recorded data

MAI question	% appropriate	% inappropriate	Not known	Not applicable	Missing data
Is there an indication for the medication?	86% (n=166)	4% (n=7)	9% (n=17)	1% (n=2)	0
Is the medication effective for the condition?	90% (n=172)	2% (n=3)	7% (n=13)	2% (n=4)	0
Is the dosage correct?	80% (n=154)	8% (n=15)	8% (n=16)	3% (n=6)	0.5% (n=1)
Are the directions correct?	79% (n=152)	9% (n=17)	8% (n=15)	4% (n=8)	0
Are the directions practical?	84% (n=161)	2% (n=4)	9% (n=18_	5% (n=9)	0
Are there clinically significant medication interactions?	91% (n=176)	5% (n=9)	2% (n=4)	1% (n=2)	0.5% (n=1)
Are there clinically significant medication-disease/condition interactions?	86% (n=166)	9% (n=17)	4% (n=7)	1% (n=2)	0
Is there any unnecessary duplication with other medication(s)?	95% (n=182)	2% (n=3)	2% (n=4)	2% (n=3)	0
Is the duration of therapy acceptable?	79% (n=152)	2% (n=3)	11% (n=22)	8% (n=15)	0
Is this drug the least expensive alternative compared to others of equal utility?	63% (n=121)	17% (n=32)	18% (n=34)	3% (n=5)	0

5.3.3.2 Reliability

Table 5.3.3.2.1 shows agreement between raters on each of the MAI indicators.

Table 5.3.3.2.1: Agreement between raters on each of the MAI indicators across all medicines prescribed by NIPs and PIPs

	4 way*	3 way	2 way	1 way	None	Kappa**	p-pos***	p-neg***
Indicated?	69	16	12	2	1	0.1308	0.99	0.3
Effective?	74	16	7	2	0	0.0791	0.99	0
Dosage correct?	58	21	12	8	0	0.2500	0.97	0.65
Directions correct?	51	28	14	5	2	0.2158	0.98	0.5
Directions practical?	62	22	11	5	0	0.1124	0.98	0.2
Med interactions?	76	17	5	2	0	0.0992	0.99	0.27
Med-condition interactions?	58	32	9	1	0	-0.0011	0.99	0.2
Unnecessary duplication?	82	12	5	1	0	0.0292	0.99	0
Duration acceptable?	54	22	13	7	2	0.4235	0.97	0.33
Least expensive drug?	39	22	23	10	6	0.3459	0.96	0.55

* % of ratings in which all 4 raters made the same rating, '3 way'= the % of ratings in which 3 of the 4 raters gave the same rating, etc.

** Kappas were calculated comparing appropriate ratings against all other responses combined. This provides a measure of agreement between raters. The low values for Kappa reflect the differences in agreement rates for positive and negative approval ratings.

*** p-pos is calculated as the total number of positive (appropriate) ratings on which at least two raters agreed divided by the total number of positive ratings; p-neg is the equivalent for negative (inappropriate) ratings.

Overall, Table 5.3.3.2.1 shows a relatively high level 4 way agreement across five of the ten indicators: 82% (unnecessary duplication), 76% (medicine interactions), 74% (effective), 69% (indicated), and 62% (practical directions). Moderate levels of 4 way agreement for 4 indicators: 58% (dosage correct), 58% (med-condition interactions), 54% (duration acceptable), and 51% (directions correct). The lowest level of 4 way agreement was on the MAI indicator of comparative drug cost, at 39%. 4 way and 3 way agreement account for at least

75% of ratings on all indicators except comparative drug cost, where 39% of ratings were 2 way, 1 way, or no agreement. It is possible that the comparatively low levels of agreement on whether the medicine was the least expensive alternative compared to others of equal utility was due to the raters' differing levels of detailed knowledge in this area. Table 5.3.3.4 above shows a relatively high number of 'don't know' responses for this MAI indicator.

For 4 MAI indicators (dosage, directions correct, duration, and comparative cost) Kappa values were between 0.2 and to 0.4, indicating 'fair' agreement (Landis and Koch, 1977). Kappa values were lower for the other MAI indicators. However, for most indicators there was substantial agreement on appropriate ratings, but a relatively low rate of agreement on inappropriate, Don't Know, Not Applicable, and missing value ratings. In circumstances where there is a difference between positive and negative agreement, it is normal practice to present separate measures of positive and negative agreement (p-pos and p-neg, as per Table 5.3.3.2.1). Results for p-pos indicate very good levels of agreement on appropriate scores overall, with values from 0.96 (comparative cost) to 0.99 (indicated, effective, medicine interactions, medicine-condition interactions, unnecessary duplication), and p-neg values were >0.5 for three of the MAI indicators (dosage correct, directions correct, comparative cost). The remaining p-neg values were low or zero, reflecting the very small proportion of inappropriate or other ratings. The ICC for the weighted total scores was 0.289 (0.188–0.401).

5.3.3.3 Analysis of raters' comments

While a small number of comments were made under each MAI item by some raters, the majority of comments were recorded at the end of the rating of the ten indicators in the space provided. These were subject to a thematic analysis and an overview of themes is given below.

5.3.3.3.1 Overall comments on the safety and effectiveness of the prescribing episode

A total of 272 comments were made under this section. These have been categorised under 14 themes. Some comments related to specific MAI items, such as dose or duration of drug prescribed, and provide amplification of a rater allocating an 'inappropriate' rating. However, by far the most prevalent comments related to two themes: overall positive comments on the prescribing episode and potential for improvement in history-taking, assessment, and diagnostics skills. A more detailed analysis is given below.

(i) Positive comments on the prescribing episode

88 comments on the positive characteristics of the prescribing episode were recorded. These ranged from brief comments on the overall nature of the consultation:

> 'safe and effective practice'
> (Rater 18 A508)

> 'safe and effective start to treating a complex case'
> (Rater 6 A406)

> 'not an easy patient with multiple problems. Appeared to do well!'
> (Rater 1 A204)

to more detailed evaluation of particular aspects. For example:

> 'A good encounter. The praise forgiving up smoking is particularly good. Also full explanations were given'
> (Rater 8 A1010)

> 'NMP did use correct criteria to assess the need to treat (the duration and evidence of exudate). NMP was aware of possible differential diagnosis of glandular fever'
> (Rater 18 A602)

> 'Very thorough evaluation. Checked with orthopaedics re: risk of joint infection and also undertaken to check need for tetanus immunization'
>
> (Rater 13 A903)

(ii) History-taking, assessment, and diagnosis skills

This was the second most prevalent group of comments (n=52) and referred to potential for improvement in these areas.

For example:

'History-taking too brief. Penicillin V is indicated for tonsillitis but only if that's what the patient wants after discussion of natural history of the condition and risks/benefits of antibiotics. In this case, there was no discussion'
(Rater 14 A602)

'The treatment is appropriate for urinary tract infection but the evidence for this diagnosis is not clear. The presence of organisms in the urine from a supra-pubic catheter is not in itself evidence of infection. There is no supporting information from urinalysis or from laboratory or from the clinical state of the patient. If the patient has a proven UTI the prescription is appropriate but otherwise it is not'
(Rater 13 A609)

'Should consider renal impairment in person with BPH and check renal function. Also PSA can give falsely low readings in presence of finasteride'
(Rater 5 A307)

'Don't know why peak flow measured in COPD'
(Rater 2 A302)

'It would have helped to have more recent LFTs rather than relying on some a few months ago'
(Rater 19 A219)

'Good to suggest referral to GP as had recurrent infections. Did not look to find a reason for diagnosis'
(Rater 9 A910)

'No questions asked to explore differential diagnosis'
(Rater 14 A222)

A total of 128 comments on dimensions of sub-optimal prescribing were made and these are outlined below.

(iii) Dose/regimen

16 comments pertaining to dose or regimen were made. For example:

'Doxazosin starting dose 1mg not 2mg'
(Rater 11 A113)

'Folic acid was changed to weekly which is incorrect. Folic acid, if needed, needs to be taken daily'
(Rater 13 A604)

'Dose is 200mgs initially then 100mg bd Rx does not reflect this'
(Rater 18 A217)

'Amoxicillin formulated to be three times a day so it is inappropriate to give it four times a day... paracetamol is said to be two four-hourly which would exceed the maximum dose of eight tablets in 24 hours, but this wasn't mentioned'
(Rater 8 A901)

(iv) Unnecessary medicine prescribed

Of the 15 comments received, a number related to antibiotic prescribing:

'Antibiotics not indicated for tonsillitis of short duration in a patient who is not systemically unwell, therefore Rx probably not indicated'
(Rater 18 A602)

'Antibiotic drops not indicated for uncomplicated conjunctivitis. Visual acuity must be noted and recorded'
(Rater 16 A608)

'Chloramphenicol is not considered to be very effective for styes'
(Rater 7 A901)

Other drugs were also cited however:

'No indication for asprin'
(Rater 2 A104)

'Difflam throat spray unnecessary clinically and avoidable cost for patient (possibly) and the NHS'
(Rater 2 A1005)

(v) **Follow-up/review**

The 15 comments here focused on the lack of follow-up offered by the prescriber or the length of follow-up offered was viewed as too long by the rater:

> 'Patient will go six months without check on renal function despite being on ACEi'
> (Rater 2 A104)

> 'I would have asked for a three month cholesterol check rather than leaving it six months'
> (Rater 19 A219)

> 'Review in one month seems a little far out. I'd be more inclined to review in a week or two at the most'
> (Rater 13 A215)

(vi) **Lack of information given about side effects**

13 comments were made by raters about this shortcoming. For example:

> 'With the new treatment I would expect an explanation of potential adverse effects'
> (Rater 1 A113)

(vii) **Choice of drug prescribed**

Raters made 12 comments indicating the drug was not the first line or querying whether it was the correct one for the diagnosis. For example:

> 'Lifestyle intervention required? Should diuretic be added before doxazosin?'
> (Rater 11 A113)

> 'Metronidazole would be a more usual first thought which may be discarded by the patient but should be considered'
> (Rater 8 A901)

(viii) **Costs of medicine prescribed**

11 comments were made by raters querying whether the least expensive medicine had been prescribed. For example:

> 'Branded Ventolin currently cheaper than generic Salbutamol'
> (Rater 16 A502)

> 'Amoxycillin is better value than co-amoxiclav and more appropriate choice (in order to limit bacterial resistance)'
> (Rater 9 A911)

(ix) **Potential drug-condition interactions**

Comments (n=10) related to the prescriber not appearing to take potential drug-condition interactions into account. For example:

> 'I think advice concerning NSAIDS potential to aggravate asthma could have been stronger'
> (Rater 1 A1012)

> 'The patient, a 34 year old female, was not asked about the possibility of pregnancy (where tetracyclines would be contraindicated)'
> (Rater 20 A217)

(x) **Adherence**

Comments here (n=10) related to the lack of discussion on whether medicines prescribed were being adhered to. For example:

> 'Discussion not concordant– no explanation as to why important to take, esp. as appears not to have been taking'
> (Rater 11 A105)

(xi) **Potential drug-drug interactions**

Raters made eight comments about potential drug-drug interactions in this section. For example:

'Didn't mention not to take ibuprofen along side'
(Rater 11 A906)

(**xii**) **Incorrect or limited information given**

Eight comments were made by raters on the incorrect or limited information given. For example:

'Completely appropriate, although would suggest that a more in-depth explanation of why it is being prescribed is necessary i.e. it helps prevent C.V. deaths from diabetes'
(Rater 17 A215)

(**xiii**) **Directions given**

Six comments were made by raters about the poor quality of information given by prescribers in this respect. For example:

'No mention of taking tabs 30 mins before food'
(Rater 4 A1101)

'Prescriber didn't give patient enough info on script (dose, duration, etc.)'
(Rater 4 A1009)

(**xiv**) **Duration**

Four comments were made in this section on the potential inappropriateness of the duration of the medicine prescribed. For example:

'A three-day course of antibiotics is too short for the treatment of UTI in a male'
(Rater 13 1004)

In summary, out of a total of 400 potential comments for each indicator, overall a relatively small number of negative comments were made on each specific MAI indicator. Many comments were made underscoring the appropriate nature of the prescribing episode, and/or highlighting specific features of the IP's skills. However, of note is the relatively high number of more negative comments received on the history-taking, assessment and diagnostic skills of the IP evidenced in the prescribing episodes. In over 25% of consultation ratings, some comments on these were made. Whilst this should be viewed in light of the fact that most ratings on the MAI indicator 'medicine indicated' were judged as appropriate, it nevertheless highlights an issue that needs further discussion in terms of its implications for education and CPD of NIPs and PIPs.

5.3.4 Patient record audit

The records audited are summarised in Table 5.3.4.1 below.

Table 5.3.4.1: Case record audit: summary of records audited

	No. of cases	Type of prescriber & no. of cases	Setting	Setting codes
Asthma NICE TAG 138 (2008)	85	1 x PIP (44) 1 x NIP (41)	2 general practices	GP02, GP05
Lipid modification NICE CG 67 (2008)	80	2 PIPs	2 general practices	GP01,GP03
Diabetes NICE CG 66 (2008)*	77	2 x NIP	2 general practices	GP04, GP06
Lower urinary tract inection	79	2 x NIPs	2 OOH providers	OOH1, OOH2

* An updated CG67 was issued immediately prior to the audit. The cases included preceded the date when the new version was published.

The results for each audit are presented, together with discussion and interpretation of findings.

5.3.4.1 Inhaled corticosteroids (ICS) for the treatment of chronic asthma in adults and children aged 12 and over

The focus of the NICE audit for TAG 138 is the prescribing of inhaled corticosteroids (ICS) and long-acting beta agonist (LABA) treatments.

Patient-centred care

Table 5.3.4.1.1: Asthma audit: percentage adherence to the standard for individual components of Criterion 1, by case study site and type of prescriber.

Criterion 1. Percentage of patients offered evidence-based, written information about 1.1 Their illness or condition 1.2 The treatment and care they should be offered, for example, the 'Understanding NICE guidance' booklet 1.3 The service providing the treatment				
	Site code	**Type of prescriber**	**Number of patients**	**Adherence to part of set standard**
1.1 Information about their illness	GP02	NIP	30	73%
	GP05	PIP	32	71%
1.2 NICE booklet	GP02	NIP	0	0%
	GP05	PIP	0	0%
1.3 Service information	GP02	NIP	0	0%
	GP05	PIP	2	4%

The NICE technology appraisal relates to patients with chronic asthma. It is likely that information about the illness, including written materials would be provided at or soon after diagnosis. There appears to be no uptake of the NICE patient booklet, possibly because of lack of awareness, or greater familiarity with other materials.

The NICE audit also has a Criterion 2 – Percentage of carers offered evidence-based, written information about the patient's illness or condition, the treatment and care the patient should be offered, for example, the 'Understanding NICE guidance' booklet, and the service providing the patient's treatment. The NICE audit support booklet states, in relation to Criterion 2 'If the patient agrees, families and carers should have the opportunity to be involved in decisions about treatment and care'. However there was no evidence in patients' records of such discussions or information provision to carers.

Management

Patients receiving inhaled corticosteroid

All patients were receiving an ICS, of which 55 (65%) patients were being treated with an ICS and not with a LABA, and 29 (34%) patients were being treated with an ICS and LABA (14 separately and 15 in a combination device). The results are shown in Table 5.3.4.1.2.

Table 5.3.4.1.2: Asthma audit:treatments by site, type of prescriber, and percentage of the total number of case notes reviewed

Treatment	**Site code**	**Type of prescriber**	**Number of patients**	**Total**
ICS	GP02	NIP	33	55 (65%)
	GP05	PIP	22	
ICS plus LABA separately	GP02	NIP	2	14 (17%)
	GP05	PIP	12	
ICS plus LABA (combination device)	GP02	NIP	6	15 (18%)
	GP05	PIP	9	

The results for Criterion 3, relating to the cost of ICS therapy, are shown in Table 5.3.4.1.3. Four different ICS agents were prescribed in 50 patients: beclometasone (43), budesonide (3), fluticasone (2), and mometasone (2). A non-proprietary version is available for beclometasone and budesonide.

Table 5.3.4.1.3 Costs of prescribed ICS therapy

Criterion 3. Percentage of adults and children aged 12 years and older with chronic asthma in whom treatment within an inhaled corticosteroid was considered appropriate who were prescribed the least costly product suitable for that individual.					
Preparation	**Cost (£)**	**Site code**	**Type of prescriber**	**Number of patients**	**Adherence to set standard**
Beclometasone Dipropionate					58%
Beclazone Easi-Breathe 200 microgram/200 dose unit		GP02	NIP	0	
		GP05	PIP	1	
Beclometasone (non-proprietary) 100 micrograms/200 doses unit	9.65	GP02	NIP	13	
		GP05	PIP	3	
Clenil Modulite (CFC Free beclometasone) 100 microgram/200 doses unit	7.42	GP02	NIP	14	
		GP05	PIP	11	
Qvar Easi-Breathe (CFC Free) 50 microgram/200 doses unit	7.87	GP02	NIP	0	
		GP05	PIP	1	
Total				43	
Budesonide					100%
Budesonide (non-proprietary) 200micrograms/100 dose unit	11.84	GP02	NIP	3	
		GP05	PIP	0	
Novolizer 200micrograms/100 dose unit	14.86	GP02	NIP	0	
		GP05	PIP	0	
Pulmicort 200 micrograms/120 dose unit	13.20	GP02	NIP	0	
		GP05	PIP	0	
Total				3	
Fluticasone Propionate					
Flixotide 50mcg 120 doses	£5.44	GP02	NIP	2	
		GP05	PIP	0	
Total				2	
Mometasone Furoate					
Asmanex		GP02	NIP	1	
		GP05	PIP	0	
Total				1	

ICS and LABA

NICE guidance states 'For adults and children aged 12 years and older with chronic asthma in whom treatment with an ICS and long-acting beta-2 agonist (LABA) is considered appropriate the following apply.

- The use of a combination device within its marketing authorisation is recommended as an option.
- The decision to use a combination device or the two agents in separate devices should be made on an individual basis, taking into consideration therapeutic need and the likelihood of treatment adherence.
- If a combination device is chosen then the least costly device that is suitable for the individual is recommended'.

Combination device

NICE expects that where a patient is being treated with an ICS and LABA, that a combination inhaler should be considered (once dose titration has been carried out and the patient's asthma is stable). In almost all cases treatment with a combination inhaler is less costly than with the separate agents.

15 patients were treated with an inhaled ICS and LABA using a combination device, as shown in Table 5.3.4.1.4.

Table 5.3.4.1.4: Breakdown of type of combination device prescribed by case study site and prescriber and percentage adherence to the set standard

Criterion 4. The percentage of adults and children aged 12 years and older with chronic asthma in whom treatment with an inhaled ICS and LABA was considered appropriate, for whom a combination device within its marketing authorisation was considered as an option for treatment.					
Preparation	**Market authorisation**	**Site code**	**Type of prescriber**	**Number of patients**	**Adherence to set standard**
Seretide*	Yes	GP02	NIP	5	100%
		GP05	PIP	0	
Symbicort**	Yes	GP02	NIP	1	
		GP05	PIP	9	
Total				15	

* Seretide 100 Acuhaler 60 blisters £31.19
** Symbicort 100/6 120 dose Turbohaler £33.00

Treatment with separate ICS and LABA

14 patients were prescribed a separate ICS and LABA as identified in Table 5.3.4.1.5.

Table 5.3.4.1.5: Patients prescribed a seperate ICS and LABA

ICS and LABA	Type of prescriber	Cost	Number of patients
Flixotide and serevent (£35.40)	NIP	Flixotide £5.44	2
		Serevent £29.96	
Salmeterol and fluticasone (£35.40)	PIP	Flixotide £5.44	2
		Serevent £29.96	
Budesonide and formoterol (£36.64)	PIP	Budesonide £11.84	6
		Oxis £24.80	
Qvar and serevent (£37.83)	PIP	QVAR £7.87	1
		Serevent £29.96	
Clenil Modulite and Oxis (formoterol) (£32.22)	PIP	Clenil £7.42	3
		Oxis £24.80	
Total			14

Summary

ICS

Most patients on ICS without LABA were prescribed beclometasone or budesonide (46). Sixteen of the 43 patients on beclometasone were prescribed a version containing CFCs, which was more costly than the CFC-free beclometasone. There may, however, be reasons why a patient had not yet been switched to a CFC-free inhaler.

ICS Plus LABA

Roughly half of the patients were being prescribed separate ICS and LABA, and half a combination inhaler.

The data also show that both the NIP and the PIP exhibit brand loyalty with neither prescribing a mix of branded products. This may reflect practice-level prescribing policies.

5.3.4.2 Lipid modification: secondary prevention

The NICE audit focuses on whether patients are initiated on simvastatin 40mg (unless there is a specific reason not to do so), whether relevant blood tests are performed and whether written information is provided to the patient.

Patient-centred care

NICE clinical guideline 67 (point 1.4.20) recommends that 'the decision whether to initiate statin therapy should be made after an informed discussion between the responsible clinician and the person about the risks and benefits of statin treatment, taking into account additional factors such as co-morbidities and life expectancy'.

Criterion 1 relates to the provision of written information and the results are shown in Table 5.3.4.2.1. Written information about lifestyle advice was recorded as having been given in the majority of cases. Written information about the illness and risk was recorded less often and in practice GP01 there was no record of any written information having been given on these aspects, although advice on lifestyle modification was recorded for 90% of patients. As for asthma there was no recorded use of the NICE booklet.

Table 5.3.4.2.1: Lipid modification audit: provision of written information (Criterion 1)

	Site code	Yes	Adherence to part of set standard
Information about their illness or condition	GP01	0	0%
	GP03	21	53%
Information about the risks and benefits	GP01	0	0%
	GP03	10	25%
NICE booklet	GP01	0	0%
	GP03	0	0%
Advice on lifestyle modification	GP01	36	90%
	GP03	26	65%
None of the above were recorded	GP01	4	10%
	GP03	14	35%

It is possible that in practice GP01, illness may be discussed within the context of lifestyle modification and not recorded separately. Practice GP03 had provision of written information containing advice on lifestyle modification for 65% of patients, on the illness or condition for 52.5%, and information on risks and benefits for 25%.

Management

Baseline blood tests and clinical assessment

Criterion 3 measures whether appropriate baseline blood tests and clinical assessment were identified at initiation of treatment. The results for individual tests are shown in Table5.3.4.2.2.

Table 5.3.4.2.2 : Lipid modification audit: number of case notes identifying that specific blood tests and assessment had been carried out

Criterion 3. For those people where lipid modification therapy for secondary prevention is initiated, baseline blood tests and a clinical assessment should have been performed.			
Baseline blood test/assessment	**Site code**	**Number of patients**	**Adherence to set standard**
Fasting total cholesterol, LDL cholesterol, HDL cholesterol, and triglycerides	GP01	39	97%
	GP03	36	90%
Blood glucose	GP01	38	96%
	GP03	35	88%
Renal function	GP01	31	78%
	GP03	30	75%
Liver function	GP01	35	88%
	GP03	30	75%
Smoking status	GP01	38	96%
	GP03	40	100%
Alcohol consumption	GP01	39	98%
	GP03	40	100%
Blood pressure	GP01	39	98%
	GP03	40	100%
Body Mass Index	GP01	39	98%
	GP03	39	98%

Adherence to the standard was lowest for renal function, at 78% in practice GP01 and 75% in GP03, and liver function in GP03 at 75%.

Lipid modification therapy

Initial treatment

The NICE guideline recommends that, unless there is a potential interaction or contraindication, simvastatin 40mg should be initiated for secondary prevention of CVD. The preparations initially prescribed in GP01 and GP03 are shown in Table 5.3.4.2.3. Simvastatin was prescribed for 63 (79%), atorvastatin for eight (10%), pravastatin for six (8%) and rosuvastatin for three (4%).

Table 5.3.4.2.3: Lipid modification audit: treatments initially prescribed

Drug	Site code	Number of patients	Percentage of total
Simvastatin 40 mg	GP01	11	36%
	GP03	18	
Total		29 (36%)	
Simvastatin 20 mg	GP01	9	29%
	GP03	14	
Total		23 (29%)	
Simvastatin 10mg	GP01	9	14%
	GP03	2	
Total		11	
Pravastatin	GP01	1	8%
	GP03	5	
Total		6	
Atorvastatin	GP01	7	10%
	GP03	1	
Total		8	
Rosuvastatin	GP01	3	4%
	GP03	0	
Total		3	

In addition to the 29 prescribed simvastatin 40mg, two cases recorded that simvastatin 40mg was not appropriate (one case of potential interaction and one case of a contraindication), making a total of 31.

Table 5.3.4.2.4: Lipid modification audit: number of patients receiving the recommended initial intervention as recommended by NICE

Criterion 4. Treatment for the secondary prevention of CVD should be initiated with simvastatin 40mg unless there is a potential drug interaction or contraindication.			
Number prescribed simvastatin 40mg	**Number where simvastatin 40mg was not appropriate**	**Total**	**Adherence to set standard**
29	2	31	38.75%

It is possible that the proportion of patients prescribed apparently sub-therapeutic doses of simvastatin 20mg and simvastatin 10mg may reflect local policy on dose titration.

Treatment was not initiated according to the NICE guideline in 49 (61%) of cases. Of these the least costly preparation (simvastatin) was prescribed but at sub-therapeutic levels in 32 (65%). Pravastatin (the suggested alternative by NICE) was prescribed in 6 (12%). The most costly preparations (atorvastatin or rosuvastatin) were used in the remaining 11 (22%) of cases.

Outcome of initial treatment

A follow up lipid level was found in the record of 75 (94%) patients. A drop in total cholesterol to below 5mmol/litre following initial lipid modification therapy was reported in 47. Of these:

– 24 (53%) were prescribed simvastatin 40mg

– 12 (25%) were prescribed simvastatin 20mg

– 5 (11%) were prescribed simvastatin 10mg

– 5 (11%) were prescribed atorvastatin

– 1 (2%) was prescribed rosuvastatin

There were 28 cases where the follow up lipid level did not show an acceptable drop in total cholesterol. A dose increase was found in 17 and no change in dose was found in 11. In the remaining five cases either the cholesterol level or information about the drug and dose was not found in the records.

Table 5.3.4.2.5: Lipid modification audit: initial dose and number where the dose was increased, by site code

Initial dose	Site code	Number where dose was increased
Simvastatin 10	GP01	5
	GP03	1
Simvastatin 20	GP01	0
	GP03	7
Simvastatin 40	GP01	1
	GP03	0
Pravastatin	GP01	0
	GP03	2
Rosuvastatin	GP01	0
	GP03	0
Atorvastatin	GP01	1
	GP03	0

Sixty three (79%) patients were initiated on simvastatin, with only a further two of the remaining 15 cases where the records showed that simvastatin had been considered and there was a recorded reason why it had not been prescribed. Therefore 13 patients were initiated on treatments other than simvastatin without evidence of simvastatin having been considered. The treatments were pravastatin (the second choice in the NICE guideline), atorvastatin, and rosuvastatin.

Of the 63 patients prescribed simvastatin, 29 were initiated on 40mg and 34 on 10mg or 20mg. Thus overall the 29 patients started on 40mg and the two patients in whom simvastatin was considered were in adherence with the NICE guideline (31/80, 39%). Of the 34 patients started on 10mg or 20mg simvastatin there was an increase in dose following monitoring tests.

Monitoring

Nineteen (24%) of the total case notes reviewed reported potential adverse effects from patients taking statins. In eight cases these were muscle symptoms and creatine kinase was measured in six (75%) (Table 5.3.4.2.6).

Table 5.3.4.2.6: Number of case notes reporting adverse effects from statins

Criterion 5. People who are being treated with a statin should seek medical advice if they develop muscle symptoms. If this occurs, creatine kinase should be measured.		
Number reporting muscle symptoms	**Number where creatine kinase was measured**	**Adherence to set standard**
8 (42.1%)	6 (75%)	75%

Summary

The audit was conducted in autumn 2009 and covered a period from August 2008, so all patients were initiated on treatment following the NICE guideline being issued. Adherence to NICE recommendations on baseline blood tests was generally high. Adherence to recommendations on initiation of treatment was lower, at 39%. In most cases this was because simvastatin treatment was started at a dose lower than the recommended 40mg. It is possible that this was due to practice policies being followed in preference to NICE, or simply a lag time in the NICE recommendations being implemented. A substantial minority of patients were initiated on either atorvastatin or rosuvastatin, neither of which is recommended by NICE. These choices may have been influenced by practice policies or may have been the individual choice of the PIP. The analysis for NICE's own implementation report on the Technology Appraisal for statins (TA94) issued in 2006 prior to the 2008 guideline showed that simvastatin and pravastatin were prescribed to 90% of all new patients initiated with a statin in the 12 months to March 2008, an increase from 64.5% in the 12 months to March 2005 (NHS IC/NICE 2008). The report did not provide data on the dose at which treatment was initiated.

5.3.4.3 Type 2 diabetes: oral blood glucose lowering therapy

Blood glucose lowering therapy

The NICE guideline on diabetes was updated in mid-2009, at the time of the case record audit. The previous version of the NICE guideline was thus used, and the case records audited covered the period in the year prior to the NICE update.

The NICE guideline states:

'Criterion 1. Where blood glucose is inadequately controlled by lifestyle interventions alone:

– start metformin treatment in a person who is overweight or obese

– consider metformin as an option for first-line treatment for a person who is not overweight

– consider sulphonylurea as first-line for people who are not overweight or if glucose levels particularly high'.

First-line therapy

Of the 74 cases reviewed, metformin was initially prescribed as first-line in 71 (96%) patients, 61 (86%) of whom had a BMI of 25 or over. A sulphonylurea was initially prescribed as first-line in the remaining three (4%), all of whom had a recorded BMI of 25 or over but may have had sufficiently high blood glucose levels to meet the NICE recommendation.

Table 5.3.4.3.1: Type 2 diabetes audit: adherence to NICE Criterion 1

Type of therapy	Site code	Number of cases	Adherence to set standard
Metformin as first-line	GP04	36	100%
	GP06	35	
Sulphonylurea as first-line	GP04	1	
	GP06	2	

Continuing therapy

The treatments being prescribed at the time of the audit are shown in Table 5.3.4.3.2.

Table 5.3.4.3.2: Oral blood glucose lowering treatments prescribed at the case study sites.

Treatment	Number of cases by study site		Total
	GP04	GP06	
Metformin only	16	20	36 (49%)
Sulphonylurea only	1	3	4 (5%)
Metformin plus sulphonylurea	18	4	22 (30%)
Sulphonylurea plus thiazolidinedione (glitazone)	0	1	1 (1%)
Metformin plus glitazone	0	4	4 (5%)
Metformin plus sulphonylurea plus glitazone	1	5	6 (8%)
Metformin plus exenatide	1	0	1 (1%)

There was no record of gliptins, acarbose, or a combination of oral blood-glucose lowering treatment plus insulin at either site.

Treatment pathway

Where blood glucose control remains or becomes inadequate with metformin alone, NICE clinical guideline 66 recommends the usual treatment pathway as:

– adding a sulphonylurea as second-line therapy

– if blood glucose control remains or becomes inadequate, continue and add another blood glucose lowering medication – a glitazone, if insulin is not acceptable.

Of the 74 cases reviewed, 64 (87%) followed this pathway as shown in Table 5.3.4.3.3.

Table 5.3.4.3.3: Adherence to NICE CG 66 treatment pathway

Type of therapy	Number of case by study site		Adherence to set standard
	GP04	GP06	
Metformin	16	20	87%
Metformin plus sulfonylurea	18	4	
Metformin plus sulfonylurea plus glitazone	1	5	

Of the ten cases where the treatment pathway differed from the recommendation:

- Four people were being prescribed a sulphonylurea only. In two of these cases, no record was found of treatment being initiated with metformin and no indication that metformin was contraindicated. Of the remaining two, the records showed that the prescribing of a sulphonylurea was clinically indicated:
  - A sulphonylurea plus a glitazone was being prescribed in one case. This also was found to be clinically indicated for the same reasons as identified in the footnote[1].
  - Metformin plus a glitazone (Pioglitazone) was being prescribed for four patients. According to the NICE guidance, it is acceptable to add a glitazone to metformin as an alternative to a sulphonylurea where lifestyle issues make the risk of hypoglycaemia with sulphonylureas unacceptable. However, there is no record of this being the case here.
  - The prescribing of Exenatide in one case was explored further as this preparation is not recommended for routine use in the treatment of Type 2 Diabetes. The audit revealed that prescribing of exenatide was an appropriate option in this case as the individual met all of the NICE clinical indications for its use:
    - a body mass index of over 35 kg/m^2
    - specific problems of a psychological, biochemical, or physical nature arising form high body weight
    - inadequate blood glucose control (HbA1c of 7.5% or greater) with conventional oral agents after a trial with metformin and sulphonylurea
    - other high-cost medication would otherwise be started.

Choice of drug

Sulphonylureas

In 33 (45%) of the cases reviewed a sulphonylurea was being prescribed, either alone or in combination with other oral blood lowering medication. Table 5.3.4.3.4 lists the sulphonylureas being prescribed, by number of cases at each site.

Table 5.3.4.3.4: Sulphonylureas prescribed

Type of sulphonylurea	Number of cases per study site		Total
	GP04	GP06	
Glibenclamide	9	0	9 (27%)
Gliclazide	11	5	16 (49%)
Glimepiride	0	7	7 (21%)
Glipizide	0	1	1 (3%)
Total			33

1 In both cases, oral blood-glucose lowering therapy had been initiated with metformin, but this had to be stopped due to renal complications (raised serum creatinine and/or lowered eGFR)

Sulphonylureas are associated with hypocglycaemia, with higher risk with long-acting sulphonylureas, such as glibenclamide. Long-acting sulphonylureas should thus be avoided in the elderly and a short-acting alternative used instead. Glibenclamide was prescribed at site GP04 only. Of the nine patients receiving this treatment, seven were aged over 65.

Table 5.3.4.3.5: Prescribing of glibenclamide

Criterion 3. Where a sulphonylurea is indicated, glibenclamide should be avoided in the elderly and short acting alternatives should be used			
Site code	**Number prescribed glibenclamide**	**Number over 65**	**Adherence to set standard**
GP04	9	7	22%
GP06	0	0	100%

Glitazones

A glitazone was prescribed as either second or third line treatment in 11 (14%) of the cases reviewed. Most of the glitazone prescribing was seen in GP06 and pioglitazone was the drug of choice in each of the cases reviewed at this site. Roiglitazone was being prescribed for one patient at GP04.

The NICE guideline states that glitazones:

- Are indicated when blood glucose control is inadequate HbA1c of 7.5% or greater) and after discussion with the patient
- Should be initiated after warning the patient about the possibility of significant oedema and advising on action to take if this develops
- Should not be prescribed to people who have evidence of heart failure or who are at higher risk of fracture.

Table 5.3.4.3.6: Adherence to NICE Criterion 4, glitazone prescribing

NICE guideline requirement	Site code	Number of patients
4.1HbA1c of 7.5% or greater	GP04	1/1
	GP06	Not found
4.2 Option discussed with the patient	GP04	1
	GP06	8/10
4.3 Patient warned of possibility of oedema	GP04	Not found
	GP06	5/10
4.4.1 No evidence of heart failure	GP04	Not found
	GP06	9/10
4.4.2 Higher risk of fracture	GP04	Not found
	GP06	Not found

Recording of some items was not found to be present, particularly in relation to warning patients of the possibility of oedema or that risk of fracture had been considered prior to initiating the glitazone.

Summary

The NICE guideline covers several aspects of oral blood glucose lowering therapy. Firstly, whether an appropriate treatment is initiated, secondly whether the treatment pathway subsequently followed is in line with NICE recommendations. Initiation of treatment was found to be appropriate. Follow up treatment was found to be adherent to the guideline with five exceptions (4 metformin + glitazone; 1 metformin + exenatide). In the first four cases there was no evidence in the records that a sulphonylurea had been considered, or a reason why a glitazone had been initiated without first trying a sulphonylurea. The audit found some evidence from one practice that glibenclamide appeared to be routinely prescribed for patients aged over 65 (seven of nine cases).

5.3.4.4 Lower urinary tract infection in non-pregnant women aged over 16 years and under 65 years

The SIGN guideline focuses on diagnosis of LUTI and treatments prescribed.

Diagnosis

Vaginal itch or discharge

Determining whether vaginal itch or discharge is present is important in diagnosing LUTI as this reduces the probability of bacteriuria. The presence of vaginal itch or discharge may indicate an alternative diagnosis, such as sexually transmitted disease or vulvovaginitis. Of the 79 cases reviewed, the presence or absence of vaginal itch was recorded in 74 cases (94%), 70 of whom were recorded as not having a vaginal itch, and four were recorded as having vaginal itch.

Table 5.3.4.4.1: LUTI audit: recording of presence or absence of vaginal itch

Site code	Itch present	Itch absent	Not recorded	Adherence to the set standard
OOH01	4	70	5	74/79 (89%)

Signs and symptoms plus fever or back pain

The SIGN guideline advises that in patients presenting with symptoms of UTI (such as dysuria, urgency, frequency, polyurea and/or suprapubic tenderness) plus a history of fever or flank/back pain, a diagnosis of upper urinary tract infection should be considered and antibiotic treatment should be initiated. SIGN also recommends that urine culture should be performed in such cases. For the purposes of this audit, services delivering emergency intervention were exempt from the latter part of the criterion on the advice of our expert reviewers.

Of the 79 cases reviewed:

- 48 did not report evidence of fever and/or flank/back pain in addition to UTI symptoms
- 31 reported fever and/or flank/back pain in addition to symptoms of UTI
  - 8 reported symptoms plus flank/back pain
  - 15 reported symptoms plus fever
  - 7 reported symptoms plus fever and flank/back pain
  - 1 reported flank/back pain but no symptoms

Antibiotic therapy was started and instructions on what to do if the symptoms persist was given in all cases. Urine culture was initiated in 4 cases. Table 5.3.4.4.2 gives a breakdown of these findings.

Table 5.3.4.4.2: LUTI audit: breakdown of the presence of signs and symptoms plus fever and/or flank/back pain by case study site

Criterion 2 (SIGN 2.1). In patients presenting with symptoms of UTI who have a history of fever or flank/back pain the possibility of upper urinary tract infection should be considered. Empirical treatment with an antibiotic should be started.				
Site code	**No evidence of signs and symptoms plus fever or flank/back pain**	**Signs and symptoms plus fever and/or flank/back pain**	**Number prescribed an antibiotic**	**Adherence to the set standard**
OOH01	48	31	79	100%

Near patient testing – dipstick test

The SIGN clinical guideline states that the quality of evidence to support the use of dipstick tests is poor and thus recommends that this type of test is only indicated in women with minimal signs and symptoms. Where only one sign or symptom is present, a positive dipstick test indicates 80% probability of bacteriuria, a negative result reduces this to 20%. The recommendation is that dipstick tests should only be used to

diagnose bacteriuria in women with no more than two symptoms of urinary tract infection.

Forty-eight patients (61%) presented with no more than two signs and symptoms, and 31 with three or more. A dipstick test was recorded as having been carried out in 37 (77%) of patients with two or fewer signs/symptoms and 87% of those with three or more signs/symptoms. The number of dipstick tests carried out in relation to the number of presenting signs and symptoms, by case study site, are shown in Table5.3.4.4.3.

Table 5.3.4.4.3: LUTI audit: use of dipstick tests

Criterion 3 (SIGN 2.2.3). Dipstick tests should only be used to diagnose bacteriuria in women with no more than two symptoms.			
Site code	**Number of cases with no more than 2 recorded signs and symptoms**	**Number of cases where a dipstick test was carried out**	**Adherence to the set standard**
OOH01	48	37	77%
Site code	**Number of cases with 3 or more recorded signs and symptoms**	**Number of cases where a dipstick test was carried out**	**Adherence to the set standard**
OOH01	31	27	13%

Management

Antimicrobial prescribing

The SIGN guideline recommends treatment for three days with either trimethoprim or nitrofurantoin.

All 79 patients were prescribed antimicrobial treatment (Table 5.3.4.4.4).

– 66 (84%) were prescribed trimethoprim – 32 (48%) for three days, 34 for less/more than three days.

– 8 were prescribed cephalexin

– 3 were prescribed nitrofurantoin

– 1 was prescribed co-amoxiclav

– 1 was prescribed ciprofloxacin

Two of the three prescribers consistently prescribed a three-day course of trimethoprim whereas the third almost always prescribed trimethoprim for less/more than three days.

Table 5.3.4.4.4: LUTI audit: antimicrobials prescribed

Criterion 4 (SIGN 2.4). Non-pregnant women with symptoms and signs of acute LUTI should be treated with trimethoprim or nitrofurantoin for three days. Quinolones should not be used for empirical treatment of LUTI.							
Site code	**Trimethoprim 3days**	**Trimethoprim less/more than 3 days**	**Nitrofurantion 3 days**	**Nitrofurantion less/more than 3 days**	**Cefalexin**	**Co-amoxiclav**	**Ciprofloxacin**
OOH01	32	34	1	2	8	1	1

Measured against the SIGN guideline, the clinical criterion for treatment was met in only 42% of cases overall. All of the above regimens are identified in the British National Formulary as legitimate treatment choices. The British Society of Antimicrobial Chemotherapy guidance on uncomplicated LUTI states that:

'Suitable empirical regimens for uncomplicated community-acquired lower UTI include:

– Trimethoprim

– Nitrofurantoin

– Oral cephalosporin (such as cephalexin)

– Co-amoxiclav

– A quinolone such as ofloxacin or ciprofloxacin.

The regimen should be chosen in accordance with local resistance patterns and be active against Gram-positive species as well as other Gram-negative species.

Consult your local microbiologist or local treatment recommendations for details of preferred antibiotic regimens'.

For the patients prescribed nitrofurantoin, there was no record of whether any of these patients had been asked about possible renal impairment or advised against taking alkanilising agents.

Management of patients with a recent history of suspected bacterial LUTI

Fifteen (19%) of the 79 case notes reviewed recorded that the patient had a recent history of suspected bacterial LUTI. Of these 15, eight (53%) recorded that a urine sample had been sent for culture as shown in Table 5.3.4.4.5.

Table 5.3.4.4.5: Patients with a recent history of suspected bacterial LUTI

Criterion 5 (SIGN 2.4.1). Patients who do not respond to empirical antibiotic treatment should have urine sample taken for culture to guide change of antibiotic.			
Site code	**Urine sent for culture**		
	Yes	**Not identified**	**Adherence to the set standard**
OOH01	8	7	53%

Advice to patients

The risks and benefits of antibiotic treatment were recorded as having been discussed with all patients by two prescribers and none by the third. All of the patients were told what to do if symptoms persist.

Summary

Choice of agent was generally in line with guidance and may also have been affected by advice from the local microbiology department. Length of treatment was different from the recommended three days in many cases. Studies of GP prescribing have also found closer adherence to guideline recommendations for choice of agent than for duration of treatment in urinary tract infections, with treatment courses longer than recommended in many cases (Kim *et al.*, 2007; Kennedy *et al.*, 2010)

The overuse of dipstick tests may reflect diagnostic conservatism and lack of awareness of guidance. There is also a cost implication of the additional tests carried out.

5.3.5 Analysis of national safety datasets

5.3.5.1 Regulators

Royal Pharmaceutical Society of Great Britain

It proved not to be possible to interrogate the data held electronically by RPSGB on Fitness to Practise (FtP) cases involving prescribing. The RPSGB register is annotated to record pharmacists who are qualified as supplementary and independent prescribers, and the RPSGB advised that it is theoretically possible for their system to group these registrant cohorts together and apart from the other registrants whose names appear on the practising register. However the RPSGB system is not able to make a link from the register to the Fitness to Practise history in order to indicate why an individual might be under investigation. Identifying what any PIP might be or have been investigated for would therefore require accessing each of the files for individual pharmacist independent prescribers. RPS further advised that depending upon the type of investigation, and more the outcome and sanction following an investigation, a prescribing pharmacist may no longer be on the practising register, but might (for example by virtue of health matters) have moved to the non-practising register. However there is no information to clarify why and for how long a sanction exists without previously having accessed the FtP file history.

RPSGB was not able to offer to a search of individual PIP files due to the resource intensive nature of this work. Furthermore because of requirements for confidentiality RPS was not able to offer a search facility at this level for a researcher to attend the office and view the files. In any case for this latter option to be achievable RPS would also have needed to identify all registrants affected and write to seek their permission

to give access, which might or might not have been granted.

Review of the Annual Reports of the Fitness to Practise Committee did not identify any cases which related to prescribing. The RPSGB category which is likely to cover prescribing is 'Failure to adhere to professional/legal standards of practice (Standard Operating Procedures) including general Code of Ethics issues and restricted titles'. The committee considered 297 such cases as the Statutory Committee and 23 as the Disciplinary/ Health Committee in the period covered by the report. No breakdown is available of the detail of these cases.

RPSGB suggested an online search of all of the statutory notices relating to FtP cases (included in the PJ and on the website) which would include details of the charges brought and found and the sanctions determined by the Investigating, Disciplinary, or Health Committees. However the search would need to be conducted by name of registrant (using the cohort identified from the register) and would ultimately account for all prescribers currently having annotated records of specialism in the practicing register. This suggestion was not taken forward as the level of resources required was beyond those available to the current study.

Nursing and Midwifery Council

Review of the NMC Annual Fitness to Practise reports showed that in 2008–9 the NMC received 2,178 allegations relating to Fitness to Practise of which 1,759 were investigated and 740 resulted in sanctions. There were 11.75% of cases which involved an allegation relating to administration of drugs, with the percentage in the preceding years being 9.87% for 2007–8 and 10.47% in 2006–7. A new category of 'lack of competence' introduced in the 2008–9 report was reported in 8.66% of allegations. The percentage of allegations involving 'unsafe clinical practice' was similar over the three-year period at 7.48%, 7.75%, and 7.78%. There is no breakdown of detail of the cases.

The NMC's data systems are not able to run an analysis to identify any cases involving prescribing. The NMC commissioned an electronic case management system in 2009 for Fitness to Practise cases but the system does not have a category of 'prescribing' or 'medicines' so the NMC was not able to undertake a search. Anecdotally the NMC informed us that they receive very few referrals involving prescribing. A British Medical Journal report cites a single NMC case relating to nurse prescribing (Hawkes, 2009).

Professional indemnity insurers

Under NHS indemnity, NHS employers are ordinarily responsible for the negligent acts of their employees where these occur in the course of the NHS employment and 'Where a nurse, midwife, or pharmacist is appropriately trained and qualified and prescribes as part of their professional duties with the consent of their employer, the employer is held vicariously liable for their actions'. Therefore professional indemnity insurance is only required by IPs who are self-employed or who work as independent contractors in contract with the NHS. Nurses and pharmacists who work in general practice are generally included within the cover for that practice. Pharmacist prescribers who work in community pharmacy or are self-employed are required to have professional indemnity insurance.

Royal College of Nursing

The RCN deals with claims relating to nurses working in primary care or who are self-employed and told us they may be handling 50 or more indemnity claims at any one time.

The RCN stated they have only one case of clinical negligence involving a nurse prescriber, who was practising privately in aesthetics.

National Pharmacy Association

The National Pharmacy Association is the national association for community pharmacy. It offers professional indemnity insurance that is mainly taken up by community pharmacy owners. Their response was that, so far as they are aware 'there have been no claims (yet) arising from the diagnosing/prescribing activities of IPs'.

Medical Defence Union

The Medical Defence Union insures over half of the GPs in the UK. Following a review and analysis of claims data relating to general practice, in February 2009 the MDU issued a press release warning its GP members of the risks of prescribing errors when treating patients with long-term conditions. Research by the MDU has shown that, on average, a GP member might be expected to be notified of a claim every 30 years. Not all of these claims will progress, and MDU reports that in their experience around 70% will not be pursued or

will be formally discontinued. The MDU also reports that settled claims take 6–8 years from the date of the incident to settlement. The 2009 analysis showed that there were 69 settled claims involving medication errors over the two-year period covered, 21 of which involved prescriptions for repeat medicines, the most frequent cause of a settled claim. The MDU notes that 'medication errors are still one of the main reasons for settling claims on behalf of the MDU's GP members'. These claims mainly related to a failure to monitor or warn of the side effects of the medication. Drug types included hypnotics (six), including benzodiazepines, and steroids (four). Medication errors account for a quarter of settled claims against GP members of the MDU and a 2004 analysis of 100 patient safety incidents reported to the MDU medico-legal advice line showed that just over a third (35%) of those reported in primary care involved medication errors, and of these 65% were vaccine errors.

Medical Protection Society

The MPS reports that 20% of all clinical negligence claims made against doctors in both primary and secondary care involve medication errors (MPS, 2010). A report from the Medical Protection Society (Roberts 2009) outlined the most common risks found in GP practices by analysing the findings of recent practice risk assessments undertaken in the UK. Prescribing was the second highest risk area and the main risk areas identified were lack of a repeat prescribing protocol; reception staff allowed to add acute and repeat medications to the computer; no medication review dates set; and no recall systems for patients on long-term medication.

5.3.5.2 NHS organisations

National Patient Safety Agency

The NPSA holds aggregated quantitative data and full text incident reports. The Agency is not able to analyse quantitative data by type of prescriber as this information is provided as free text by the individual making the report. In order to identify prescriber type it would be necessary to undertake a contextual analysis of free text data in individual reports. We did not explore the possibility of setting up a data sharing agreement as the resources available for the study precluded the detailed data extraction and analysis that would have been required.

At national level the NPSA has reported that 22.7% (597) of incidents reported up to the end of 2006 in primary care involved medication. In 2009 the NPSA reported on medication incidents in the NHS (NPSA 2009). Incidents involving medicines were the third largest group (nine per cent) of all incidents reported to the RLS (72,482). The majority of medication incidents (96 per cent) had actual clinical outcomes of no harm or low harm. Acute care (all specialties) remains the highest reporter of medication incidents (76 %). 8% of reports were made from community nursing, medical and therapy services, 3% from community pharmacy and 1% of reports from general practice. Of the 100 medication incident reports of death and severe harm most were caused by errors in medicine administration (41%) and, to a lesser extent, prescribing (32%).

Incidents involving injectable medicines represent 62% of all reported incidents leading to death or severe harm. Types of medicines most frequently associated with severe harm include cardiovascular, anti-infective, opioid, anticoagulant, and anti-platelet medicines.

Health Ombudsman and NHS Litigation Authority

Other possible data sources on safety incidents involving prescribing are the NHS systems for complaints, for litigation and the National Clinical Assessments Service (NCAS). Review of annual reports and searches of these organisations' websites identified one cases relating to medical (GP) prescribing and none relating to non-medical prescribing.

5.4 Clinical governance and risk management

5.4.1 Key points

- Most Trusts report having most key clinical governance and risk management mechanisms in place for non-medical prescribing and 60% of Trusts have a NMP committee.
- Systems for dealing with poor performance of NMPs were more frequently reported for secondary than primary care Trusts.
- Most Trusts do not have a system to cover services provided by non-medical prescribers when they are absent.
- Monitoring of the prescribing of NMPs is undertaken by many but not all Trusts, participation in clinical audit is reported by 50–66% and most Trusts do not obtain patient feedback on patient care provided by NMPs.
- NIPs and PIPs report using a range of quality assurance tools and methods of CPD in their practice.
- Most NIPs and PIPs have support/supervision from an experienced medical or non-medical prescriber.
- Almost three-quarters of NIPs and over 60% of PIPs say they have a regular appraisal which includes their prescribing role.
- Support for CPD from Trusts is concentrated on provision of in-house courses with low access to study leave and protected learning time.
- There was some evidence that NIPs who work across health professional teams (community matrons, district nurses and health visitors) reported more difficulties in accessing support and supervision.
- A small percentage of NMPs leads and NIPs/PIPs said that their CPD was not adequate to maintain patient safety.
- Clinical governance arrangements for prescribing were considered 'adequate' by 63% of NIPs and 57% of PIPs.

This Chapter will present results addressing the research question 'Are the operational arrangements for clinical governance and risk management for independent prescribing by nurses and pharmacists adequate and sufficiently robust to ensure patient safety?'. Results are presented from the national surveys of NIPs and PIPs in order to determine the quality assurance methods in use, the extent of appraisal and personal development plans and to obtain data on sources of CPD for current and extended competencies. In addition we also present here our findings from the national NMP leads survey in relation to Trust level use of clinical governance tools and provision of CPD.

5.4.2 Results

5.4.2.1 Clinical governance and risk management strategies in operation

Respondents in the survey of NMP leads were asked a series of questions about policies, systems, monitoring, and support mechanisms in place for NMPs. The results are shown in Tables 5.4.2.1.1 to 5.4.2.1.4.

Table 5.4.2.1.1: Organisational systems for NMP

	PCT	Acute / Foundation	Mental Health / Foundation
Current database of NMPs	100% (26)	100% (37)	100% (23)
Clear responsibility and accountability	96%[a]	97%[a]	95%
Mechanism for selecting candidates for training	96%	94%	93%
Able to identify which NMPs are prescribing	88%	92%	90%
NMPs have an agreed scope of practice	75%	85%[b]	95%
NMP is included in job description/contract	75%[c]	80%[b]	75%
System for dealing with poor performance	67%[b]	86%[b]	90%
Consideration has been given to cover for absence, etc.	38%[c]	37%[d]	10%[b]
Key: [a] 1 respondent D/K, [b] 2 respondents D/K, [c] 3 respondents D/K, [d] 4 respondents D/K			

All respondents reported having a current database of NMPs. Over 90% said that there were clear responsibility and accountability arrangements in place for NMPs and that their Trust had a mechanism in place for selecting candidates for training. Slightly fewer respondents, around 90% overall, said they were able to identify which of their qualified NMPs were actually prescribing.

Secondary care Trust respondents were more likely than those from PCTs to say that their Trust had a requirement for NMPs to have an agreed scope of practice. Three-quarters of respondents reported that NMP was included in job descriptions and contracts, with similar levels across different types of Trust. Systems for dealing with poor performance were less widely reported in primary care where two-thirds of respondents said they were in place. Fewer respondents reported that their Trusts had considered or put in place systems to provide cover for NMP services during staff absence, with respondents from Mental Health/Foundation Trusts least likely to do so.

Respondents were asked about the systems and policies in place in relation to safety information and the results are shown in Table 5.4.2.1.2.

Table 5.4.2.1.2: Policies and systems for safety information

	PCT	Acute/ Foundation	Mental Health/ Foundation
System to disseminate safety information to NMPs	96%	91%	90%
System for learning from adverse incidents	96%	89%	100%
Policy on reporting of adverse events including to NPSA	96%[a]	94%	100%
Key: [a] 1 respondent D/K			

The vast majority of respondents across all Trust types reported that their Trust had in place systems for disseminating safety information, learning from adverse incidents, and policies for reporting of adverse events.

Respondents were asked about the policies in place in their Trusts and the results are shown in Table 5.4.2.1.3.

Table 5.4.2.1.3: NMP policies by Trust

	PCT	Acute/ Foundation	Mental Health/ Foundation
Up to date NMP policy	96%	97%	95%
Up to date CD policy	83%[b]	94%[a]	80%
Policy on unlicensed & off-label prescribing	83%	100%	90%
Key: [a] 1 respondent D/K, [b] 2 respondents D/K			

Almost all respondents said that their Trust had up to date policies for NMP and for CDs. Primary Care Trusts and Mental Health/Foundation Trusts were slightly less likely than Acute/Foundation Trusts to have a policy on off-label prescribing and prescribing of unlicensed medicines.

The survey asked about three types of support for NMP – support for newly qualified prescribers, general support for NMPs, and access to computerised prescribing and decision support. The results are shown in Table 5.4.2.1.4.

Table 5.4.2.1.4: Supervision and support for NMPs

	PCT	Acute/ Foundation	Mental Health/ Foundation
Support for newly qualified prescribers	88%	83%	80%
NMPs receive appropriate support or supervision	75%[b]	80%[a]	95%
NMPs are supported for access to computer & decision support	71%[a]	23%[e]	35%[b]
Key: [a] 1 respondent D/K, [b] 2 respondents D/K, [c] 3 respondents D/K, [d] 4 respondents D/K, [e] 5 respondents D/K			

Support for access to computer and decision support was very low in both Acute/Foundation and Mental Health/Foundation Trusts.

Most respondents said that their Trust provided support for newly qualified prescribers. Some respondents said that plans were in hand to increase this support:

'The NMP policy is currently under review and it has been agreed that a period of "preceptorship" will be included to ensure there is appropriate support for newly qualified prescribers'.

NMPs in Acute/Foundation and Mental Health/Foundation/Foundation Trusts were considerably less likely than those from PCTs to say that their Trust supported access to computerised prescribing and decision support.

5.4.2.2 Quality assurance of NMP

NMP leads were asked whether their Trust monitored NMPs' prescribing, whether they monitored patient experience of NMP and whether their NMPs participated in clinical audit. The results are shown in Table 5.4.2.2.1.

Table 5.4.2.2.1: Systems for assuring quality of NMP

	PCT	Acute/ Foundation	Mental Health/ Foundation
Systems for monitoring prescribing	79%[b]	60%[b]	65%[b]
Participation in clinical audit	50%[c]	66%[b]	60%[b]
Monitoring of patient experience	21%[a]	14%[a]	30%[a]
Key: [a] 1 respondent D/K, [b] 2 respondents D/K, [c] 3 respondents D/K			

Respondents from Primary Care Trusts were more likely to report that their Trust has systems for monitoring prescribing by NMPs (79%). Participation in clinical audit was reported to be highest in Acute/Foundation Trusts (66%) compared with 50% in PCTs. Trust involvement in monitoring of patient experience was low overall, and higher in Mental Health/Foundation Trusts (30%) than in PCTs and Acute/Foundation Trusts.

Data from the NIP and PIP surveys sheds light on the experience and practice of individual prescribers in relation to the use of different quality assurance tools.

Table 5.4.2.2.2 shows the quality assurance methods used by NIPs and PIPs in relation to the treatment area most frequently prescribed in.

Table 5.4.2.2.2: Quality assurance methods used by NIPs and PIPs in relation to the treatment area most frequently prescribed in

	NIPs (n=840)	PIPs (n=142)
Significant event analysis	38.8%	38.7%
Case audit in specific clinical area	39.8%	40.1%
Patient/service user survey	29.9%	32.4%
Peer review	54.8%	66.2%
Monitoring of my prescribing data	67.6%	52.8%
Personal records (NIPs)/Evidence Portfolio (PIPs)	54.8%	38.7%

When asked about quality assurance methods in relation to the treatment area most frequently prescribed in, 'monitoring of my prescribing data' (67.6%) was the most frequently reported method by NIPs, followed by peer review and 'personal records' (both 54.8%).

Peer review was the most frequently reported method for PIPs (66.2%), followed by 'monitoring of my prescribing data' (52.8%) (see Table 5.4.2.2.2). This pattern was broadly similar in PIPs' second most frequent treatment area. Use of case audit, significant event analysis, evidence portfolio, and patient/user survey were reported by 40% or fewer respondents for both NIPs and PIPs.

Table 5.4.2.2.3 shows the quality assurance areas used by PIPs by work setting.

Table 5.4.2.2.3: Quality assurance methods used by PIPs in relation to the treatment area most frequently prescribed in (n=142)

	Overall	General Practice	NHS Trust
Significant event analysis	38.7% (55)	50.6%	27.7%
Case audit in specific clinical area	40.1% (57)	40.3%	32.6%
Patient/service user survey	32.4% (46)	37.7%	21.3%
Peer review	66.2% (94)	64.9%	68.1%
Monitoring of my prescribing data	52.8% (75)	63.6%	34.8%
Evidence Portfolio	38.7% (55)	42.9%	32.6%

In response to the question 'Does your practice/directorate/department routinely conduct audit of prescribing?' 56% of NIPs and 57.7% of PIPs said 'yes', 20% of NIPs and 27.5% of PIPs 'no', and the remaining 24% of NIPs and 14.8% of PIPs said they did not know. NIPs and PIPs were more likely to report no routine audit if their main prescribing setting was an NHS Trust as opposed to a general medical practice in primary care (30.5% vs 8.8% for NIPs and 38.3% vs 15.6% for PIPs). Of those respondents who reported that audit was routinely conducted, 89.1% of NIPs and 86.6% of PIPs stated that their prescribing was included in this, 3.2% of NIPs and 12.1% of PIPs said that it was not and 7.7% of NIPs and 1.3% of PIPs did not know.

Approximately half of the sample reported that they did not receive or have access to reports on the medicines they had prescribed: 52% of NIPs and 51% of PIPs reported 'no' to this item. NIPs were more likely to report no access if they worked in an NHS Trust as their main prescribing setting as opposed to a general medical practice (65.3% vs 38.6%). PIPs were more likely to report having access if they worked in a general practice as opposed to an NHS Trust (66.2% vs 25.5.6%).

With the exception of peer review, use of all of the quality assurance (QA) methods was more likely to be reported by PIPs who prescribed in a general medical practice in primary care compared with those prescribing in NHS Trusts.

Asked whether these QA methods were different than those used to monitor the practice of doctors with whom they worked, 50.6% of NIPs and 43.7% of PIPs reported that they did not know, 38.5% of NIPs and 40.1% of PIPs said 'no', and 11% of NIPs and 16.2% of PIPs stated that they were different. Consultant nurses were more likely (25%) to say that these methods used for their practice were different than doctors. Overall, comments about difference mainly referred to more auditing of the NIP's practice and the lack of monitoring of doctors' practice in many instances. Consistent with this, those who reported that they receive or have

access to regular reports on the medicines they have prescribed and those whose practice/directorate/department routinely conducts audit of prescribing were more likely to report that methods used to quality assure practice were different to doctors with whom they worked (39.8% and 41.9% respectively). PIPs prescribing in NHS Trusts were slightly more likely to report that the methods were different (19% vs 14% in general practice). Overall, comments about differences mainly referred to more QA of the PIP's practice, particularly case audit and peer review, and the lack of monitoring of doctors' prescribing.

5.4.2.3 Mechanisms for policy and implementation in Trusts

NMP Committees are likely to be a key element in Trusts' policy and implementation of NMP. We asked respondents whether their Trust had a NMP committee and 53 (60%) of Trusts were reported to have one (range 40–86% by type of Trust). Acute/Foundation Trusts were most likely (74%) to have a NMP committee, followed by PCTs (63%), with Mental Health / Foundation Trusts least likely to report having one (50%). At SHA level the percentage ranged from 20%–87%. Some respondents whose Trust did not have a NMP committee explained that they had a different mechanism for oversight of NMP:

> 'We have a NMP shared leadership group which the NMP lead attends to update clinical staff re national and local issues. Currently reviewing the TOR and governance. The meeting is held bi-monthly and is very well attended'.

Those respondents whose Trust had a NMP committee were asked about its reporting route and the results are shown in Table 5.4.2.3.1. Just over half of the Trusts' NMP committees reported to a single other committee, most commonly the Medicines Management Committee, MMC (22) or the Drug and Therapeutics Committee, DTC (9). In the remaining Trusts the NMP committees reported to more than one committee (including MMC, DTC and Clinical Governance committee) and to other Trust groups including the Board in a small number of cases.

Table 5.4.2.3.1: NMP committee reporting mechanism by Trust type

	Medicines Management Committee	**Drug and Therapeutics Committee (secondary care only)**
Primary Care	10 (63%)	-
Acute/Foundation	24% (7)	17% (5)
Mental Health/Foundation	31% (4)	31% (4)
Care	1	-
Total	22	9

5.4.2.4 Appraisal and Continuing Professional Development (CPD)

Respondents were asked a range of questions about their current experience of support and CPD in relation to independent prescribing.

Almost three quarters of NIPs (72.5%) and 61.3% of PIPs reported that they currently had an appraisal which included IP. Figure 5.4.2.4.1 illustrates that NIPs who work in roles that operate across GP practices (Community Matrons, District Nurses and Health Visitors) in primary care were proportionately more likely not to have an appraisal than other types of NIPs. PIPs prescribing in secondary care Trusts were more likely to report having an appraisal (72.3%) than those prescribing in general practices (54.5%). Of those who had an appraisal, 5.6% of NIPs and 6.9% of PIPs reported that this took place every 3–6 months, 50.6% of NIPs and 54% of PIPs every 6–12 months, 41.4% of NIPs and 36.8% of PIPs stated every 1–2 years, and 2.5% and 2.3% of NIPs and PIPs respectively less frequently than every 2 years.

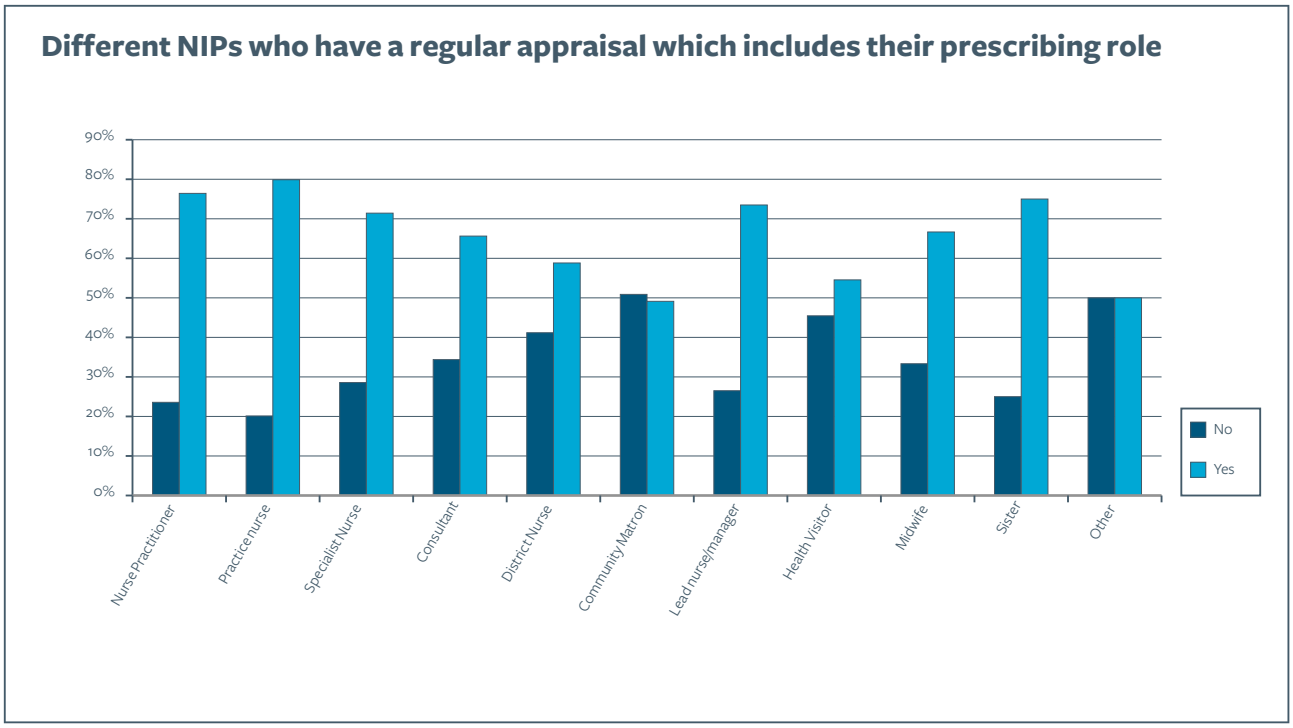

Figure 5.4.2.4.1: NIPs who have a regular appraisal which includes their prescribing role

61.5% of NIPs and 66.9% of PIPs reported that they have a personal development plan that includes their prescribing. Again, those NIPs most likely to have responded negatively to this were Health Visitors, Community Matrons and District Nurses. Consultant Nurses were also almost equally likely to respond 'no' to this item as 'yes', although again the sample size of this group was comparatively small (n=32). As for appraisals, those PIPs prescribing in NHS Trusts were more likely to report having a PDP (72.3%) than those working in general practice (63.6%).

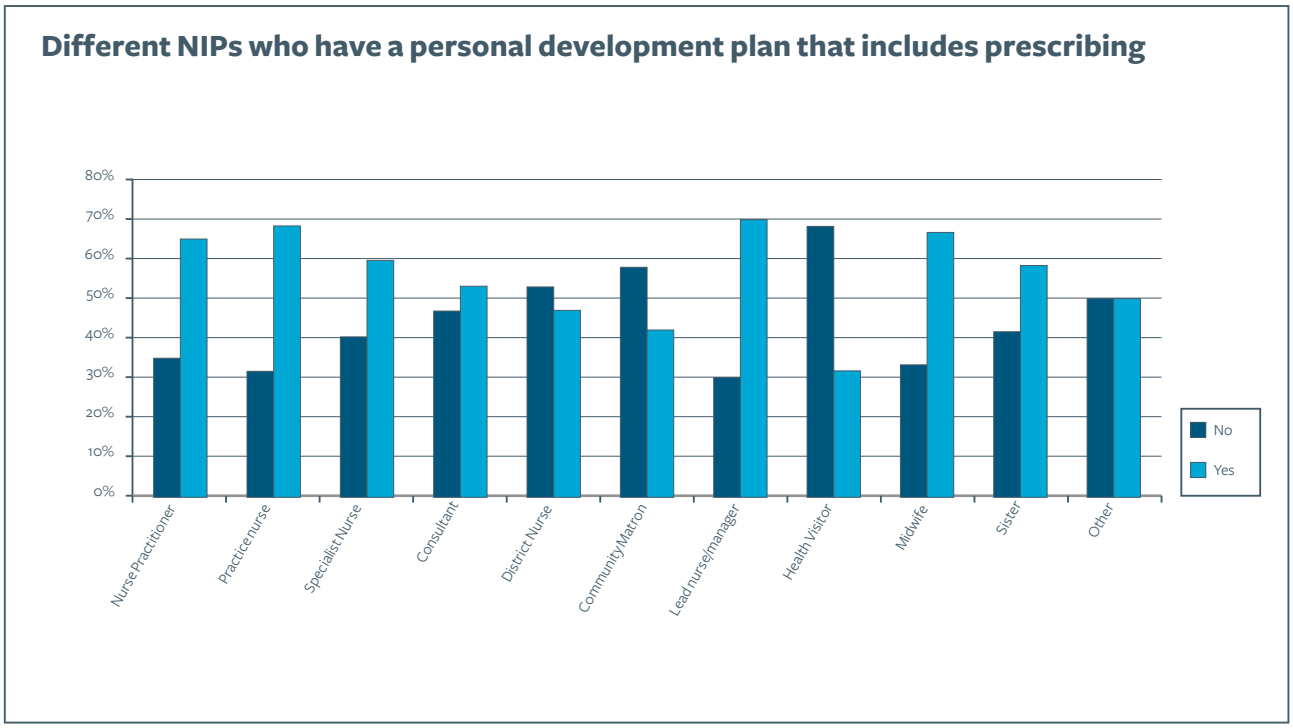

Figure 5.4.2.4.2: NIPs who have a personal development plan that includes prescribing

Respondents were also asked about their experience of medical prescribers reviewing their prescribing practice after qualifying as a prescriber. Table 5.4.2.4.1 indicates that this was in place for around half of NIPs and two-thirds of PIPs, with a frequency of between once a week and once a year; review by a medical prescriber was not a feature of on-going prescribing practice for as many as half of NIPs and just over one-third of PIPs. However, 77.4% of NIPs and 88.7% of PIPs indicated that they had 'on-going support from an

experienced prescriber'. District Nurses and Sisters were most likely to report that this was not in place (although sample numbers are small: n=17 and 12 respectively). The percentage of PIPs who reported never having a review with a medical prescriber was higher among those in NHS Trusts (48.9%) than in general practices (31.2%) but the percentages indicating that they had 'on-going support from an experienced prescriber' were similar in NHS Trusts and general practices.

Table 5.4.2.4.1: Frequency of NIPs' and PIPs' review sessions with a medical prescriber

	NIPs	PIPs
Once a week	6.8% (57)	7.7% (11)
Once a fortnight	2.5% (21)	2.1% (3)
Once a month	8.9% (75)	12.7% (18)
Every 3 months	9.4% (79)	14.8% (21)
Every 6 months	7.3% (61)	11.3% (16)
Once a year	15.4% (129)	15.5% (22)
Never	49.8% (418)	35.9% (51)

Finally, respondents were asked if they had access to a network of non-medical prescribers: 76.5% of NIPs and 77.5% of PIPs reported 'yes'. District Nurses were the NIP group most likely to report no access to this, with almost equally numbers responding 'no' and 'yes'.

Analysis across a number of the items on support and CPD indicate that some NIPs may lack a number of important strategies for formally reviewing their prescribing-related needs. Of the 27.5% (n=231) of those who stated that they did not have an appraisal that included their prescribing role, 74% of these do not have a personal development plan that includes prescribing, and 74% never have a session to review their independent prescribing practice with a medical prescriber. However, 62% of this group reported on-going support from an experienced prescriber.

PIPs who stated that they did not have an appraisal that included their prescribing role (38.7%) were less likely to state that their CPD was adequate to maintain safety (56% vs 80% of those who did have an appraisal).

Respondents reported a range of frequently used strategies to keep up to date (see Table 5.4.2.4.2); of the items pre-specified in the questionnaire, the top three for NIPs were: BNF, use of the internet and peer network, and for PIPs were: use of the internet, reading peer-reviewed journals and BNF. Use of the NHS electronic libraries for health and medicines were reported almost twice as frequently by PIPs than by NIPs, and reading peer-reviewed journals was also more frequently reported by PIPs. This may reflect the high proportion of PIPs prescribing in specific clinical areas. NIPs were more likely than PIPs to report using National Prescribing Centre sessions and pharmaceutical industry representatives.

Table 5.4.2.4.2: NIPs' and PIPs' reported sources for keeping up to date

	NIPs	PIPs
Peer network	77.3% (649)	63.4% (90)
Using the internet	78.6% (660)	82.4% (117)
National Prescribing Centre NMP sessions	44.3% (372)	34.5% (49)
Centre for Pharmacy Postgraduate Education	N/A	40.1% (57)
Pharmaceutical industry representatives	37.9% (318)	26.1% (37)
National Prescribing Centre's Electronic Information Resource (NPCi)	44.9% (377)	54.2% (77)
BNF	95.2% (800)	72.5% (103)
Reading peer-reviewed journals	63.2% (531)	79.6% (113)
Access to Trust and other local newsletters	52.6% (442)	41.5% (59)
National Electronic Library for Health	35.2% (296)	61.3% (87)
National Electronic Library for Medicines	31.7% (266)	61.3% (87)
Other	15.5% (130)	22.5% (32)

When asked specifically about pharmaceutical company representatives, approximately one-third of the sample saw such reps at least once a month (Table 5.4.2.4.3). The majority however reported a less frequent pattern of contact than this, with about half of the sample reporting that this was 'rarely' or 'never'. The majority of NIPs (57.3%) and PIPs (57.1%) who reported seeing representatives considered that they were 'useful', with 11.2% of NIPs and 36.9% of PIPs reporting they found them 'not useful', and 8.7% of NIPs and 2.5% of PIPs suggesting they were 'very useful'. These findings probably explain the higher percentage of NIPs using pharmaceutical industry representatives as a source for keeping up to date.

Table 5.4.2.4.3: Frequency with which NIPs and PIPs reported seeing pharmaceutical industry representatives

	NIPs	PIPs
1–2 week	4.8% (40)	7.7% (11)
1–2 month	21.3% (179)	23.2% (33)
Less than once per month	24.6% (207)	16.2% (23)
Rarely	32.9% (276)	38.7% (55)
Never	15.2% (128)	13.4% (19)
Not applicable	1.2% (10)	0.7% (1)

Results of an item asking about their organisation's support for CPD are shown in Table 5.4.2.4.4. More NIPs reported having access to support for CPD than PIPs for all items. Some of these differences were very small but for study leave and protected learning time they were more substantial. Approximately three-quarters of NIPs (78.3%) and 54.2%% of NIPs reported study leave availability. Access to in-house training courses was reported by 71.3% of NIPs and 66.9% of PIPs. There was less than universal access to a budget for external courses (58.6% of NIPs and 55.6% of PIPs) or protected learning time, the latter only being available for 34.8% of NIPs and 16.2% of PIPs. NIPs in WiCs were more likely to report no access to study leave (32.6%). Protected learning time was more common in primary care than NHS trust settings (46.3% vs 19.9%). Access to in-house training courses was similar for PIPs working in NHS Trusts and general practices. Access to study leave and external training courses for PIPs was higher in NHS Trusts 63.8% vs 48.5%, and 63.8% vs 48.1% respectively, and conversely protected time was more likely to be reported by PIPs working in general practice (24.7% vs 4.3%).

Table 5.4.2.4.4: Support PIPs report receiving from their organisation for CPD (n=142)

	NIPs	PIPs
Study leave	78.3% (658)	54.2% (77)
In-house training courses	71.3% (599)	66.9% (95)
Access to budget for external training courses	58.6% (492)	55.6% (79)
Protected learning time	34.8% (292)	16.2% (23)

Finally in this section, we asked whether respondents would describe 'your existing CPD activity as adequate to ensure your prescribing is safe?' 81.9% of NIPs and 93% of PIPs said 'yes'. There were no differences for PIPs by prescribing setting. Analysis by NIP job title indicated that the highest numbers who responded 'no' were District Nurses, Community Matrons and Health Visitors, although numbers of District Nurses (n=17) and Health Visitors (n=22) in the survey overall were small (see Figure 5.4.2.4.3).

Use of in-house training courses was high among both NIPs and PIPs at around two-thirds in each group. Respondents in the NMP leads survey were asked about provision and monitoring of CPD by their Trust and the results are shown in Table 5.4.2.4.5.

Table 5.4.2.4.5: Provision and monitoring of CPD by Trust

	Yes	No
Is CPD for IPs provided by the Trust? (n=81)	59 (67%)	22 (25%)
Is the uptake of CPD by IPs monitored? (n=60)	51 (58%)	9 (10%)
Is the CPD provided by the Trust adequate to maintain the safety of IPs? (n=59)	41 (47%)	18 (21%)

Two-thirds of respondents said that their Trust did provide CPD for NMPs. Of the 22 respondents who said their Trust did not do so, six said that IPs were responsible for seeking their own CPD, four that CPD was provided externally, two that there was no structure in place to support CPD, and two that there was no funding. Provision of CPD by type of Trust is shown in Table 5.4.2.4.6.

Table 5.4.2.4.6: Provision of CPD by type of Trust

	Yes	No
Primary Care	19 (79%)	5
Acute/Foundation	21 (60%	14
Mental Health/Foundation	17 (85%)	3
Care	2	-
	59	22

Respondents from Mental Health/Foundation and Primary Care Trusts were more likely to report that their Trust provides CPD than those from Acute/Foundation Trusts. Analysis at SHA levels showed a range from 43%–100%.

Those respondents who reported that their Trust provided CPD were asked whether this was monitored and 58% said it was. A breakdown of data on monitoring of CPD by type of Trust is shown in Table 5.4.2.4.7.

Table 5.4.2.4.7: Monitoring by Trusts of the CPD they have provided

	Yes	No
Primary Care	17 (89%)	2
Acute/Foundation	16 (73%)	6
Mental Health/Foundation	16 (94%)	1
Care	2	-

There were no major differences between Trusts in whether they monitored the CPD they provided. A breakdown of responses by type of Trust on perceived adequacy of CPD in maintaining safety is shown in Table 5.4.2.4.8.

Table 5.4.2.4.8: Is the CPD provided by the Trust adequate to maintain safety of IP?

	Yes	No
Primary Care	12 (63%)	7
Acute/Foundation	16 (76%)	5
Mental Health/Foundation	13 (77%)	4
Care	-	2

There were no major differences between Trusts in whether the CPD they provide is adequate to maintain safety.

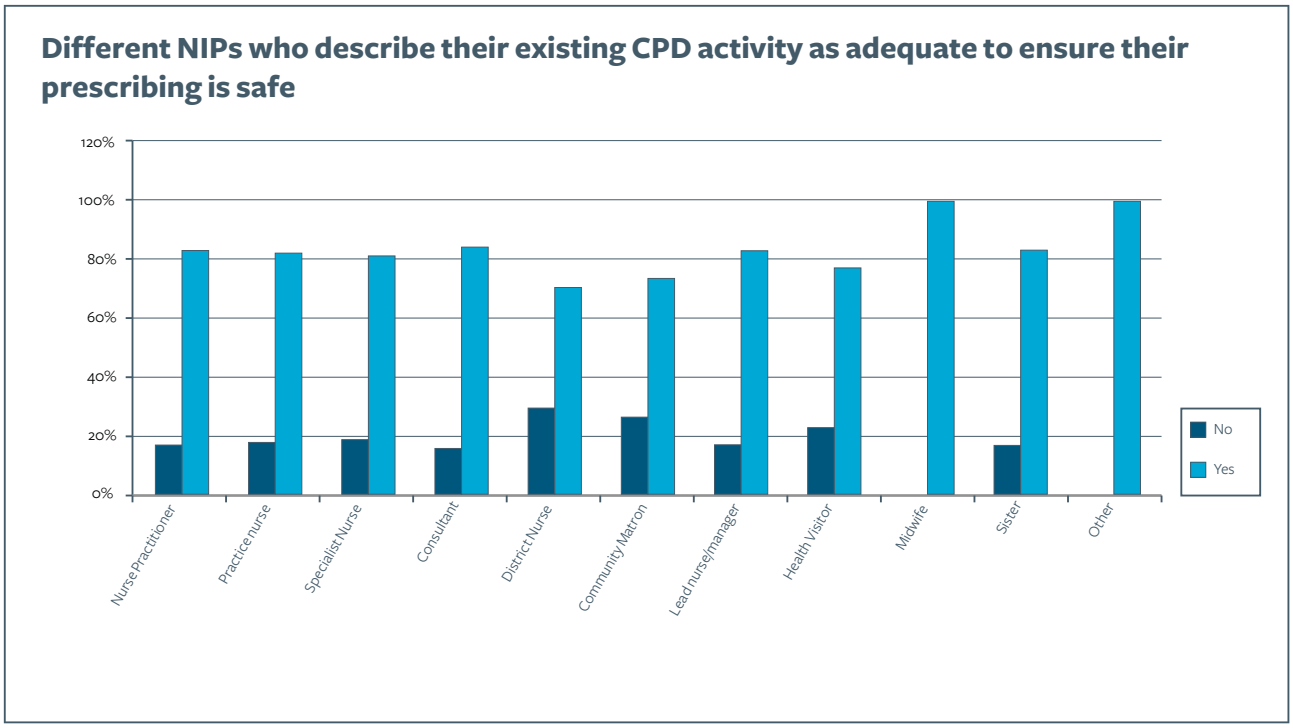

Figure 5.4.2.4.3: NIPs who describe their existing CPD activity as adequate to ensure their prescribing is safe

5.4.2.5 Decision support and extension of IP competencies

In the surveys of NIPs and PIPs we asked a range of questions about how they and others quality assure and monitor their practice as part of overall governance of PIP. Table 5.4.2.5.1 shows the proportion of responders who use various decision support sources routinely for their most common treatment area.

The majority of PIPs and NIPs cited national guidelines and the BNF as their most frequently used decision support sources for both their ost common and second most common treatment areas. The percentages citing PCT and NHS Trust guidelines roughly correspond to the proportion of NIPs and PIPs working in secondary and primary care. Practice guidelines were used by a substantial minority of both NIPs and PIPs.

Table 5.4.2.5.1: Decision support sources used routinely by PIPs for their most common treatment area

	PIPs (n=142)	NIPs (n=840)
National guideline	124 (87.3%)	694 (82.6%)
PCT guideline	67 (47.2%)	497 (59.2%)
Practice guideline	56 (39.4%)	329 (39.2%)
NHS Trust guideline	67 (47.2%)	376 (44.8%)
BNF	120 (83.9%)	781 (92.9%)
Prescribing decision support (e.g. EMIS)	21 (14.8%)	167 (19.9%)

Roughly half of the sample (45% of NIPs and 51% of PIPs) were able to generate their own computer-generated prescriptions. For PIPs these proportions probably reflect the 55% of PIPs prescribing in primary care and 37.5% in NHS Trusts. Whilst NIP respondents worked across a range of settings, including those where computer-generated scripts are not available for any health care professional (e.g. patients' homes, secondary care settings), nevertheless this remains a high proportion of the sample and is inclusive of many in primary care, where working with computer-generated scripts would be expected by doctors.

In all, 588 NIPs (70%) and 103 PIPs (72.5%) commented on how they prepare themselves for prescribing competence in a new area (see Figure 5.4.2.5.1) and 28% of these NIPs and 29% of PIPs said they had not prescribed in a new area since completing the IP course. Of those IPs who had moved into a new clinical area since undertaking their course, the majority of both NIPs (77%) and PIPs (87%) identified multiple methods to prepare themselves to prescribe in a new area. The most frequently reported method by NIPs was undertaking courses/training (18%) and for PIPs, self-directed reading/study (19%) and undertaking courses/

training (19%). The latter were provided by universities, the National Prescribing Centre, and the Centre for Pharmacy Postgraduate Education in the form of courses, updates, and study days. 13% of NIPs undertook self-directed study or research using various resources, including: internet, professional magazines, journals and text books. Of the 13% who reported using guidelines, these included NICE, CKS, and trust protocols/ guidelines. About a third of PIPs and a quarter of NIPs reported the use of more experiential methods of achieving competence – discussion/meeting/forums with colleagues, clinical supervision and observing/ shadowing colleagues.

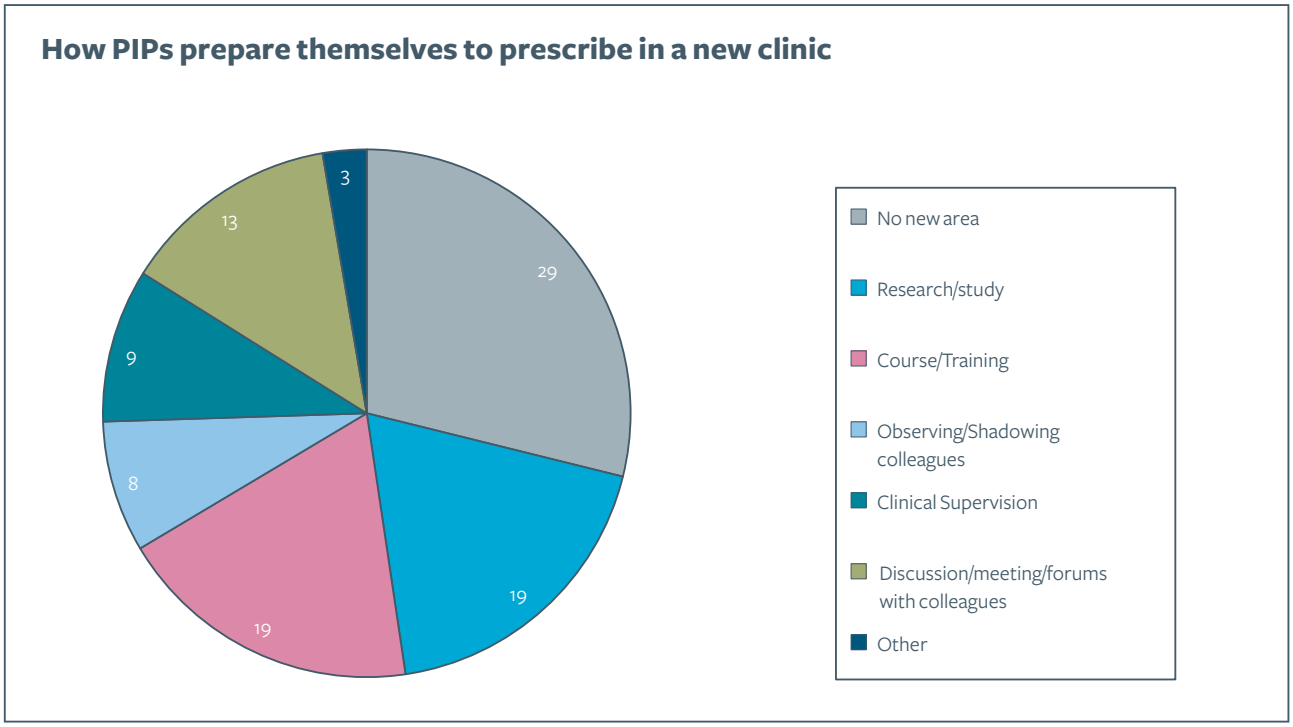

Figure 5.4.2.5.1: How PIPs prepare themselves to prescribe in a new clinical area

NIPs' and PIPs' responses to how confident they would be about departing from a prescribing protocol, guideline or formulary are shown in Table 5.4.2.5.2. This indicates that two-thirds of NIPs and over three-quarters of PIPs would have some degree of confidence in doing this, with 6.1% of NIPs and 9.9% of PIPs 'very confident'. However, 22.1% of NIPs and 14.8% of PIPs reported that they would feel 'not at all confident. Higher than average proportions of health visitors and sisters reported they were "not at all confident" to do this (31.8% and 33.3% respectively), whereas a lower than average proportion of the District Nurses in the sample reported this (11.8%). (Although the numbers of District Nurses and Health Visitors in the survey were small, n=17 and 22 respectively.) There were no differences in reported confidence between PIPs working in primary and secondary care.'

Table 5.4.2.5.2: NIPs' and PIPs' confidence in departing from a prescribing protocol, guideline, or formulary

	NIPs	PIPs
Very confident	6.1% (51)	9.9% (14)
Fairly confident	28.0% (235)	28.2% (40)
Some confidence	32.0% (269)	38.7% (55)
Not at all confident	22.1% (186)	14.8% (21)
Not applicable	11.8% (99)	8.5% (12)

Respondents were asked what measures they would put in place before departing from a protocol. The percentages for NIPs are shown in Figure 5.4.2.5.2 and for PIPs in Figure 5.4.2.5.3 and indicate that although a range of relevant methods were used, discussion with colleagues was by far the most prevalent.

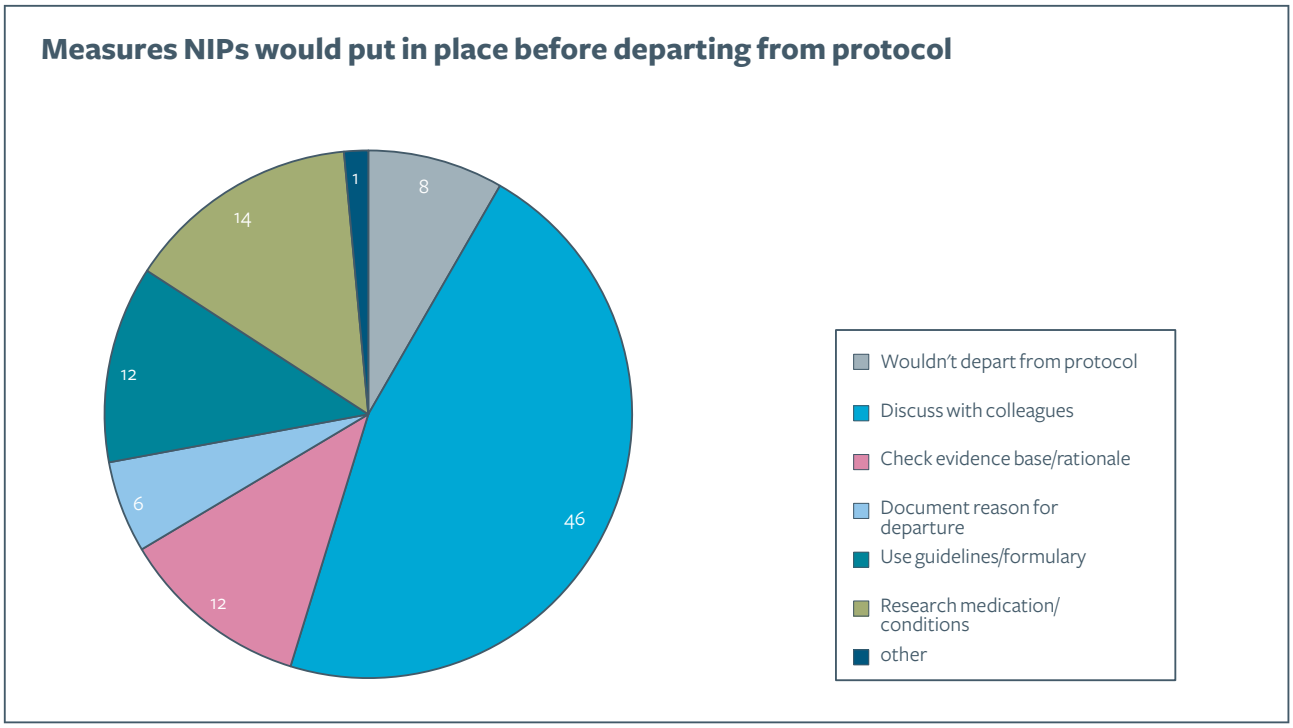

Figure 5.4.2.5.2: Measures NIPs would put in place before departing from protocol

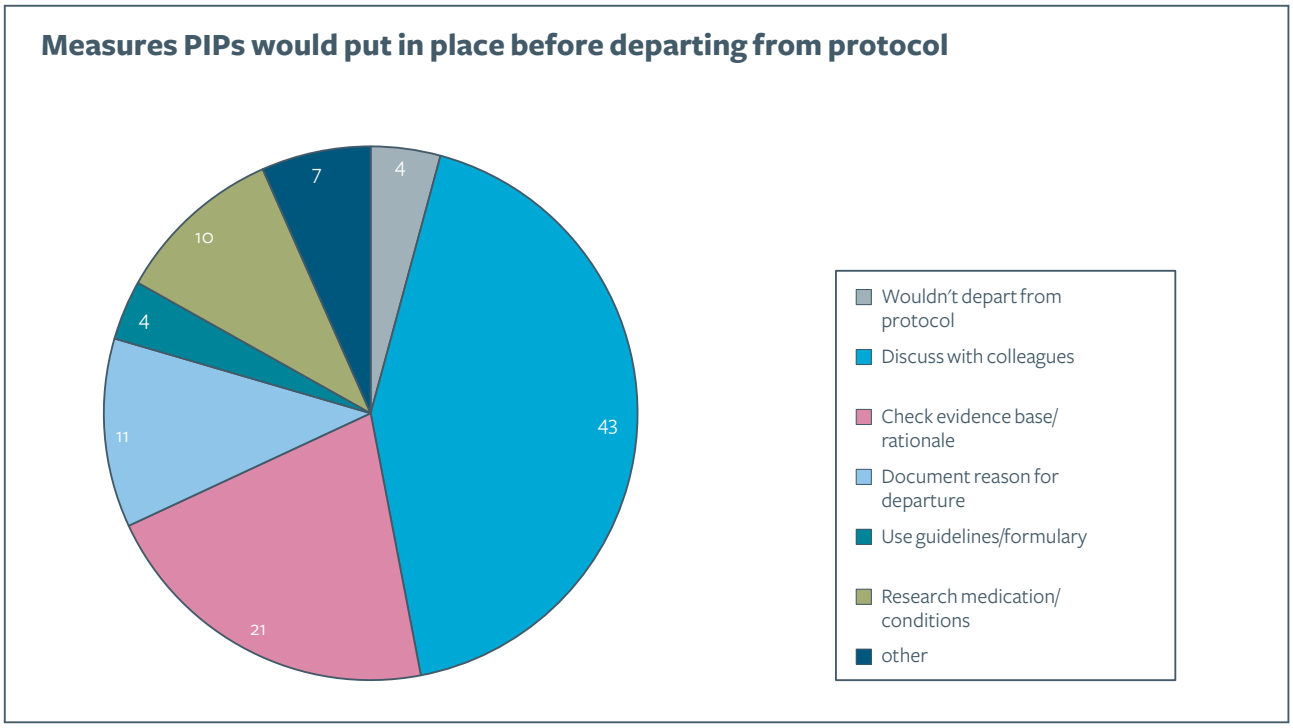

Figure 5.4.2.5.3: Measures PIPs would put in place before departing from protocol

Although we do not have data on the frequency with which NIPs and PIPs might consider departing from prescribing protocols, respondents' additional comments suggest this is a rare occurrence. Respondents' comments commonly referred to the need to justify why there was a need to depart from standard care, to discuss with another prescriber before proceeding, and to document the reason in the patient's notes as the quotes below illustrate:

'Would have to have a very good reason and probably discuss with patient's GP or my mentor. Carefully document reasoning' (PIP)

'I would only prescribe if I could justify my actions, if there is any doubt I wouldn't do it' (NIP)

'I would identify why this would be desirable (justify the decision) would discuss with consultant and

patient, would document the above' (PIP)

'I would have to ensure I could justify my decision and document my reasons. I would also ask for advice from my GP before going ahead' (NIP)

5.4.2.6 Organisational culture and practice in relation to safety

Respondents were asked about a number of aspects representing organisational culture and practice regarding safety and the results are shown for NIPs in Table 5.4.2.6.1 and PIPs in Table 5.4.2.6.2. The vast majority of both NIPs and PIPs (95% in each group strongly agreed or agreed) said they would feel safe being treated as a patient in their organisation.

Clinical governance arrangements for prescribing were considered 'adqeuate' by 63% of NIPs and 57% of PIPs, with 26% of NIPs and 29% of PIPs uncertain. When asked whether the RPSGB recommendations on clinical governance of prescribing were being implemented in their organisation 71% of PIPs strongly agreed or agreed and there were very low levels of disagreement (2% disagreed or strongly disagreed). There was, however, a high level of uncertainty (28%) which may suggest that some but not all recommendations have been implemented or may reflect respondents' own level of familiarity with the requirements.

Over three-quarters of both NIPs and PIPs reported that prescribing errors were handled appropriately in their organisation and that their suggestions on safety would be acted upon if they were expressed to management. The lowest level of agreement was with the statement 'leadership is driving us to be a safety-centred organisation', with 53% of NIPs and the same percentage of PIPs agreeing or strongly agreeing and a high percentage (41% of NIPs and 44% of PIPs) uncertain.

Table 5.4.2.6.1: NIPs' responses on organisational aspects of safety and risk management (n=823)

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
In this organisation, the clinical governance requirements for prescribing are adequate	11%	52%	26%	10%	2%
I would feel safe being treated as a patient in this service	36%	59%	3%	1%	0%
Prescribing errors are handled appropriately in my working environment	23%	50%	24%	2%	1%
Leadership is driving us to be a safety-centred organisation	12%	41%	36%	9%	2%
My suggestions about safety would be acted upon if I expressed them to management	26%	49%	20%	3%	2%

Table 5.4.2.6.2: PIPs' responses on organisational aspects of safety and risk management (n=143)

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
In this organisation, the clinical governance requirements for prescribing are adequate	11%	46%	29%	13%	2%
I would feel safe being treated as a patient in this service	32%	63%	4%	0	0
Prescribing errors are handled appropriately in my working environment	23%	54%	22%	1%	1%
Leadership is driving us to be a safety-centred organisation	9%	44%	40%	6%	1%
My suggestions about safety would be acted upon if I expressed them to management	24%	57%	17%	1%	1%

5.5 Nurse and pharmacist independent prescribing: resource requirements and patient utility

5.5.1 Key points

Discrete Choice Experiments

- Patients valued pharmacist and nurse prescribing services as an alternative to GP prescribing in primary care.
- When consulting for long-term conditions, exemplified here by hypertension, respondents equally preferred a prescribing service provided by their own doctor (☐= 2.35, p=<0.01) or a prescribing pharmacist (☐= 2.33, p=<0.01) rather than any available doctor at the surgery.
- Overall when choosing a prescribing service (from either the prescribing pharmacist or their own doctor) respondents valued the professional's words and explanation about their medicines, attention paid by the professional to their views and the health care review received. 'length of consultation' (☐ = -0.00, p=0.53), was not important in choosing how to manage hypertension.
- The attribute 'attention paid by professional to your views about medicines' was judged the most important (with greatest absolute value of 1.02, p=<0.00) in the hypertension vignette.
- Respondents with past experience of a pharmacist prescribing service did not value the attribute: health care review received.
- Patients might prefer to see a prescribing pharmacist if they were 'compensated' by changes in the level of other attributes. For example they valued moving to a prescribing pharmacist that appeared to listen to their views on the medicines rather than staying with their own doctor who appeared not to pay attention to their views (everything else equal).
- When consulting for a minor acute illness, exemplified here by headache and fever, patients preferred a prescribing service rather than to do nothing and patients had a general preference to be seen by either own family doctor (☐= 1.00, p=<0.01) or prescribing nurse (☐= 0.61, p=<0.01). Being seen by their own doctor was valued more than a prescribing nurse.
- The service attribute 'professional's attention paid to your views on problem and possible use of prescription medicines' (☐=1.19, p=<0.01) and 'what the professional does to help you' (☐=0.49, p=<0.01) were important when choosing (all with p value <0.05, for either 'prescribing nurse' or 'their own doctor'). The alternative-specific attributes 'how accessible the professional is' and 'length of consultation' were also significantly important when choosing the prescribing service provided by 'their own doctor' only (p=<0.05).
- 'Professional's attention paid to your views on problem and possible use of prescription medicines' was the most valued aspect of the prescribing service when comparing different alternatives (with the greatest absolute value = 1.19, p=<0.01).
- Respondents with past experience of the prescribing nurse valued the innovative prescribing service in preference to their own doctor service (2.12 vs 1.54, p=<0.01).
- A prescribing nurse was preferred if respondents were compensated by improvements in the other attributes. For example they valued a prescribing service from a prescribing nurse more when the nurse paid attention to their views on problems and medicines, and provided both diagnosis and advice rather than a prescribing service from their doctor when no attention was paid to their views and only advice was provided (all other attributes were equal).

Economic evaluation

- Results from the cost minimisation analysis: infection vignette showed that a combined GP and NIP prescribing service for infection was less expensive than a traditional GP only service at practice and PCT levels (training costs not considered). When the workload was equally shared between GPs and NIPs in the practice/PCT there was an increased saving in total NHS costs compared with the baseline scenario. When including the NIP training costs in the modelling the combined service was more expensive than the traditional GP only.

– Findings from the hypertension vignette showed that a combined GP and PIP prescribing service for hypertension was less expensive than a traditional GP only service at practice and PCT levels (training costs not considered). When the workload was equally shared between GPs and PIPs in the practice/PCT there was an increase in savings compared with the baseline scenario. Cost-utility analysis showed that when moving from a traditional GP only prescribing service to a combined GP and PIP service the cost saving was accompanied by an increased patient value for the combined service.
– In both vignettes a threshold value of about 28% and 37% in the rise of NIP and PIP wages was identified beyond which the combined services (GP & NIP and GP & PIP, respectively) were more expensive than the traditional GP only service (training costs not considered).

This Chapter will present results addressing the study question, 'What are the prescribing models in current practice, their associated resources, and patient utility?'. Models of prescribing by nurses and pharmacists identified from the national surveys are outlined in Section 5.2. These data were used to construct typical, contemporary models of nurse and pharmacist prescribing practice to inform the discrete choice experiments and an economic evaluation as part of Phase 2 of the study. In this Chapter, results are presented from the discrete choice experiments and economic evaluation to provide an analysis of the resources and patient utility associated with NIP and PIP.

5.5.2 Discrete choice experiments

As we found the basic CL model to fit the data best for both experiments (regardless of respondent experience of NMP) they are presented in the main body of the text. Further model results using NL and MXL are reported in Appendix 11.20.

5.5.2.1 Basic models

Tables 5.5.4.1.1 and5.5.4.1.2 present the findings of the two basic CL model specifications for prescribing for hypertension and headache and fever respectively.

Patient preferences for managing hypertension

Results from all consistent respondents show a general preference by patients for managing pre-existing hypertension using prescribing pharmacist (☐= 2.33, p=<0.01) or family doctor (☐= 2.35, p=<0.01) – as these were more preferred to the alternative 'available GP' (see first four columns of table). This means that respondents preferred to move from a service provided by 'any doctor' to an alternative offering to see 'prescribing pharmacist' or 'their own doctor'.

Further, all service attributes considered in the experiment, with the exception of 'length of consultation' (☐ = -0.00, p=0.53), were important in choosing how to manage hypertension. The attribute 'attention paid by professional to your views about medicines' was judged the most important (with greatest absolute value of 1.02, p=<0.00). Respondents were more likely to prefer a service offering: professional's words and explanations about their medicines that were easy to understand (positive value); professional appearing to listen to their views about medicines (positive value); and provide a comprehensive health care review covering both issues of high blood pressure and overall health (positive value).

When considering past experience of pharmacist prescribing (see middle four columns of table) both the attribute 'length of consultation' (p=0.83) and 'health review' (p=0.32) were not valued. Rather the attribute 'attention paid by professional to your views about medicines' remained the most important aspect when choosing between alternative prescribing services. An innovative 'prescribing pharmacist' or 'their own doctor' service was preferred to 'any doctor in the surgery' service (positive ASCs). Results did not change when considering the sub-group without experience of a prescribing pharmacist (see latter four columns of table).

Table 5.5.2.1.1: Patient preferences for managing hypertension

Variable	All ('consistent') respondents (N=356)				Respondents with past experience PIP (N=156)				Respondents without past experience (N= 200)			
	Value	Std err	t-test	p-value	Value	Std err	t-test	p-value	Value	Std err	t-test	p-value
ASC_PH	2.33	0.24	9.7	< 0.01	2.03	0.34	5.94	< 0.01	2.63	0.38	6.93	< 0.01
ASC_YOURGP	2.35	0.24	9.96	< 0.01	2	0.33	5.98	< 0.01	2.58	0.37	6.85	< 0.01
LENGTH	-0.00	0.01	-0.63	0.53	-0.00	0.02	-0.22	0.83	-0.01	0.01	-1.01	0.31
WORD	0.82	0.07	12.26	< 0.01	0.82	0.11	7.52	< 0.01	0.84	0.10	8.64	< 0.01
ATTENTION	1.02	0.07	15.2	< 0.01	1	0.11	9.11	< 0.01	1.03	0.10	10.58	< 0.01
REVIEW	0.14	0.07	2.02	0.04	0.11	0.11	0.99	0.32	0.06	0.10	0.59	0.55
Final log-likelihood	-856.74				-331.71				-400.47			
Adj. rho-square	0.44				0.41				0.45			

Note: variable coding is presented in Table 4.9.3.5.1.

Patient preferences for managing headache and fever

In the second experiment, patients had a general preference to be seen by either own family doctor (□= 1.00, p=<0.01) or prescribing nurse (□= 0.61, p=<0.01) compared with doing nothing for managing headache and fever and that being seen by own doctor was most preferred (see first four columns of Table 5.5.4.1.2).

Results also demonstrated evidence that the service attribute 'professional's attention paid to your views on problem and possible use of prescription medicines' (□=1.19, p=<0.01) and 'what the professional does to help you' (□=0.49, p=<0.01) were important when choosing (all with p value <0.05, for either 'prescribing nurse' or 'their own doctor'). The alternative-specific attributes 'how accessible the professional is' and 'length of consultation' were also significantly important when choosing the prescribing service provided by 'their own doctor' only ('access_your gp' and 'length_your gp' with p value <0.05). 'Professional's attention paid to your views on problem and possible use of prescription medicines' was the most valued aspect of the prescribing service when comparing different alternatives (with the greatest absolute value = 1.19). Respondents were more likely to prefer: professional appearing to listen to their views on problem/medicines (positive value); professional offering help on diagnosis and medicines advice (positive value); a next day consultation with their own family doctor (compared with two days later; positive value); a shorter consultation with their own family doctor (negative value). They preferred to move from a 'do nothing' scenario to an alternative 'prescribing nurse' (positive value = 0.61) or 'their own doctor' service(positive value; 1.00everything else equal). When moving to a prescribing service, 'their own doctor' was preferred to an innovative 'prescribing nurse' (1 compared with 0.61).

When considering sub-groups, with or without past experience of prescribing nurse, we found similar results regarding: which characteristics of the service respondent valued; their relative importance; and the direction of preferences for each attribute (see middle four columns of Table 5.5.2.1.2 for past experience and latter four columns for no experience). When moving from 'do nothing', the 'prescribing nurse' alternative was preferred to 'their own doctor' in the sub-group with past experience of prescribing nurse (2.12 vs 1.54), whilst 'their own doctor' was preferred to the 'prescribing nurse' in the sub-group without past experience (0.85 vs. 0.35).

Table 5.5.2.1.2: Patient preferences for managing headache and fever

Variable	All ('consistent') respondents (N=355)				Respondents with past experience of NIP (N= 86)				Respondents without past experience (N= 269)			
	Value	Std err	t-test	p-value	Value	Std err	t-test	p-value	Value	Std err	t-test	p-value
ASC_NURSE	0.61	0.21	2.91	< 0.01	2.12	0.61	3.49	< 0.01	0.35	0.27	1.30	0.19
ASC_YOURGP	1.00	0.23	4.32	< 0.01	1.54	0.61	2.52	0.01	0.85	0.29	2.97	< 0.01
ACCESS_ NURSE	0.08	0.20	0.37	0.71	-0.45	0.65	-0.69	0.49	0.03	0.25	0.12	0.90
ATTENTION	1.19	0.07	16.74	< 0.01	1.15	0.18	6.31	< 0.01	1.33	0.09	14.81	< 0.01
HELP	0.49	0.07	6.93	< 0.01	0.61	0.18	3.32	< 0.01	0.48	0.09	5.28	< 0.01
LENGTH_ NURSE	0.01	0.01	0.96	0.34	0.00	0.01	0.20	0.85	0.01	0.01	1.07	0.29
ACCESS_ YOURGP	0.45	0.21	2.13	0.03	1.38	0.69	1.99	0.05	0.21	0.26	0.81	0.42
LENGTH_ YOURGP	-0.06	0.01	-5.23	< 0.01	-0.10	0.03	-3.75	< 0.01	-0.04	0.01	-2.92	< 0.01
Final log-likelihood	-1079.91				-184.3				-688.70			
Adjusted rho-square	0.29				0.39				0.29			

Note: variable coding is presented in Table 4.9.3.5.1.

5.5.2.2 Policy analysis

A benefit or utility score for changes in the way prescribing for pre-existing hypertension can be provided is presented in Table 5.5.2.2.1. In this illustration a new prescribing pharmacist service is introduced into a primary care setting. This is just one of many possible scenarios of moving from a hypothetical consultation with 'own doctor' to one with a prescribing pharmacist. The table calculates the gain in benefit (1 unit of utility) that is derived from moving from a consultation with their doctor to one with a prescribing pharmacist if such change is compensated by receiving attention to their views on medicines (1 for the prescribing pharmacist; 0 for their own doctor; everything else equal).

Table 5.5.2.2.1: Example of using preference model for managing hypertension

Managing hypertension				
	Prescribing pharmacist		Own doctor	
Attribute	Estimated value	Assigned level*	Attribute value	Assigned level*
ASC	2.33		2.35	
length	-0.001	10	-0.001	10
word	0.82	1	0.82	1
attention	1.02	1	1.02	0
review	0.14	1	0.14	1
Total estimated utility		4.3		3.3
Gain in utility		1		
* See Table 4.9.3.5.1 for interpretation of the levels				

A similar exercise is carried out using the preference model for managing headache and fever and introducing a prescribing nursing service in primary care. The utility score of changing from one level of service to another is illustrated in Table 5.5.2.2.2.

Table 5.5.2.2.2: Example of using preference model for managing headache and fever

Headache and fever vignette				
	Prescribing nurse		**Own doctor**	
	Attribute value	**Attribute level**	**Attribute value**	**Attribute level**
Asc	0.61		1	
Access	0.08	1	0.45	1
attention	1.19	1	1.19	0
help	0.49	1	0.49	0
length	0.01	10	-0.06	10
Total utility		2.47		0.85
Gain in utility		1.62		

Table 5.5.2.2.2 shows that a gain in utility (1.62) is derived from moving from a consultation with their doctor to one with a prescribing nurse if such change is compensated by receiving attention to their views on problem and medicines (1 for the prescribing nurse compared with 0 for their own doctor) and both diagnosis and advice (1 for the prescribing nurse compared with 0 for their own doctor; everything else constant).

5.5.2.3 Overall findings

The DCE has provided empirical evidence from two choice experiments used to explore patient preferences for using prescribing pharmacists and prescribing nurses in a primary care setting. In health economics it is important to have such information on preferences and to use them in conjunction with efficient allocation of health care resources. The study has assessed the relative importance of service attributes for managing two common conditions (pre-existing hypertension and acute headache and fever) and considered how trade-offs between attributes contribute to changes in over utility.

In summary, patients valued alternative pharmacist and nurse prescribing services. When consulting for chronic disease, such as hypertension, respondents equally preferred a prescribing service provided by their own doctor or a prescribing pharmacist rather than any available doctor at the surgery. However, patients might prefer to see a prescribing pharmacist if they were 'compensated' by changes in the level of other attributes. For example they valued moving to a prescribing pharmacist that appeared to listen to their views on the medicines rather than staying with their own doctor who appeared not to pay attention to their views (everything else equal). Overall when choosing a prescribing service (from either the prescribing pharmacist or their own doctor) respondents valued the professional's words and explanation on their medicines, attention paid by the professional to their views and the health care review received. Respondents with past experience of a pharmacist prescribing service did not value the health care review received.

When consulting for a minor acute illness, i.e. headache and fever, patients preferred a prescribing service rather than to do nothing and their own doctor was valued more than a prescribing nurse. However, a prescribing nurse was preferred if they were compensated by improvements in the other attributes. For example they valued more a prescribing service from a prescribing nurse when the nurse paid attention to their views on problems and medicines, and provided both diagnosis and advice rather than a prescribing service from their doctor when no attention was paid to their views and only advice was provided (all other attributes were equal). When choosing a prescribing service from their nurse they valued attention and help, whilst they did not value access and length of consultation. When choosing a prescribing service from their own doctor they valued all aspects. Respondents with past experience of the prescribing nurse valued the innovative prescribing service in preference to their own doctor service.

5.5.3 Economic evaluation

5.5.3.1 Results

The structure of the decision tree used for the analysis is presented in Figure 5.5.3.1.1. The model was populated using parameter estimates summarised in Table 5.5.3.1.1.

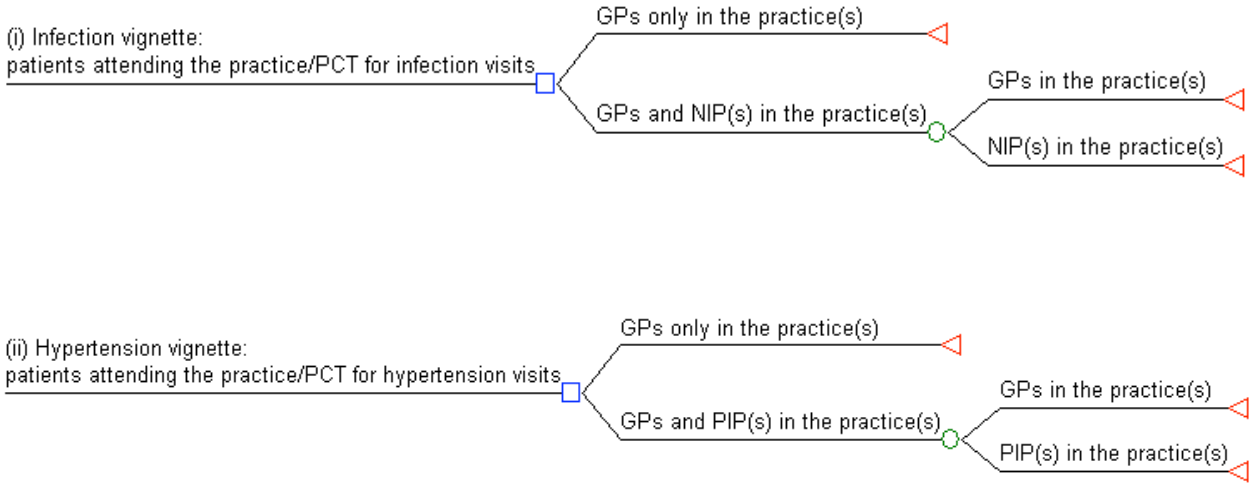

Figure 5.5.3.1.1: Decision analytic trees

Table 5.5.3.1.1: Parameter estimates for infection and hypertension vignettes

Parameter	Baseline scenario		Same workload scenario	
	Value	Ratio	Value	Ratio
Infection vignette - 1 practice (5GPs + 1 NIP)				
Total number of consulted patient per week in a practice (5GPs+1NIP)	1052.3	-	-	-
No. of patients for 5 GPs	979.5	-	-	-
No. of patients for 1 NIP	72.8	-	-	-
Weekly infection patients for 5 GPs	**71.5**	**0.967**	**64.0**	**0.833**
Weekly infection patients for 1 NIP	**5.3**	**0.033**	**12.8**	**0.167**
Total weekly infection patients	**76.8**	-	**76.8**	-
Infection vignette - 1 PCT				
No. of practices with NIP	21.1	-	-	-
No. of practices without NIP	42.8	-	-	-
Total no. of practices per PCT	63.9	-	-	-
Total no. of GPs in a PCT	319.5	-	-	-
Total no. of NIPs in a PCT	21.0	-	-	-
Total no. of professionals in a PCT	340.5	-	-	-
Weekly infection patients for all GPs in the PCT	**4569.0**	**0.989**	**4391.9**	**0.938**
Weekly infection patients for all NIPs in the PCT	**111.6**	**0.011**	**288.7**	**0.062**
Tot weekly infection patients	**4680.6**	-	**4680.6**	-
PIP vignette - 1 practice (5GPs+1 PIP)				
Total number of consulted patient per week in a practice (5GPs +1 PIP)	996.5	-	-	-
No. of patients for 5 GPs	979.5	-	-	-
No. of patients for 1 PIP	17.0	-	-	-
Weekly hypertension patients for 5 GPs	**126.4**	**0.983**	**107.1**	**0.833**
Weekly hypertension patients for 1 PIP	**2.2**	**0.017**	**21.4**	**0.167**
Total hypertension patients for a week	**128.5**	-	**128.5**	-
PIP vignette - 1 PCT				
No. of practices with PIP	12.78	-	-	-
No. of practices without PIP	51.12	-	-	-
Total no. of practices per PCT	63.9	-	-	-
Total no. of GPs in a PCT	319.5	-	-	-
Total no. of PIP in a PCT	12.78	-	-	-
Total no. of professionals in a PCT	332.28	-	-	-
Weekly hypertension patients for all GPs in the PCT	**8074.0**	**0.997**	**7790.4**	**0.962**
Weekly hypertension patients for all PIPs in the PCT	**28.0**	**0.003**	**311.6**	**0.038**
Total hypertension patients for a week	**8102.0**	-	**8102.0**	-

The results of the cost-minimisation analysis are detailed below.

The unit costs for professional time and training are reported in Table 5.5.3.1.2.

Table 5.5.3.1.2: Unit costs and sensitivity analysis

Costs	£	Source	Sensitivity analysis £
Costing professional time (hour)			
Hourly cost for consulting patients (£)			
GP	140	PSSRU data 2009, patient contact without qualification costs	-
NIP	61	PSSRU data 2009, nurse advanced, cost per hour in surgery without qualification costs	64.1 (5%), 67.1 (10%), 73.2 (20%),79.3 (30%), 85.4 (40%)
PIP	67	Derived from PSSRU data 2009 for Advanced Nurse AfC Band 7, adjusted for pharmacist at Band 8, cost per hour in surgery without qualification costs	70.4 (5%), 73.7 (10%), 80.4 (20%),87.1 (30%), 93.8 (40%)
Cost per consultation with a patient (£)		(see average time of prescription consultation per patient, Section 5.2.3.6)	
GP	27		-
NIP	21		(Cost per consultation varied accordingly to changes in the hourly cost)
PIP	20		(Cost per consultation varied accordingly to changes in the hourly cost)
Costing training (NIP and PIP)			Total costs estimates are provided either including or excluding the total training costs
Training course fees for a participant	1,263	average from NIP and PIP courses, Keele and Southampton Universities	
Distance learning in practice (hours)	90		
Face-to-face courses (hours)	50		
Total hours	140		
Nurse/pharmacist time cost	8,960	(average of £64 hourly cost, see hourly cost for consulting patient)	
Total training cost for participant (fees+time)	10,223		

The results for both baseline scenario and same workload scenario are reported in Table 5.5.5.1.3.

- Infection vignette, baseline scenario. When moving from a GP only service to a combined service there was an increase in total costs (increase of £214,030 for a PCT and £10,192 for a practice). When excluding the NIP training costs the same movement implied a saving in total costs (decrease of £652 for a PCT and £31 for a practice).
- Infection vignette, same workload scenario. When moving from a GP only service to a combined service there was an increase in total costs (increase of £212,995 for a PCT and £10,148 for a practice). When excluding the NIP training costs the same movement implied a saving in total costs (decrease of £1,688 for a PCT and £75 for a practice).
- Infection vignette, baseline scenario vs same workload scenario. When the professionals shared the same workload of visits the increase in costs (including training costs) for moving from a GP only prescribing service to a combined GP & NIP prescribing service was smaller compared with the baseline scenario

(increase of £212,995 (same workload scenario) vs £214,030 (baseline scenario), PCT level; £10,148 (same workload scenario) vs £10,192 (baseline scenario), practice level). When excluding training costs the saving for the same movement in the same workload scenario was greater than in the baseline scenario (saving of £1,688 (same workload scenario) vs £652 (baseline scenario) at PCT level; £75 (same workload scenario) vs £31 (baseline scenario) at practice level).

The hypertension vignette presented comparable results to the infection vignette (see Table 5.5.3.1.3).

Table 5.5.3.1.3: Infection vignette, cost minimisation analysis

	1	2(a)	2(b)	DIFFERENCES	
Baseline scenario, costs (£)					
Infection vignette - 1 PCT					
	320 GPs only	320 GPs and 21 NIPs (with NIP training costs)	320 GPs and 21 NIPs (without NIP training costs)	1-2(a)	1-2(b)
Total costs	**127,780**	**341,811**	**127,128**	**214,030**	**652**
Infection vignette - 1 GP practice					
	5 GPs only	5 GPs and 1 NIP (with NIP training costs)	5 GPs and 1 NIP (without NIP training costs)	1-2(a)	1-2(b)
Total costs	**2,097**	**12,289**	**2,066**	**-10,192**	**31**
Same workload scenario, costs (£)					
Infection vignette - 1 PCT					
	320 GPs only	320 GPs and 21 NIPs (with NIP training costs)	320 GPs and 21 NIPs (without NIP training costs)	1-2(a)	1-2(b)
Total costs	**127,780**	**340,775**	**126,092**	**212,995**	**1,688**
Infection vignette - 1 GP practice					
	5 GPs only	5 GPs and 1 NIP (with NIP training costs)	5 GPs and 1 NIP (without NIP training costs)	1-2(a)	1-2(b)
Total costs	**2,097**	**12,245**	**2,022**	**10,148**	**75**

Table 5.5.3.1.4: Hypertension vignette, cost minimisation analysis

	1	2(a)	2(b)	DIFFERENCES	
Baseline scenario, costs (£)					
Hypertension vignette - 1 PCT					
	320 GPs only	320 GPs and 13 PIPs (with PIP training costs)	320 GPs and 13 PIPs (without PIP training costs)	1-2(a)	1-2(b)
total costs	**221,185**	**353,883**	**220,984**	**132,698**	**201**
Hypertension vignette - 1 GP practice					
	5 GPs only	5 GPs and 1 PIP (with PIP training costs)	5 GPs and 1 PIP (without PIP training costs)	1-2(a)	1-2(b)
total costs	**3,509**	**13,716**	**3,493**	**10,207**	**16**
Same workload scenario, costs (£)					
Hypertension vignette - 1 PCT					
	320 GPs only	320 GPs and 13 PIPs (with PIP training costs)	320 GPs and 13 PIPs (without PIP training costs)	1-2(a)	1-2(b)
Total costs	**221,185**	**351,843**	**218,945**	**130,658**	**2,240**
Hypertension vignette - 1 GP practice					
	5 GPs only	5 GPs and 1 PIP (with PIP training costs)	5 GPs and 1 PIP (without PIP training costs)	1-2(a)	1-2(b)
total costs	**3,509**	**13,577**	**3,354**	**10,068**	**155**

- Sensitivity analysis for infection vignette: increasing the NIP wages (from 5% to 40%). An increased in NIP salary up to about 28% resulted in a decrease saving when moving from a GP only prescribing service to a combined NIP and GP prescribing service (estimates without training costs). When increasing the NIP salary more than 28% the combined service was more expensive than the traditional GP only service (see Figures 5.5.3.1.1 and 5.5.3.1.2).
- Sensitivity analysis for hypertension vignette: increasing the PIP wages (from 5% to 40%). An increased in PIP salary up to about 37% resulted in a decrease saving when moving from a GP only prescribing service to a combined PIP and GP prescribing service (estimates without training costs). When increasing the PIP salary more than 37% the combined service was more expensive than the traditional GP only service (see Figures 5.5.3.1.1 and 5.5.3.1.2).

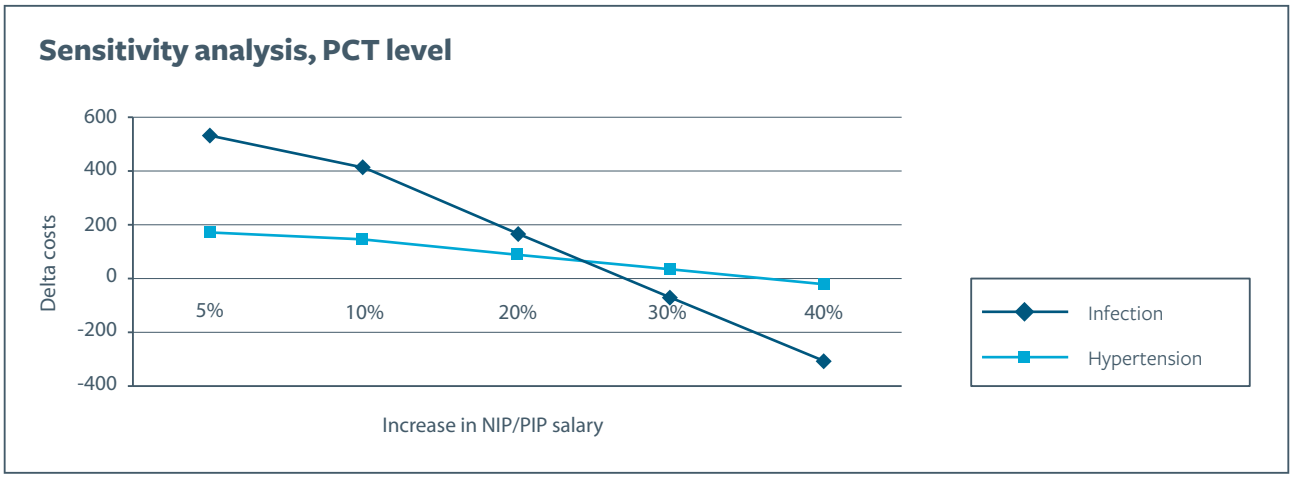

Figure5.5.3.1.1: Sensitivity analysis, PCT level

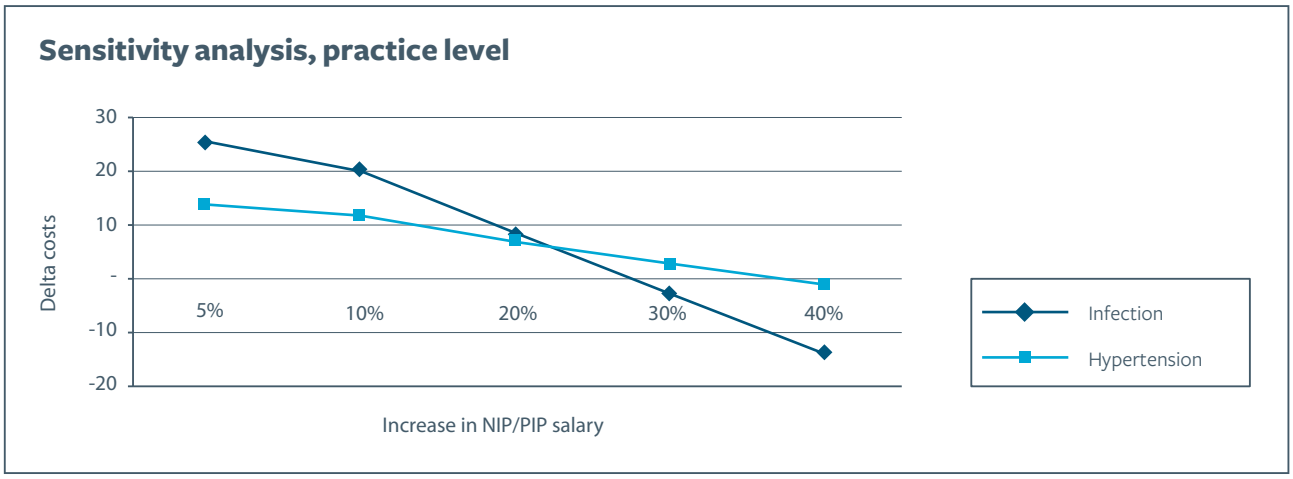

Figure 5.5.3.1.2: Sensitivity analysis, practice level

Note: delta cost (£) = total costs GP only service – total costs combined service (without NIP/PIP training)

Cost-utility analysis (hypertension vignette only)

Utility data for the hypertension vignette derived from the DCE analysis are summarised inTable 5.5.5.1.5. The prescribing pharmacist and any doctor at the surgery services presented the same attribute levels, apart from the length of consultation to reflect the same duration considered in the costing analysis (18 minutes for 'prescribing pharmacist' service vs 12 minutes for the 'any doctor service'). The total gain in utility when moving from an 'any doctor at the surgery' to a 'prescribing pharmacist' was equal to 2.3.

Table 5.5.3.1.5: Utility data, hypertension vignette

	Prescribing pharmacist		Any doctor at the surgery	
	Attribute value	Attribute level	Attribute value	Attribute level
asc	2.33			
length	-0.001	18.01	-0.001	11.7
word	0.82	1	0.82	1
attention	1.02	1	1.02	1
review	0.14	1	0.14	1
Total utility		4.29199		1.9683
Gain in utility		2.3		

– Cost utility analysis, baseline scenario (see Table 5.5.5.1.6). The cost utility analysis showed that when moving from a traditional GP only service to a combined service there was both a saving in costs and an increase in utility (incremental C/E ratio of -£1.58, at PCT level, and -£1.60, at practice level).
– Cost utility analysis, same workload scenario. Similarly to the baseline scenario a movement from a traditional GP only service to a combined service presented an increase in saving and utility at both PCT and practice levels (incremental C/E ratio of -£17.64, at PCT level, and -£15.50, at practice level).
– Cost utility analysis, same workload scenario vs baseline scenario. With an equal sharing of the workload between professionals the incremental C/E ratio showed and increased saving for unit of benefit compared with the baseline scenario (-£17.64 (same workload scenario) vs -£1.58 (baseline scenario), at PCT level; -£15.50 (same workload scenario) vs -£1.60 (baseline scenario) at practice level).

Table 5.5.3.1.6: Total costs and utility, hypertension vignette

	Total cost (with training)	Total cost (without training)	Utility	C/U ratio	Incremental C/U ratio*
PCT level					
GP only scenario	n/a	221,185	30905	7.16	Baseline comparator
Combined service (baseline scenario)	353,883	220,984	31032	7.12	-1.58
Combined service (same workload scenario)	351,843	218,945	31032	7.06	-17.64
GP level					
GP only scenario	n/a	3,509.00	490	7.16	Baseline comparator
Combined service (baseline scenario)	13,716	3,493	500	6.99	-1.60
Combined service (same workload scenario)	13,577	3,354	500	6.71	-15.50

* ICER = (total cost combined service - total cost GP only service)/(utility combined service – utility GP only service)

5.5.3.2 Summary

A cost minimisation analysis was undertaken to value the introduction of a non-medical prescribing service alongside a traditional GP prescribing service.

Results from the infection vignette showed that a combined GP and NIP prescribing service for infection was less expensive than a traditional GP only service at practice and PCT levels (training costs not considered). When the workload was equally shared between GPs and NIPs in the practice/PCT there was an increased saving in total NHS costs compared with the baseline scenario. When including the NIP training costs in the modelling the combined service was more expensive than the traditional GP only.

Findings from the hypertension vignette showed that a combined GP and PIP prescribing service for hypertension was less expensive than a traditional GP only service at practice and PCT levels (training costs not considered). When the workload was equally shared between GPs and PIPs in the practice/PCT there was an increase in savings compared with the baseline scenario. Cost-utility analysis showed that when moving from a traditional GP only prescribing service to a combined GP and PIP service the cost saving was accompanied by an increased patient value for the combined service.

In both vignettes a threshold value of about 28% and 37% in the rise of NIP and PIP wages was identified beyond which the combined services (GP & NIP and GP & PIP, respectively) were more expensive than the traditional GP only service (training costs not considered).

5.6 Survey of patients' experience of pharmacist and nurse prescribing

5.6.1 Key points

- Patients prescribed for by NIPs had more experience of non-medical prescribing, with almost half having seen the NIP five or more times before compared with one in three for PIPs.
- Patients' consultations were mainly for long-term conditions. For NIPs 35.6% were for diabetes and a further 20.2% for chest infections, asthma, and breathing problems. For PIPs 31.0% were for hypertension, 13.1% for 'cholesterol', 9.7% for angina/heart problems, and 8.3% for asthma.
- The vast majority of patients were very satisfied with their visit to the NIP (94%) and PIP (87%) with low percentages agreeing that 'there were some things about the consultation that could have been better' (14% NIPs and 24% PIPs).
- Over three quarters of patients of both NIPs and PIPs said they had been told as much about their medicines as they wanted, that they were involved in decisions about the medicines prescribed, and that they felt the prescriber understood their point of view.
- Around 40% of patients of both NIPs and PIPs said they had longer appointments with their NMP than their doctor.
- A quarter of respondents in both groups said they wished it had been possible to spend more time in the consultation with their NMP.
- Almost half of patients of both NIPs and PIPs stated their condition was better controlled since being treated by their NIP or PIP, with around a third of patients in both groups disagreeing and the rest unsure.
- Almost half of patients in both groups said they were happier with their medicines since being treated by their NIP or PIP, with around a quarter disagreeing and the rest unsure.
- When comparing care provided by their NIP or PIP to being treated by their GP most patients did not report a strong preference for either prescriber although there were some indications of more positive ratings from patients of NIPs.

This Chapter will present results addressing the research question 'Is IP by nurses and pharmacists acceptable to patients, and what are patients' experiences of the impact of IP on choice, access, and clinical outcomes?'. Results are presented from the survey of patients of NIPs and PIPs and from the Discrete Choice Experiment with patients in general medical practices.

5.6.2 Results

Results from the patients of NIPs and PIPs will be presented separately.

5.6.2.1 Findings from patients of NIPs

The majority of respondents were female (61.7%), older than 54 years (67.4%) and white (84.4%). Almost all respondents (84.3%) had previous experience of at least two consultations with the prescribing nurse. Their most frequent reasons for consulting with the prescribing nurse were diabetes (36%; 53/149); Chest infection/ sinusitis/cold/cough (12%; 18/149); and asthma (8%; 12/149) – see Table 5.6.2.1.1.

Table 5.6.2.1.1: Reasons for most recent consultation with the prescribing nurse

Reasons	N	%
Diabetes (medication and blood test)	53	35.6
Chest infection/sinusitis/cold/cough	18	12.1
Asthma/breathing problems	12	8.1
Ears/feet infections	9	6.0
Psoriasis/skin problems	8	5.4
Hypertension (medication and blood pressure)	7	4.7
Cholesterol (medication and blood test)	5	3.4
Contraception	4	2.7
Weight loos programme	4	2.7
Cystitis	4	2.7
Urine infection	4	2.7
Conjunctivitis	3	2.0
Thyroid	2	1.3
Flu injection	2	1.3
Others (frequency <2)	14	9.4
Total	**149**	

Note: respondents might report more than one reason

Respondents were asked about their views and experiences based on their most recent consultation with the NIP and the results that follow report the percentage strongly agreeing/agreeing compared with those strongly disagreeing/disagreeing or uncertain. The majority were very satisfied with their most recent consultation with their nurse prescriber (94%; p<0.01). The nurse told them as much as they wanted to know about their medicines (88%; p<0.01), and s/he really understood their point of view (87%; p<0.01). Relatively few wished it had been possible to spend a little more time with the prescribing nurse (24%; p<0.01) or stated that some things about their consultation with the prescribing nurse could have been better (14%; p<0.01). Table 5.6.2.1.2 shows responses from this section of the survey from patients of NIPs and PIPs.

Table 5.6.2.1.2: Your views and experiences based on your most recent consultation with your independent prescriber

Your views and experiences based on your most recent consultation with your independent prescriber	**Prescribing nurse survey**			**Prescribing pharmacist survey**		
	Strongly Agree/Agree (compared with strongly disagree/disagree/not sure)			**Strongly Agree/Agree (compared with strongly disagree/disagree/not sure)**		
	N	**%**	**P value**	**n**	**%**	**P value**
I was very satisfied with my visit to this independent prescriber	133	94.3	<0.01	115	87.1	<0.01
This independent prescriber told me as much as I wanted to know about my medicines	124	87.9	<0.01	105	79.5	<0.01
Some things about my consultation with the independent prescriber could have been better	18	12.8	<0.01	29	22.0	<0.01
I felt the independent prescriber really understood my point of view	123	87.2	<0.01	99	75.0	<0.01
I wish it had been possible to spend a little more time with the independent prescriber	34	24.1	<0.01	30	22.7	<0.01
The independent prescriber asked me what I thought about my prescribed medicines	69	48.9	1	74	56.1	.114

Overall respondents reported having a good relationship with (89%; p<0.01) and confidence in (84%; p<0.01) their prescribing nurse. Fewer thought that being treated by their prescribing nurse did not have any effect on their condition (33%; p<0.01). About 18% reported that they were more likely to take their medicines when they were prescribed by their prescribing nurse (p<0.01). Table 5.6.2.1.3 shows responses to this section of the questionnaire from NIPs and PIPs.

Table 5.6.2.1.3: You and your independent prescriber

You and your independent prescriber	Prescribing nurse survey			Prescribing pharmacist survey		
	Strongly Agree/Agree (compared with strongly disagree/disagree/not sure)			Strongly Agree/Agree (compared with strongly disagree/disagree/not sure)		
	n	%	p value	n	%	p value
I get longer appointments with my independent prescriber than my doctor	54	38.3	<0.01	52	39.4	.015
My condition is controlled better since being treated by my independent prescriber	61	43.3	.128	57	43.2	.117
I am happier with my medicines since being treated by my independent prescriber	61	43.3	.149	59	44.7	.223
Being treated by my independent prescriber has had no effect on my condition	46	32.6	<0.01	44	33.3	<0.01
I am more likely to take my medicines when they are prescribed by a independent prescriber	26	18.4	<0.01	28	21.2	<0.01
Since being treated by my independent prescriber I have the same number of appointments for my condition	67	47.5	.671	56	42.4	.082
I am involved in decisions about the medicines prescribed for me by my independent prescriber	81	57.4	.077	79	59.8	.024
I have a good relationship with my independent prescriber	125	88.7	<0.01	104	78.8	<0.01
I have confidence in my independent prescriber	119	84.4	<0.01	102	77.3	<0.01

The final section of the survey asked respondents to compare a number of aspects of care from their NIP with those from their doctor and the results for patients of NIPs and PIPs are shown in Table 5.6.2.1.4 where the p value refers to respondents stating no difference. When comparing their prescribing nurse with the doctor who would usually prescribe their medicines, the majority of the respondents stated no there was no difference. For each statement the sub-group without strong preferences for a particular prescriber was always larger (range between 43% and 70% across different statements; p<0.01) compared with the other sub-groups reporting stronger preferences for either the nurse or the doctor prescribing service.

Table 5.6.2.1.4: Comparing your independent prescriber to the doctor who would usually prescribe your medicines

	Prescribing nurse survey			Prescribing pharmacist survey		
	n	%	p value	n	%	p value
I receive better quality care from the:			<0.01			<0.01
Independent prescriber	17	12.1		14	10.6	
Doctor	18	12.8		42	31.8	
No difference	99	70.2		72	54.5	
If I have a concern about a new medicine I find it easier to raise it with:			<0.01			.683
Independent prescriber	33	23.4		42	31.8	
Doctor	41	29.1		46	34.8	
No difference	61	43.3		38	28.8	
I receive safer care from the:			<0.01			<0.01

	Prescribing nurse survey			Prescribing pharmacist survey		
	n	%	p value	n	%	p value
Independent prescriber	11	7.8		13	9.8	
Doctor	28	19.9		43	32.6	
No difference	95	67.4		72	54.5	
My condition / health is monitored better by the:			<0.01			.043
Independent prescriber	37	26.2		35	26.5	
Doctor	29	20.6		56	42.4	
No difference	66	46.8		37	28.0	
I am better informed about my treatment by the:			<0.01			.052
Independent prescriber	34	24.1		37	28.0	
Doctor	34	24.1		56	42.4	
No difference	65	46.1		36	27.3	
I am more likely to be asked about how I can fit medicines into my routine by the:			<0.01			.003
Independent prescriber	33	23.4		30	22.7	
Doctor	15	10.6		35	26.5	
No difference	87	61.7		59	44.7	
I feel more able to ask questions about my medicines with the:			<0.01			.214
Independent prescriber	37	26.2		47	35.6	
Doctor	29	20.6		33	25.0	
No difference	68	48.2		47	35.6	
I am more likely to be advised about non-drug treatments for my condition/s by the:			<0.01			<0.01
Independent prescriber	28	19.9		24	18.2	
Doctor	25	17.7		35	26.5	
No difference	79	56.0		61	46.2	
I am more likely to be told how a new medicine will help me by the:			<0.01			.529
Independent prescriber	23	16.3		37	28.0	
Doctor	42	29.8		47	35.6	
No difference	71	50.4		40	30.3	
I am more likely to be told about the possible side effects of a new medicine by the:			<0.01			.882
Independent prescriber	22	15.6		44	33.3	
Doctor	40	28.4		40	30.3	
No difference	73	51.8		44	33.3	
I can get my prescription more quickly from the:			<0.01			<0.01
Independent prescriber	29	20.6		37	28.0	
Doctor	19	13.5		27	20.5	
No difference	86	61.0		65	49.2	
Generally, getting my medicines is easier from the:			<0.01			<0.01
Independent prescriber	27	19.1		33	25.0	
Doctor	21	14.9		32	24.2	
No difference	86	61.0		63	47.7	

Full datasets for NIP respondents are shown in Tables 5.6.2.1.5 and 5.6.2.1.6 and full datasets for PIP respondents are shown in Tables 5.6.2.1.6 and 5.6.2.1.7.

Table 5.6.2.1.5: Your views and experiences based on your most recent consultation with your independent prescriber (nurse prescriber survey)

	Strongly agree		Agree		Unsure		Disagree		Strongly disagree	
	n	%	n	%	n	%	n	%	n	%
I was very satisfied with my visit to this independent prescriber	79	57.2	54	39.1	4	2.9	0	0	1	0.7
This independent prescriber told me as much as I wanted to know about my medicines	63	47.4	61	45.9	5	3.8	3	2.3	1	0.8
Some things about my consultation with the independent prescriber could have been better	9	6.8	9	6.8	17	12.8	62	46.6	36	27.1
I felt the independent prescriber really understood my point of view	64	47.4	59	43.7	9	6.7	2	1.5	1	0.7
I wish it had been possible to spend a little more time with the independent prescriber	12	9.0	22	16.4	15	11.2	63	47.0	22	16.4
The independent prescriber asked me what I thought about my prescribed medicines	29	22.7	40	31.3	23	18.0	31	24.2	5	3.9

Table5.6.2.1.6: You and your independent prescriber (nurse prescriber survey)

	S. agree		Agree		Unsure		Disagree		S. disagree	
	n	%	n	%	n	%	n	%	n	%
I get longer appointments with my independent prescriber than my doctor	25	18.5	29	21.5	25	18.5	48	35.6	8	5.9
My condition is controlled better since being treated by my independent prescriber	23	16.9	38	27.9	35	25.7	32	23.5	8	5.9
I am happier with my medicines since being treated by my independent prescriber	24	18.3	37	28.2	37	28.2	30	22.9	3	2.3
Being treated by my independent prescriber has had no effect on my condition	12	9.1	34	25.8	25	18.9	43	32.6	18	13.6
I am more likely to take my medicines when they are prescribed by a independent prescriber	13	9.9	13	9.9	16	12.2	65	49.6	24	18.3
Since being treated by my independent prescriber I have the same number of appointments for my condition	18	14.1	49	38.3	31	24.2	26	20.3	4	3.1
I am involved in decisions about the medicines prescribed for me by my independent prescriber	26	19.5	55	41.4	28	21.1	22	16.5	2	1.5
I have a good relationship with my independent prescriber	68	50.7	57	42.5	8	6.0	1	0.7	0	0
I have confidence in my independent prescriber	69	51.1	50	37.0	11	8.1	4	3.0	1	0.7

Table 5.6.2.1.7: Your views and experiences based on your most recent consultation with your independent prescriber (pharmacist prescriber survey)

	S. agree		Agree		Unsure		Disagree		S. disagree	
	n	%	n	%	n	%	n	%	n	%
I was very satisfied with my visit to this independent prescriber	56	44.1	59	46.5	7	5.5	2	1.6	3	2.4
This independent prescriber told me as much as I wanted to know about my medicines	51	41.1	54	43.5	7	5.6	10	8.1	2	1.6
Some things about my consultation with the independent prescriber could have been better	6	5.0	23	19.3	16	13.4	54	45.4	20	16.8
I felt the independent prescriber really understood my point of view	37	30.1	62	50.4	15	12.2	7	5.7	2	1.6
I wish it had been possible to spend a little more time with the independent prescriber	5	4.2	25	20.8	24	20.0	53	44.2	13	10.8
The independent prescriber asked me what I thought about my prescribed medicines	20	16.5	54	44.6	17	14.0	27	22.3	3	2.5

Table 5.6.2.1.8: You and your independent prescriber (pharmacist prescriber survey)

	S. agree		Agree		Unsure		Disagree		S. disagree	
	n	%	n	%	n	%	n	%	n	%
I get longer appointments with my independent prescriber than my doctor	26	21.0	26	21.0	23	18.5	41	33.1	8	6.5
My condition is controlled better since being treated by my independent prescriber	28	22.4	29	23.2	26	20.8	38	30.4	4	3.2
I am happier with my medicines since being treated by my independent prescriber	23	18.5	36	29.0	30	24.2	30	24.2	5	4.0
Being treated by my independent prescriber has had no effect on my condition	6	4.9	38	30.9	32	26.0	29	23.6	18	14.6
I am more likely to take my medicines when they are prescribed by a independent prescriber	9	7.4	19	15.7	16	13.2	57	47.1	20	16.5
Since being treated by my independent prescriber I have the same number of appointments for my condition	11	9.3	45	38.1	29	24.6	23	19.5	10	8.5
I am involved in decisions about the medicines prescribed for me by my independent prescriber	17	14.2	62	51.7	15	12.5	19	15.8	7	5.8
I have a good relationship with my independent prescriber	45	36.3	59	47.6	8	6.5	9	7.3	3	2.4
I have confidence in my independent prescriber	49	39.5	53	42.7	15	12.1	5	4.0	2	1.6

Respondents stated a stronger preference for the prescribing nurse service compared with the prescribing doctor service when reporting the following: they could get their prescription more quickly from the nurse than from the doctor (21% vs 13% stating the opposite); they were more likely to be asked about how they could fit medicines into their routine by the nurse than by the doctor (23% vs 11% stating the opposite).

Respondents stated a stronger preference for the prescribing doctor service when reporting the following: they received safer care from the doctor than from the nurse (20% vs 8% stating the opposite); they were more likely to be told how a new medicine would help them by the doctor than by the nurse (30% vs 16% stating the opposite); they were more likely to be told about the possible side effects of a new medicine by the doctor than by the nurse (28% vs 17% stating the opposite).

Sub-groups analyses according to gender, age, past experience of consulting their independent prescriber and ethnic group

The limited sample size did not allow sub-group analysis to be conducted according to respondents' past experience of consulting their independent prescriber. Sub-group analyses by gender, age and ethnic group were conducted and the items significant at 99% are listed below. Results are fully reported in Appendix 11.23.

No statistically differences in responses were found according to gender, and age. There were some indications of differences by ethnic background for being told as much as they wanted to know about their medicines and for feeling the NIP really understood their point of view but numbers were too small to draw conclusions (non-white respondents n=17 NIP survey, n=15 PIP survey).

Males were more likely to state that: their condition was controlled better since being treated by their prescribing nurse (61% vs 36%); they were happier with their medicines since being treated by their prescribing nurse (65% vs 36%); they were more likely to take their medicines when they are prescribed by a prescribing nurse (33% vs 11%); and since being treated by their prescribing nurse they have the same number of appointments for their condition (71% vs 38%).

Younger people were more likely to state that getting their medicines was easier from the doctor (26% aged <55 yrs old vs 7% aged >55 yrs old).

5.6.2.2 Findings from the prescribing pharmacist survey

The respondents were equally distributed between males and females (47% vs 49%). On average they were older than 54 years (82%) and white (86%). About 75% had previous experience of at least two consultations with the prescribing pharmacist they had consulted at the practice. Limited sample size did not allow testing for differences according to patients characteristics.

The majority of respondents 31% (45/145) consulted a prescribing pharmacist for hypertension, 'cholesterol' (13%; 19/145) or heart problems (10%; 14/145). More details are shown in Table 5.6.2.2.1 below.

Table 5.6.2.2.1: Reasons for most recent consultation with the prescribing pharmacist

Reasons	n	%
Hypertension (medications and blood pressure test)	45	31.0
Cholesterol (medications and/or blood test)	19	13.1
Angina/heart problems	14	9.7
Asthma	12	8.3
General medication review	9	6.2
Diabetes	8	5.5
COPD	6	4.1
Smoking cessation	4	2.8
Cold/Cough	3	2.1
Painkillers	3	2.1
Thyroid	2	1.4
Arthritis	2	1.4
Depression Medication	2	1.4
Others (freq. <2)	16	11.0
Total		145

The majority were very satisfied with their most recent visit to their prescribing pharmacist (87%; p<0.01). The pharmacist told them as much as they wanted to know about their medicines (80%; p<0.01), and s/he really understood their point of view (75%; p<0.01). Relatively few wished it had been possible to spend a little more time with the prescribing pharmacist (23% ; p<0.01) or stated that some things about their consultation with the prescribing pharmacist could have been better (22%; p<0.01). More details are reported in Table 5.6.2.1.2.

Overall respondents reported having a good relationship with (79%; p<0.01) and confidence in (77%; p<0.01) their prescribing pharmacist. Relatively few thought that being treated by their prescribing pharmacist has had no effect on their condition (33%; p<0.01). About 21% reported that they were more likely to take their medicines when they are prescribed by their prescribing pharmacist (p<0.01). More is reported elsewhere (see Table 5.6.2.1.3).

The majority of respondents did not state a stronger preference for either the PIP or the doctor for the following statements on: the quality of care received (55% no difference vs 11% better quality of care from pharmacist vs 32% better quality of care from doctor; p<0.01); the safety of care received (55% no difference vs 10% safer care from the pharmacist vs 33% safer care from doctor; p<0.01); the likelihood of being asked about how they can fit medicines into their routine (45% no difference vs 23% higher from pharmacist vs 27% higher from doctor; p<0.01); the likelihood of being advised about non-drug treatments for their condition/s (46% no difference vs 18% higher from pharmacist vs 27% higher from doctor; p<0.01); and how easy is getting their medicines (48% no difference vs 25% easier from pharmacist vs 25% easier from doctor; p<0.01). More details are reported in Table 5.6.2.1.4.

Results from sub-groups analyses for gender, age and past experience of consulting the PIP are fully reported in Appendix 11.23. Poor sample size did not allow performing any testing according to ethnic group. The items significant at 99% are listed below.

Sub-groups analyses according to gender, age, past experience of consulting their independent prescriber, and ethnic group

Older respondents were more likely to report being asked by their prescribing pharmacist what they thought about their prescribed medicines (63% >55yrs old vs 33% <55yrs old). Respondents with previous experience with the same prescribing pharmacist were more likely to report that the prescribing pharmacist really understood their point of view (86% with more than two visits vs 63% with two visits or fewer).

Younger respondents were more likely to take their medicines when they were prescribed by a prescribing pharmacist (46% <55 yrs old vs 16% >55yrs old). Respondents with past experience of their prescribing pharmacist (with >2 previous consultations) were more likely to state: their condition was controlled better since being treated by their prescribing pharmacist (56% vs 29%); they had a good relationship with their prescribing pharmacist (88% vs 68%); and they had confidence in their prescribing pharmacist (87% vs 66%).

Females were more likely than males to report: being told how a new medicine will help me by the prescribing pharmacist (42% vs 26%); and being told about the possible side effects of a new medicine by the prescribing pharmacist (47% vs 21%).

Respondents with past experience of their prescribing pharmacist (with >2 previous consultations) were more likely to state: their condition/health was monitored better by the prescribing pharmacist (42% vs 10%); they were better informed about their treatment by the prescribing pharmacist (41% vs 14%); they felt more able to ask questions about their medicines with the prescribing pharmacist (49% vs 24%); they were more likely to be told how a new medicine would help them by the prescribing pharmacist (41% vs 16%); and they could get their prescription more quickly from the prescribing pharmacist (40% vs 15%).

5.7 Views of health care professionals on nurse and pharmacist independent prescribing

5.7.1 Key points

- The results indicate that the vast majority of NMPs consider their prescribing is effectively meeting the key policy targets that IP is designed to influence: improved quality of care, better use of health professionals' skills, and increased patient choice.
- NIPs' and PIPs' views were mixed on which health care professional prescriber was most accessible to patients for their medicines.
- Approximately one-third of both NIPs and PIPs did not consider that their prescribing authority meant they could deal with all of a patient's prescribing needs.
- 69% of NIPs and 65.5% of PIPs agreed that NMP had improved the cost effectiveness of service delivery in their clinical area, although over a quarter (27% and 28.9% respectively) were uncertain about this.
- Results suggest both NIPs and PIPs surveyed perceived a largely satisfactory response from medical colleagues in relation to their prescribing; interviews with NIPs and PIPs at case sites supported this view, with reports that most felt integrated into, and supported by, the wider team. However, around a quarter of NIPs and PIPs in the survey considered that doctors were unclear about their prescribing rights.
- The majority of NMP leads considered that NMP had had an impact on clinical effectiveness on services; results were more mixed regarding cost effectiveness, with around one-third uncertain about this and approximately one-quarter disagreeing.
- In terms of service re-configuration, the change most frequently reported by NMP leads following the introduction of NMP was an increase in nurse-led services (approximately two-thirds of Trusts) and a shift of service delivery from doctors to nurses (over three quarters of Trusts). A shift to more pharmacist-led services was reported by around one-third of NMP leads.
- Many NMP leads were uncertain about the impact of NMP on changes in patterns of prescribing across professional groups and the volume of medicines prescribed in their Trusts.
- The advantage of NMP most frequently cited by NMP leads was increased patient access to medicines.

This Chapter presents the results of the study to address the research question, 'What is the response of other health professionals to IP by nurses and pharmacists?' Data are also presented here on the views of NIPs, PIPs and NMP Trust leads in the study about NMP practice, including its perceived impact on a number of key policy and practice indicators. Results from the national surveys of NIPs, PIPs and NMP Trust leads and the case site interviews with IPs are presented in order to outline health professional views.

5.7.2 National survey of NIPs and PIPs

5.7.2.1 Views on prescribing practice and its impact

NIPs and PIPs were asked their views on a range of issues pertinent to the practice and impact of prescribing, identified from the literature review of research and policy documents. Likert scales were used to ascertain respondents' views and current experiences of prescribing in practice. Results are shown in Tables 5.7.2.1.1 and 5.7.2.1.2 below.

Nurse independent prescribing

The results indicate that NIPs consider their prescribing is effectively meeting the key policy targets that IP is designed to influence: 98% agreed or strongly agreed that their prescribing was improving care quality for patients, 98% also agreed that prescribing was making better use of their skills, 92% reported that prescribing had helped improve the clinical effectiveness of care in their area and 83% reported that prescribing had increased patient choice. On the issue of patient access to medicines, NIPs were asked about the impact of their prescribing on patient access comparative to doctors' and pharmacists' prescribing. The results here were more mixed, with 44% agreeing or strongly agreeing that patients find it easier to access medicines

from them than a doctor, 30% disagreeing or strongly disagreeing and 26% uncertain. Many NIPs (37%) were uncertain whether patients found it easier to access medicines from them than a pharmacist and 43% of the sample considered that they were more accessible for medicines prescriptions than pharmacists – these results may be explained by the relative numbers of NIPs and PIPs and that patients may not have access to a pharmacist prescriber in these NIPs' area of practice.

88% considered that prescribing meant their time was used more effectively and 73% agreed or strongly agreed that the ability to prescribe meant that doctors' time was also used more effectively to deal with more complex cases. Only small proportions of the sample disagreed with these statements.

The impact of prescribing on other indicators was more mixed: while 58% agreed that prescribing meant they could deal with all of a patient's prescribing needs, nearly one-third (29%) disagreed with this statement. This result may link to the finding reported elsewhere that NIPs and PIPs have concerns about prescribing for co-morbidities (Section 5.3.2.1). Similarly, whilst 55% reported that prescribing meant patients could have a longer appointment time, 26% disagreed that this was the case.

At the organisational level, 66% of NIPs considered that independent prescribing by nurses had increased the capacity of the organisation to provide appointments for patients.

Whist 71% of NIPs reported always considering the cost of the items they prescribed, 19% disagreed or strongly disagreed with this statement. Whilst 69% also agreed that NIP had improved the cost effectiveness of service delivery in their clinical area, over a quarter (27%) were uncertain about this.

Results suggest NIPs perceived a largely satisfactory response from medical colleagues in relation to their prescribing. 87% agreed or strongly agreed that the doctors they work with are supportive of nurse independent prescribing, with only 2% disagreeing with this statement. 56% disagreed or strongly disagreed with the statement 'the doctors I work with are unclear about my prescribing rights' – a relatively large minority (23%) agreed with his statement however. 54% agreed or strongly agreed that becoming an independent prescriber had increased the respect they received from doctors, with 33% uncertain and 13% disagreeing or strongly disagreeing. Two-thirds (66%) were satisfied with the interdisciplinary communication about independent prescribing in their area of practice.

Table 5.7.2.1.1: NIPs' views on prescribing practice and its impact

	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
Improves the quality of care I am able to provide for patient/service user	76	22	1	0	0
Increases the capacity of my organisation to provide more appointments for patient/ service users	42	26	16	13	3
Ensures better use of my skills	70	28	2	0	0
Means that the use of the doctors' time is more effective and can be used for more complex cases	41	32	16	9	2
Has increased my job satisfaction	65	29	5	1	0
Has increased the respect I receive from doctors	20	34	33	11	2
Enables patient/service users to have a longer appointment time than they would with the doctor	27	28	19	22	4
Means I can deal with all of the patient/ service user's prescribing needs	26	32	12	26	3
Means my time is used more effectively	45	43	8	3	0
Has increased choice for patients	45	38	9	6	1
Has improved my relationship with patients	35	40	16	8	1
Has helped improve the clinical effectiveness of patient care in my clinical area	47	45	7	1	0
Has helped improve the cost-effectiveness of service delivery in my clinical area	33	36	27	3	0
I believe patients/service users find it easier to access medicines through me than a doctor	14	30	26	28	2
I believe patients/service users find it easier to access their prescriptions from me than a pharmacist	17	26	37	18	2
The doctors I work with are supportive of nurse independent prescribing	49	38	10	2	0
I believe that as a nurse who can prescribe independently I am less dependent on doctors	36	45	9	10	0
The doctors I work with are unclear about my prescribing rights	4	19	21	41	15
I am satisfied with inter-disciplinary communication about independent prescribing in my area of practice	15	51	20	11	3
I always consider the cost of the items I prescribe	18	53	11	18	1

Table 5.7.2.1.2: PIPs' views on prescribing practice and its impact

	SA	A	U	D	SD	
Improves the quality of care I am able to provide for patient/service users	57.8%	36.6%	4.9%	0.7%5	-	1.49
Ensures better use of my skills	68.3%	29.6%	2.1%	-	-	1.34
Has helped improve the clinical effectiveness of patient care in my clinical area	40.1%	45.8%	13.4%	-	0.7%	1.75
Means my time is used more effectively	31.7%	45.1%	22.5%	0.7%	-	1.92
Has increased choice for patients	25.4%	43.7%	17.6%	8.4%	4.9%	2.24
Increases the capacity of my organisation to provide more appointments for patient/service users	40.8%	30.9%	16.2%	7.7%	4.2%	2.04
I believe patients/service users find it easier to access medicines through me than a doctor	11.3%	23.9%	36.6%	25.4%	2.8%	2.85
I believe patients/service users find it easier to access their prescriptions from me than a nurse	12.7%	21.8%	38.7%	25.3%	1.4%	2.81
Means I can deal with all of the patient/service user's prescribing needs	21.1%	37.3%	9.1%	26.8%	5.6%	2.58
Means that the use of the doctors' time is more effective and can be used for more complex cases	46.5%	38.0%	9.2%	5.6%	0.7%	1.76
Enables patient/service users to have a longer appointment time than they would with the doctor	39.4%	21.8%	17.6%	16.9%	4.2%	2.25
Has improved my relationship with patients	42.3%	35.9%	17.6%	2.8%	1.4%	1.85
Has helped improve the cost-effectiveness of service delivery in my clinical area	33.1%	32.4%	28.9%	5.6%	-	2.07
The doctors I work with are unclear about my prescribing rights	2.1%	18.3%	23.9%	43.7%	11.9%	3.45
The doctors I work with are supportive of pharmacist independent prescribing	53.5%	42.3%	3.5%	07%	0	1.51
I am satisfied with inter-disciplinary communication about independent prescribing in my area of practice	23.9%	46.5%	19.0%	7.7%	2.8%	2.19
Has increased my job satisfaction	70.4%	23.2%	6.3%	-	-	1.36
Has increased the respect I receive from doctors	32.4%	41.5%	21.1%	4.9%	0	1.99
I believe that as a pharmacist who can prescribe independently I am less dependent on doctors	28.9%	45.1%	16.2%	8.5%	1.4%	2.08
I always consider the cost of the items I prescribe	28.2%	55.6%	9.2%	7.0%	0	1.95

The results indicate that PIPs also consider their prescribing is effectively meeting the key policy targets that IP is designed to influence: 95% agreed or strongly agreed that their prescribing was improving care quality for patients, 98% agreed that prescribing was making better use of their skills, 86% reported that prescribing had helped improve the clinical effectiveness of care in their area and 69% reported that prescribing had increased patient choice. PIPs were asked about the impact of their prescribing on patient access, in terms of comparatively with doctors' and nurses' prescribing. The results here were more mixed, with 35% agreeing or strongly agreeing that patients find it easier to access medicines from them than a doctor, 28% disagreeing or strongly disagreeing and 37% uncertain. Many PIPs (39%) were also uncertain whether patients found it easier to access medicines from them than a nurse; 33% of the sample considered that they were more accessible for medicines prescriptions than nurse.

77% considered that prescribing meant their time was used more effectively and 85% agreed or strongly agreed that the ability to prescribe meant that doctors' time was also used more effectively to deal with more complex cases. Only small proportions of the sample disagreed with these statements. The impact

of prescribing on other indicators was more mixed: while 58% agreed that prescribing meant they could deal with all of a patient's prescribing needs, one-third (33%) disagreed with this statement. Similarly, whilst 61% reported that prescribing meant patients could have a longer appointment time, 21% disagreed that this was the case.

At the organisational level, 73% of NIPs considered that independent prescribing by pharmacists had increased the capacity of the organisation to provide appointments for patients.

Regarding the costs of medicines prescribed, a majority of PIPs stated they always considered this (83%), with only 7% disagreeing. Like NIPs, about two-thirds (65.5%) thought that PIP had improved the cost effectiveness of service delivery in their area, although a significant number of PIPs (28.9%) were uncertain about this.

Results suggest an overall pattern of satisfaction with the experience of medical colleagues in relation to prescribing. 95.8%% agreed or strongly agreed that the doctors they work with are supportive of pharmacist independent prescribing, with only 1% disagreeing with this statement. 56% disagreed or strongly disagreed with the statement 'the doctors I work with are unclear about my prescribing rights' – a relatively large minority (20%) agreed with his statement however. Just over two-thirds (71%) were satisfied with the interdisciplinary communication about independent prescribing in their area of practice and only 11% disagreed.

5.7.3 National survey of NMP Trust leads

5.7.3.1 Impact of prescribing on service delivery and patient care

Respondents were asked whether nurse and pharmacist independent prescribing in their own Trust had an impact on cost effectiveness of services and clinical effectiveness of services. The results are shown in Table 5.7.3.1.1.

Table 5.7.3.1.1: Effects of IP on cost effectiveness and clinical effectiveness: NMP leads' views

	Yes	No	Don't know
Has independent prescribing had an impact on the cost effectiveness of services?	37 (43.5%)	19 (22.4%)	29 (34.1%)
Has independent prescribing had an impact on the clinical effectiveness of services?	65 (76.5%)	6 (7.1%)	14 (16.5%)

More respondents (77%) reported that independent prescribing had an impact on the clinical effectiveness of services than on cost-effectiveness (44%) or prescription patterns across professional groups (33%).

Respondents from Mental Health/Foundation Trusts were more likely to say that IP had not impacted on cost effectiveness (55% versus 22% overall $p<0.0003$) and were also more likely to say that IP had not impacted on clinical effectiveness (25% versus 7% overall $p<0.001$).

In relation to possible changes in service configuration respondents were asked whether, in their Trust, independent prescribing had led to any increases in nurse- or pharmacist-led services and whether it had led to any shifts in service delivery. The results are shown in Table 5.7.3.1.2.

Table 5.7.3.1.2: Impact of IP on service configuration: NMP leads' views

Thinking about the impact of independent prescribing on the configuration of services, in your Trust, do you think there has been:	Yes	No
An increase in nurse-led services	57 (66.3%)	29 (33.7%)
An increase in pharmacist-led services	25 (29.4%)	60 (70.6%)
An increase in primary care service delivery	38 (44.2%)	48 (55.8%)
A shift of service delivery from doctors to pharmacists	23 (27.1%)	62 (72.9%)
A shift of service delivery from doctors to nurses	73 (85.9%)	12 (14.1%)

The majority of respondents reported a shift of service delivery from doctors to nurses (86%) and an increase in nurse-led services (66%). The corresponding figures relating to pharmacist independent prescribing were considerably lower, at 27% and 29% respectively. Increased delivery of services through a shift to primary care

was reported by 44% of respondents.

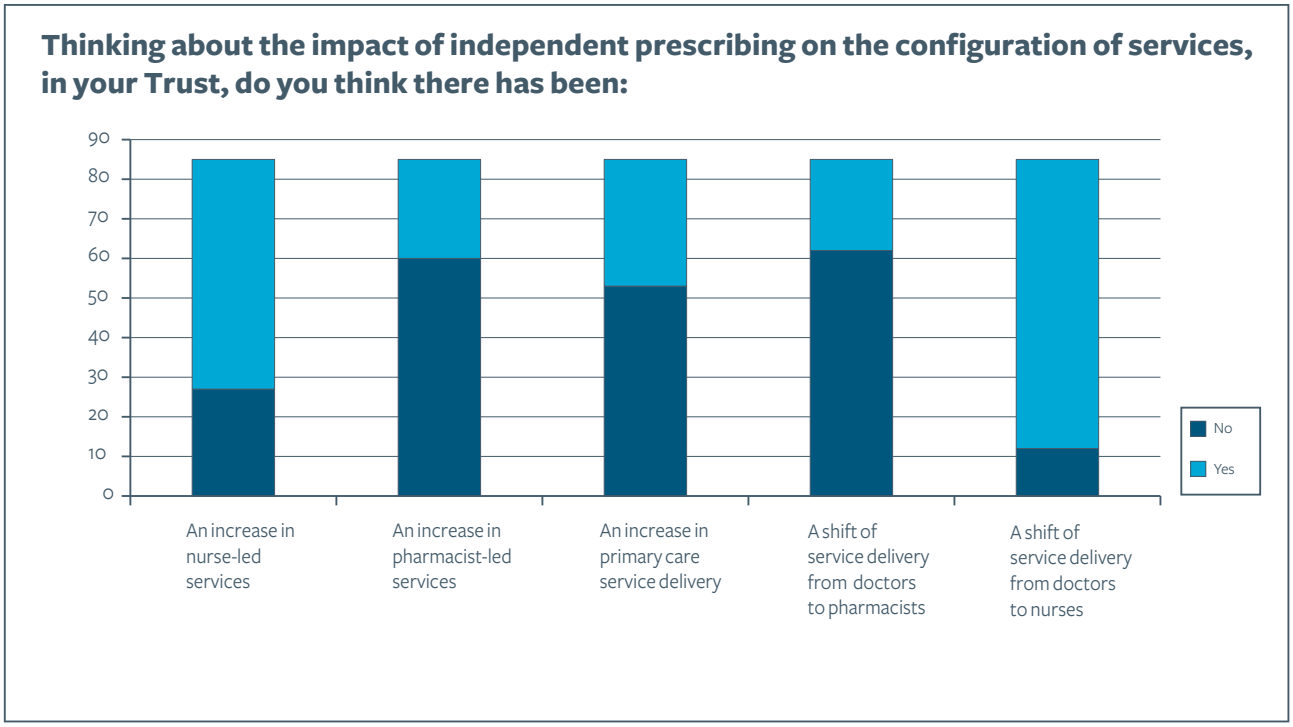

Figure 5.7.3.1.1: The impact of independent prescribing on the configuration of services: NMP leads' views

The breakdown by type of Trust is shown in Table 5.7.3.1.3.

Table 5.7.3.1.3: NMP leads' views on impact of IP on service configuration by Trust type

	Acute/ Foundation	PCT	Mental Health/ Foundation	Care
Shift in service delivery from doctors to nurses	87% (32)	96% (25)	70% (14)	100% (2)
Shift in service delivery from doctors to pharmacists	35% (13)	27% (7)	10% (2)	50% (1)
Increase in service delivery in primary care	16% (6)	85% (22)	38% (8)	100% (2)

The majority of Trusts reported a shift of service delivery from doctors to nurses, highest in Primary Care Trusts at 96%.

Acute/Foundation Trusts were more likely to report a shift of service delivery from doctors to pharmacists (35%), followed by Primary Care Trusts (27%), and Mental Health/Foundation Trusts (10%).

Respondents from Mental Health/Foundation Trusts were less likely to report an increase in nurse-led services compared, at 43%, to 66% overall ($p<0.009$).

Primary Care Trusts had the highest percentage of respondents reporting increased service delivery in primary care as a result of nurse and pharmacist independent prescribing (85%). More Mental Health/ Foundation Trusts (38%) reported increases in primary care delivery than Acute/Foundation Trusts (16%), although this difference did not reach statistical significance.

When respondents were asked whether the introduction of nurse and pharmacist independent prescribing had led to altered patterns of prescribing (e.g. an increase in NIP prescribing and a corresponding decrease in doctor prescribing) 28 (33%) agreed, 22 (26%) disagreed, and 35 (41%) did not know.

The breakdown by type of Trust is shown in Table 5.7.3.1.4.

For those respondents who said there had been a change, approximately equal proportions reported this for PCTs (39%) and Acute/Foundation Trusts (32%) (Table 5.7.3.1.4).

Table 5.7.3.1.4: Reported changes in prescribing patterns across professional groups as a result of NMP by Trust type

	Yes	No	Don't know	Total
Primary Care	10 (39%)	4	12	26
Acute / Foundation	12 (32%)	9	16	37
Mental health	5 (25%)	9	6	20
Care	1	0	1	2
				85

One in three respondents said they did not know whether IP had had an impact on the volume of medicines prescribed in their Trust. Of the remainder, most said there had been no change in prescribing (Table 5.7.3.1.5). The results by type of Trust are shown in Table 5.7.3.1.6.

Table 5.7.3.1.5: Reported impact of NMP on the volume of medicines prescribed

	Increased	Decreased	No change	Don't know
Has independent prescribing had an impact on the volume of medicines prescribed in the Trust?	5 (5.9%)	8 (9.4%)	43 (50.6%)	29 (34.1%)

Table 5.7.3.1.6: Reported impact of NMP on the volume of medicines prescribed by Trust type

	Decreased	No change	Increased	Don't Know	Total
Primary Care	4 (15%)	8 (31%)	4 (15%)	10 (39%)	26
Acute/Foundation	3 (8%)	22 (60%)	-	12 (32%)	37
Mental Health/Foundation	1 (5%)	12 (60%)	1 (5%)	6 (30%)	20
Care	-	1	-	1	2

More respondents from Primary Care Trusts reported changes in the volume of medicines prescribed (30% compared with 15% in the overall sample $p<0.01$).

Respondents were asked for any additional advantages and disadvantages of NMP on service delivery and patient care. The advantages are shown in Table 5.7.3.1.7.

Table 5.7.3.1.7: Other advantages of NMP on service delivery and patient care

service area	number
Increased patient access to medicines	21
More responsive service (e.g. faster initiation of treatment)	8
More holistic approach	5
Higher patient satisfaction	3
No need for additional medical appointments	3
Seamless care pathways	3
Improved patient safety	3
Other	12

The most frequently cited advantage was increased patient access to medicines, followed by increased responsiveness of services.

Only nine respondents cited disadvantages of NMP. Two reported that their Trust had limited NMP to supplementary prescribing. Two said that the training course was too generic for mental health nursing. The following were cited by one respondent each: their Trust's requirement to specify scope of practice, resistance from medical staff, difficulty in using clinical management plans, and pressure to prescribe outside of competency.

5.7.4 Case site IP interviews

Seven of the nine responses received from IPs indicated that there was good integration of the IP into the wider health care team, with comments about the support of the team, as well as their recognition of the IP's expertise. Two respondents cited pre-existing supportive relationships that aided this process of integration. One IP considered that his part-time status decreased his integration into the team. One other IP who worked across GP practices stated that it was difficult to fit into GP teams.

Asked whether IPs felt well supported by the GPs, nurses, pharmacists, seven of the nine respondents reported positively on the support received by doctors, nurses and/or pharmacists at the site. For example, one PIP stated:

'Yes – I am able to seek advice and guidance from other members of the team at the practice as well as the PCT' (GP03).

Two IPs that worked independently from any GP practice were less positive, with one stating that previous support from a GP had been withdrawn due to its cost by local managers, and the other stating that she had minimum support from one GP only.

5.8 Educational preparation for non-medical prescribing

5.8.1 Key points

- Courses to prepare independent NMPs are generally viewed as fit-for-purpose by NIPs and PIPs.
- The vast majority of nurse and pharmacist IPs report that their training course completely or largely met both their learning needs and the stated learning outcomes.
- Two-thirds or more NIPs and PIPs reported they were adequately prepared by their course for the key prescribing competencies. The only exception was physical assessment skills where 44% of PIPs felt adequately prepared.
- The period of supervised learning in practice was a very positive experience for most NIPs and PIPs and the majority reported receiving at least the12 days required.
- The vast majority of NIPs and PIPs already knew and were working with their DMP. There are obvious advantages in this but there are some indications that spending some time in other similar settings during the period of supervised could usefully expose NIPs and PIPs to different ways of working.
- Most NIPs and PIPs completed a course which was uni-professional. HEI providers reported positively on multi-professional programmes while recognising the challenges these pose.
- HEI programmes have developed over time, taking into account the diversity of participants in both professions and clinical specialties and HEI providers reported a number of changes planned for the future.
- HEI providers perceive a need to review the requirements for pre-requisites for NMP training, particularly relating to numeracy for nurses and clinical assessment skills for pharmacists and, to a lesser extent, nurses.
- There is evidence of some confusion among PIPs of the relative roles of the HEI provider and the period of supervised practice in supporting clinical skills development, there is a need to revisit the balance between these.

This Chapter will present results addressing the objective in the study specification 'Do any changes need to be made to existing educational programmes for nurse and pharmacist independent prescribers?'. Results are presented from the focus groups with HEI providers and from the national surveys of NIPs and PIPs in order to review the nature, content and fitness-for-purpose of current programmes for NIPs and PIPs and to identify any changes that might be needed for the future. In addition we also present here our findings from the national NMP leads survey in relation to NMP workforce planning, the relationship between the NHS and HEI providers, and the way in which enhancing and blocking factors for NMP are operating at Trust level.

5.8.2 The nature and content of current educational provision

Data from the HEI providers who participated in focus groups showed that the programmes described had many similarities, partly determined by the regulatory requirements for providers, and partly perhaps due to convergence in teaching practice on the value of self-directed learning. Common features of programme delivery included:

- A (variable) balance of face-to-face teaching and self-directed learning (including online resources);
- A period of learning in practice directed by a designated medical practitioner (DMP); and
- A comprehensive assessment system including a portfolio, assessment of clinical skills in the context of clinical case studies, and examination of knowledge (e.g. pharmacology, numeracy, law and ethics/ prescribing practice).

The programmes provided an individualised pathway through the course but a common assessment for each course. This was the final arbiter of quality, ensuring that all NMP prescribers from a HEI met common criteria regardless of the path taken. It also highlighted the main challenges and pressures experienced by providers.

Programmes reported differences in the balance of face-to-face teaching with self-directed learning, and their assessment methods, and they also showed some evolution over time.

Ten of the 17 programmes were multi-disciplinary and providers described both the benefits and challenges of student diversity. Participants teaching pharmacists, nurses, and AHPs felt that the groups shared insights and skills that enhanced the programme experience:

> The evaluations from the student is always that one of the highest things is mixing with other professional groups, or the pharmacy mixing with the nurses et cetera - that's been one of the high points. [FG1K]

> It is, it is a great challenge, because they all bring to the course their own specialty and they've got knowledge and skills coming from - gained from different backgrounds. A pharmacist, for example, will be particularly good in pharmacology of course... and nurses with their physical examination, and their skills in reflection, and the allied health professionals have got a combination of that. So they learn from each other, and it's great to see how the students help each other on those various aspects. [FG3C]

With these benefits, however, came challenges. The challenge of diversity within NMP programmes was stated by a number of participants. A common teaching challenge in multi-disciplinary courses was the difference in traditional skills possessed by pharmacists, nurses and AHPs:

> Well nurses, of course, are very familiar with touching patients and getting close to them - that's what they have been and pharmacists aren't. Pharmacists are very good at checking and process, and the deeper knowledge of prescribing, which the nurses have extremely little of. And so that probably is a tension between the two groups when they come together, isn't there? [I2A]

One participant – who also had a regulatory role – reflected on the challenge of designing a multi-disciplinary programme where clinical skills were considered a pre-requisite for one professional group (NMC for nurses) and a programme output for the other (RPSGB for pharmacists):

> Well the big significant difference, and the thing that worries me, is it's an NMC admission requirement to have clinical skills at an appropriate level, it is an RPSGB output... and now I worry how you can design a course that achieves that, and – don't get me wrong, some courses do achieve that and do it very well – but again nationally and consistency-wise they – I feel they don't... [FG1F]

Programmes that became multi-disciplinary over time had changed to reflect the needs and contexts of each professional group:

> I think 'cause we started with nurses, the course – and it was taught mainly by nurses until the pharmacists came onto the course, and we got that established – it was very biased to nurses. Examples and things. And I think it's balanced now. I think... the pharmacists – we know what they need – and we know how to press their buttons as well as the nurses. [FG1J]

Multi-disciplinary programmes had developed a flexible approach, based on the learning contract, where pharmacists and nurses can choose sessions that reflect the skills they need to acquire:

> We've used a blended approach of teaching from the very beginning, so actually it's about them deciding what their learning contracts are, with respect to the requirements of the Pharmaceutical Society or the NMC, and then they do this – they do a fixed number of sessions but we've always had the pharmacist doing less pharmacology and more physical assessment skills, and vice versa for the nurses. [FG3E]

Several providers reported having to revisit skills that they considered pre-requisites for the course. The formal admission sign-off from nurse managers for clinical skills was found by HEI providers to not always be reliable. In addition the variable and sometimes poor pre-existing pharmacological knowledge base and numeracy base for nurses were highlighted as problems.

Providers reported that they had been required to do substantial remedial work in several areas. Numeracy among nurses was the most common example:

J: But we actually tackle the real problems that they [nurses] have with numeracy. And it tends to be nurses who have got into nursing without a Maths GCSE... or it would have been O-Levels probably, possibly for some of them.

G: We don't discount them if they haven't got a GCSE in Maths. We bring them in and we do some, we test them before and direct them, really, to some of our other modules around developing numeracy skills and calculations.

J: A lot of it is confidence... A lot of it is revisiting basic mathematical principles that they were never taught properly in the first place, and they've lost confidence with that. But that's quite scary for the rest of the nursing population out there. [FG1]

Another pharmacy programme provider reflected on the enhancements they needed to apply to develop pharmacists' consultation skills, such as active listening and promoting shared decision-making:

> We spend at least two or three of the five clinical days – all of that is built in – 'cause we know pharmacists can do responding to symptoms over the counter, we teach them that at undergraduate level, but actually we're not very good at teaching them to listen to patients, so we use the Calgary-Cambridge Guide, and looking at that for shared decision making. [FG3A]

Several providers highlighted their way of engaging and individualising students by using relevant practice examples to illustrate the application of theory to practice, in subjects such as therapeutics and physiology:

> I mean, as you know we have a very strong physiology theme through our course stuff – because we've actually found that the nurses haven't done it properly in the first place, or did it such a long time ago, it wasn't the level – and so we do make no apology by having physiology taught within the programme – but in a slightly different way that links it very much to the drugs in prescribing and, you know, they struggle, really struggle with it. [FG1J]

This was an extra burden on these programmes that some participants felt could have been avoided if there was an effective pre-requisite system, specifically regarding nurses' numeracy skills and their previous education about physiology and also pharmacists' clinical and consultation skills.

Striving for common assessment of all students within a programme was considered vital in order to ensure that they met common criteria for NMP regardless of their pathway through the programme. There were insights shared, however, that underlined the variation in assessment across, and sometimes within, NMP programmes.

> The assessments are – there's a diet of practice portfolios which is very individualised based on where they practice. Again, we don't – we assume that they know what their practice area is, and they demonstrate their competency in prescribing in that area. There's an extended essay – again, they choose the topic. Unseen exam, but again they're writing about what they already know, in terms of the practice area, but they have to show they understand the issues around prescribing in there. Oh, they're assessed in terms of their numeracy, which has become a new – [Laughter] a new system, computer based, which – the last cohort – one turned up and failed, so that's going to be an issue for us. [FG1B]

Many providers talked about the importance of the practice portfolio that they required of their students. It was a way of charting the development of the student, and their reflection upon their studies and the time in practice:

> I don't know if everyone else does, but it's based on portfolio-based evidence of learning in the workplace. So they're encouraged to - in their everyday practice and their twelve days in practice – think about things that demonstrate their competency as a prescriber, so that they're actually – our mantra is 'working smarter, not harder'. [FG1A]

The ability to assess a student's performance with a patient, be they real-life cases in practice or simulated through OSCE, was also discussed at length. This was arguably the main challenge to provider capacity, and many reflected on different strategies for conducting a meaningful assessment:

> Well at the end of the course – so that's on the sixth study day – it's the OSCE examination... The students have to sit three stations, which are twenty minutes each, and they would test a variety of their skills – either as a supplementary prescriber and as an independent prescriber, and also as a pharmacist – which I think sometimes they forget – so you know they get a drug interaction or something. But we also always assess use of diagnostic equipment... They're manned stations, so that we have a patient and an assessor in the room with a student... so they always run as a consultation, so we're examining communication skills on all the stations. [I2B]

One HEI described the challenge of different regulatory frameworks for pharmacist and nurse OSCE that had resulted in a different approach for each group:

> We have a slight difference in how we can do our OSCEs, and this is courtesy of our professional bodies. We were unable to arrange a visit between the two professional bodies to agree the programme. So... the NMC accredited the nursing half of the programme, and they allowed the OSCE to take place with a validated OSCE form with the designated medical practitioner. For the Pharmaceutical Society – which was, I think, three or four months later – they were unwilling to do that, unless we could get all our DMPs in for training – which, bearing in mind, we have probably about thirty pharmacists from all over [area] and further beyond to do that... Or we had to go and photo – and video them doing it, and obviously have it assessed. Which – clearly we have mental health pharmacists coming through as well,

> which would have been an issue there. So in the end we've actually ended up in the old system for the nurses – for the pharmacists – of using the same validated framework as the nurses use, but we have to use actors, and we have actors... So not the ideal, and we'd obviously like to keep working towards that being the same for both of them. [FG3E]

Another regulatory requirement that had a fundamental impact on programme assessment was the NMC stipulated an 80% pass rate for nurses in pharmacology tests in their 2006 'Standards of Proficiency for Nurse and Midwife Prescribers'. This highlighted the tension between the academic standards of the HEI and the professional standards of the regulator. One programme leader had changed the format of the pharmacology assessment to short-answer questions and MCQs as it would be rare to mark essay-type questions at this level at or over 80%:

> Well basically I think we've had to change the exam so that they can... have the short answer... multiple choice... to enable them the possibility to achieve that high mark. Because if a student's done an excellent piece of work, you wouldn't give them more than seventy five necessarily would you? So, you know, to expect a first is seventy so you know eighty well probably that's a first at M level, a higher level, isn't it? But, you know, it's not something that we would normally mark by. So... by incorporating those, and then marking out of the total for each smaller answer – so that they start off with the whole answer that you could reasonably expect to get in. So if they've put all the major things in, they'd get what? Fourteen for the short answer question? Whereas before we'd have probably given them ten and thought that was a good mark. So we've had to all mark by different criteria. [FG3B]

This drew a mixture of reactions from other participants, including understanding and surprise.

There was much agreement among providers that the academic credits for these programmes did not reflect the strenuous assessment required to regulate and accredit prospective NMPs. This was inconsistent with the diet of teaching, learning and assessment for other non-NMP modules. The providers understood their responsibilities, and wished that it was reflected in the academic credits:

> B: Going back to the actual academic side of it, some of us do feel – I don't know if we all feel – that it's a lot more intensive than an ordinary module? [General agreement]... You know, with the credits that they're awarded – they do well at least twice the amount of work, perhaps even more.
>
> C: And twice the amount of assessment.
>
> B: Twice the amount of assessment, more than twice. [FG3]

5.8.3 Working with DMPs

HEI providers in the focus groups raised and discussed many issues regarding the DMP role, and the ideal and actual engagement between DMPs and the HEI: motivation; engagement (with both the student and the HEI); accountability; and assessment. Methods used to monitor characteristics of the period of learning in practice were discussed by several participants. These included:

- DMP meeting certain criteria[1];
- Checking whether practice placements had appropriate resources; and
- Visits to DMPs to work through HEI resources and to check their understanding of the purpose of the practice placement.

Different strategies were reported for engaging DMPs in the NMP programme, with differing levels of success. Attendance at study days was generally poor, but the opportunity to visit individual DMPs in practice was dependent upon factors such as cohort size.

The benefit of having DMPs who were experienced in medical training was cited, although there were some reported inconsistencies in DMPs' interpretation of the practice level which the NMP should attain.

Providers were eager to have good engagement with DMPs, but there were constraints on both sides regarding workload and capacity. Most providers reported an 'open door' policy for inviting queries and concerns from DMPs. Many were frustrated by the lack of engagement with DMPs through invited events. One HEI used their medical lead on the programme as a mentor to all the DMPs, and they felt this opened a channel to early reports of any difficulties:

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1 Not cited by the participants, but a guide exists to help doctors to prepare for the DMP role: NPC Plus (February 2005) *Training non-medical prescribers in practice* Liverpool: NPC (available at: *http://www.npc.co.uk/npc_publications/resources/designated_medical_practitioners_guide.pdf*)

> And then we have the discussion forums and medical lead, who helps us run the programme: she acts as their mentor, so if there's any challenges we can pick them up a little bit earlier. [FG3A]

Others had come to accept that, as long as the student reported good engagement with the DMP and evidence of involvement was seen in the practice experience documentation, they were content to let the process take its course:

> We tend to find that we have little engagement of DMPs with the University, but when we talk to the students they have good engagement with their DMPs, and it has got to be throughout their paperwork – as I'm sure everybody else's is... and they have to sign off under certain things – you know, not just in practice but some of their academic work as well. [FG3H]

Some providers undertook visits to all practice placements, some relied on contact through DMP attendance at open study days and/or email, and another HEI found a compromise that matched their capacity, by inviting all DMPs to the HEI and then visiting those who did not attend:

> Going to meeting the DMP, I'd just like to say that [HEI2] use a combination approach. So we invite them to come forward in the first week - usually about fifty percent turns up, and I take a register. So those people that haven't turned up I then visit, but I don't do both because it's very labour intensive... But it's important to strike up a good relationship with them. [FG3C]

In the context of sign-off, providers were eager to discuss any difficulties that DMPs were having, and encouraged them to stand their ground if they had persisting concerns about a student:

> The student presents the case and then we have a structure to go through to mark it – as it were – but we have always said to the, to the DMP that at the end of it, 'If you're not happy, you're under no pressure to sign this off'. You've got to be prepared to say, 'Well, I think you need more time' and we have had that – not often, but we have had that where they say, 'I think we'd like a few more days' and that's – I find that very reassuring but it's still – it's only snapshots. [FG1K]

Motivation of DMPs was seen as a crucial issue. HEI providers' accounts suggested that developing a team to provide a service was the main motivation, as well as the culture of medical education among doctors:

A: I think for – If you're talking about a practice nurse working with a GP surgery, the payback is that they're going to be working there with the GP, they can see patients who they would see, and they can 'finish the loop', if you like, prescribing for them –

J: And developing their staff.

D: It's developing their service... moves your service forward. And also, you know, it is enjoyable – mentoring and supporting someone, and seeing them develop. And those of us who enjoy education, you know – amongst medics, there's a lot of education and it's just another side to that. [FG1]

Building on the contribution of the culture of medical education, another report from a HEI provider was of a DMP who decided to mirror the learning of their NMP student, from their timetable, in order to have a stimulating debate after each taught session. This had helped their personal development as well, and they were motivated to be a DMP again:

> I had a DMP who mirrored the timetable that their student was doing, and they would say, 'Right, what have you done? I'm going to go through it as well. It's good for me to revisit, and we will have an intellectual challenging discussion after your university session.' And so that DMP... got quite a lot out of the mentorship process of that student, and has said they will be a DMP again. [FG1H]

Participants discussed at length the sign-off responsibility of the DMPs for their students. In one group, a question was raised whether a DMP might, in the future, be held accountable for an incompetent NMP. The NMP qualification was compared to a MOT by one participant, but challenged by another as there was no legal precedent yet to provide a definitive view:

B: This issue about what – what is the medic signing off, it – I mean, they're not then liable for every action of that person in the future. It's at that point. I think if you get your car through the MOT, at the point it passed it's fine. If the wheels fall off tomorrow, it doesn't matter – it's not your responsibility... As long as, at the time you sign them off –

F: We don't yet know that, though. That, that – we don't yet know that, and the regulators – en masse – are terrified of it. So there is an issue there. [FG1]

The groups discussed different tensions, however, that might affect these relationships. Close working relationships had the potential to help or hinder the process, as noted by this DMP:

> I've got a very good student at the moment, and, you know, it's quite easy to sign her off because we often sit down and have discussions. And I can see it will be a problem with the more difficult student – as you've just said, B – if it was – If somebody was a colleague you're working closely with. I mean, I wouldn't sign it if I didn't feel happy but you are putting a lot of pressure on the mentor, I think. [FG1D]

A DMP in the same group reflected that other DMPs needed to fully understand the statement that they would sign at the end of the time in practice. Investment in briefing them would not be wasted:

To mentor someone properly takes time, and to sign those things off properly you've got to really know that they know what the statement's asking. So that all takes time, and only half a day a year is not a massive amount. [FG1D]

Several providers revealed that more NMP students were failed by the HEI than the DMP. The main reason for this was the detailed record of competency demanded within the reflective portfolios, but there was also acknowledgement that close working relationships between DMPs and NMP students were potentially less objective than the HEI provider-student relationship:

> We fail significantly more portfolios because we're looking for every competency that has to be achieved, where you're [to DMP in group] looking at the holistic which might just as – obviously be just as valid. But we have no compunction about saying, 'This is not acceptable, and it's got to be done again'. But it – I can see how difficult it would be: you have them for twelve days, you've said you're going to mentor them, you sign them off. [FG1K]

Most providers expressed satisfaction with the current programmes that they had. Future changes were anticipated by some providers, as they were planning discussion with students and other stakeholders in the run-up to re-validation. Examples of desired future changes included:

- Change in the application form to explore previous experience of any NMP programmes
- More involvement of the local NMP lead
- Consolidation of courses (one HEI, for example, planned to combine V150 and V300)
- Enhancing pre-registration training for nurses to cover pre-requisites for NMP
- Working with nursing partners to enhance pharmacist clinical skills training
- Adding in more non-compulsory but useful clinical skills for pharmacists e.g. chest examination.

5.8.4 Quality of current education and training

Overall, a largely satisfactory evaluation of educational experiences emerges from our surveys of NIPs and PIPs, but there is a significant minority reporting less than satisfactory experiences across a range of indicators.

Figures 5.8.4.1 and 5.8.4.2 show that most NIPs and PIPs considered that the programme met their learning needs: 86.9% of NIPs and 77.9% of PIPs reported that needs were met completely or to a large extent. However, 12.9% (n=108) of NIPs and 20.7% (n=30) of PIPs considered that the programme only met their needs to a limited extent. Respondents saying their needs were met to a limited extent were evenly spread across all types of nurse and pharmacist in the survey. A similar pattern emerged in response to an item asking about whether the course met its stated learning outcomes: 86.7% of NIPs and 83.4% of PIPs reported either completely or to a large extent, with 13% (n=110) of NIPs and 15.9% of PIPs (n=23) considering that these were only met to a limited extent and one PIP felt they were not met. Respondents who had completed a course open to nurses, pharmacists, and other AHPs were slightly under-represented here.

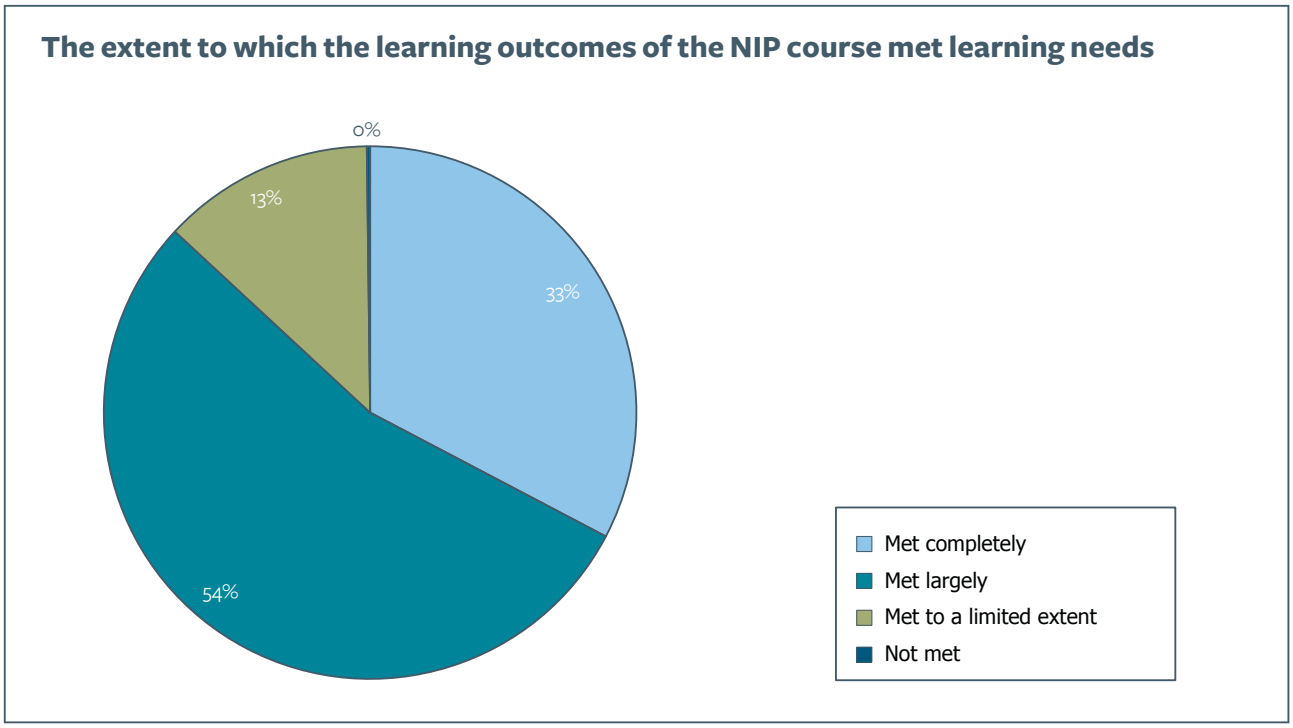

Figure 5.8.4.1: Overall, to what extent did the learning outcomes of the whole course meet your learning needs?

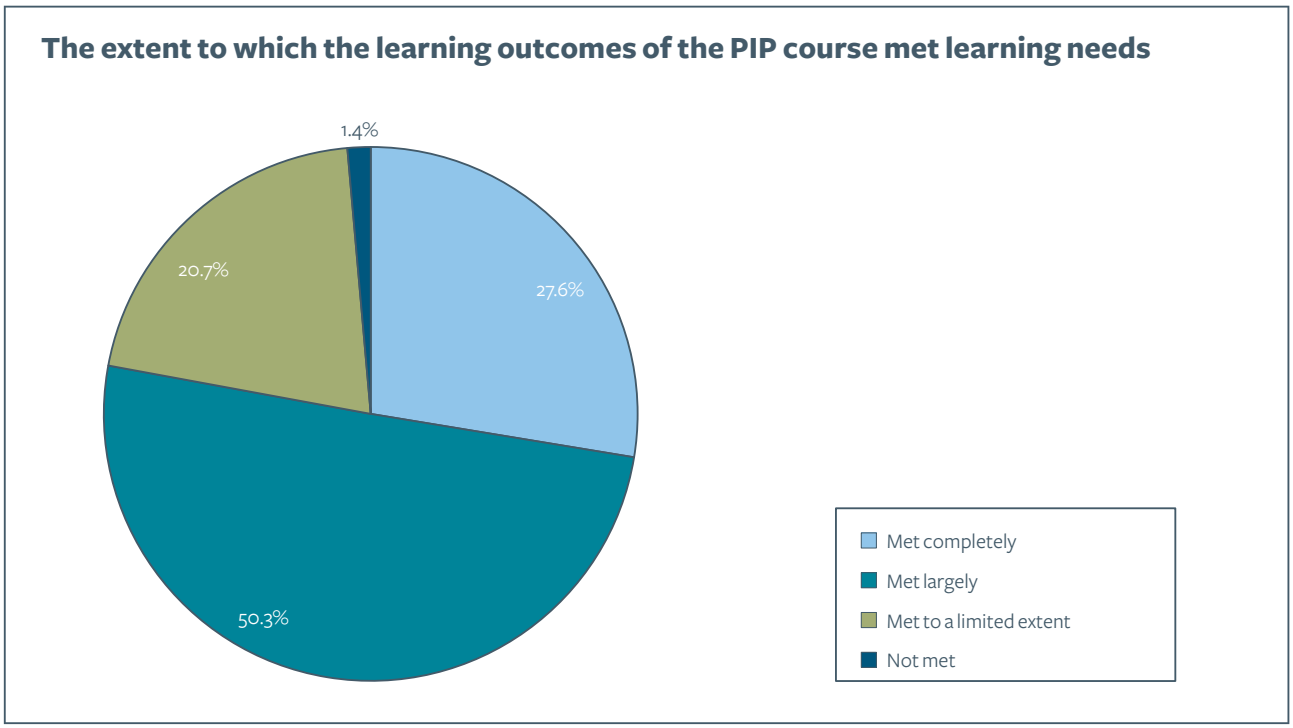

Figure 5.8.4.2: The extent to which the learning outcomes of the PIP course met learning needs

Respondents were asked whether or not their course had prepared them adequately for specific competency areas. NIPs and PIPs were asked about the same list of competencies with the exception of physical assessment skills (only asked of PIPs as it is an input rather than an output for NIPs). Table 5.8.4.1 shows that across all competency areas the majority of respondents felt they were adequately prepared – over two-thirds reported that the programme was adequate for all areas with the exception of physical assessment skills for PIPs, where only 44.4% said this was the case. Professional accountability and responsibility and legal, policy and ethical aspects were rated as adequate by particularly high numbers of respondents.

Table 5.8.4.1: Reported adequacy of the course in preparing IPs in specific competencies by NIPs (n=840) and PIPs (n=145)

	% adequate NIPs	% adequate PIPs
Professional accountability and responsibility	97.6%	95.9%
Legal, policy and ethical aspects	95.4%	96.6%
Influences on, and psychology of, prescribing	88.7%	88.9%
Consultation, decision-making and therapy	83%	82.1%
Prescribing in a team context	76.5%	84.1%
Prescribing in the public health context	73.8%	82.1%
Clinical pharmacology, including the effects of co-morbidity	81%	67.6%
Physical assessment skills	-	44.4%

PIPs were more likely than NIPs to say that their course had not provided adequate preparation in clinical pharmacology (67.6% vs 81%). NIPs were more likely than PIPs to say their course had not provided adequate preparation in prescribing in the public health context (73.8% vs 82.1%) and in prescribing in a team context (76.5% vs 84.1%).

5.8.5 Working with designated medical practitioners

The survey asked a series of questions about the period of supervised learning in practice received by NIPs and PIPs.

Table 5.8.5.1 highlights the amount of supervised learning in practice received by respondents. Most (86.9% of NIPs and 94.5% of PIPs) received the required 12 days or more with a minority reporting receiving fewer than 12 days, the exception being DNs.

Table 5.8.5.1: Extent to which respondents received the statutory requirement of 12 days supervised learning in practice

	NIPs	PIPs
Less than 12 days supervised learning in practice	13.1% (110)	5.5% (8)
Exactly 12 days supervised learning in practice	31.9% (268)	21.4% (31)
More than 12 days supervised learning in practice	55.0% (462)	73.1% (106)

For the overwhelming majority (89.6% of NIPs and 90.3% PIPs) their DMP was already known to them and approached by them personally to be their supervisor for the learning in practice element of the prescriber training programme. Only 9.9% (n=83) NIPs and 6.9% (n=10) PIPs reported that it was difficult to identify a DMP. District Nurses (24.9%) and Community Matrons (22.8%) reported that this was difficult more frequently than other groups. (Although the number of District Nurses in the survey was small, n=17). Although individuals reported little difficulty in finding a DMP there are indications elsewhere that moving beyond individuals to a strategic level there are some data that suggest availability and willingness of MIPs to undertake the DMP role is a limiting factor in at least some Trusts.

The period of supervised learning in practice was a highly positive experience for most respondents and was an important way in which trainee prescribers prepared for practice.

> 'This was the most valuable part of the course, built confidence, taught skills and engineered change from pharm. Approach to Rx' (PIP)

Some respondents already had a long-standing working relationship with the DMP and felt this facilitated, and had positive effects upon, their learning:

> 'I was working alongside my GP, and had done for some years. Therefore although not 'protected'

sessions we had had many of the discussions around prescribing during our every day work together discussing patients/diagnoses/medication regimes, etc.' (NIP)

'This was integrated into our daily ward rounds. Easily achieved.' (PIP)

'I was fortunate to know my DMP well and to work with her closely so supervised learning was both formal and informal.' (NIP)

A minority of respondents had a different view and would have preferred to undertake at least some of their period of supervised practice elsewhere:

'Very informative but feel would have been more beneficial to undertake in a practice away from my own working environment.' (NIP)

One reason for wishing to spend time away from the practice base was a recognition by the respondent that they had limited or no experience of how typical or different their practice might be. Some questioned whether people with whom they had worked for a long time would review their work sufficiently thoroughly and critically. The potential value of being exposed to prescribing that might be different was mentioned by some NIPs. Their comments implied a concern that their practice might be more likely to be assumed to be adequate by clinicians who knew them:

'When the DMP knows you well and your capabilities if they see you do something well, it seems to satisfy them.' (NIP)

'They were fairly "blasé" about what I had to do.'

Another respondent's comment raised the possibility of simply continuing the practice's current prescribing if there was no opportunity to experience how it was done elsewhere:

'Personally I think you should be assigned to someone based in another practice to prevent influenced prescribing.' (NIP)

The period of supervised learning tended to work better where the DMP had a good understanding of what was required from them. In some cases this was helped by prior experience as a trainer or mentor:

'Highly beneficial but DMP is a local mentor to other GPs so used to operating in that role.' (PIP)

'GP very supportive and good trainer previously, highly involved in education which helps.' (NIP)

Where the DMP was engaged with the process and had been briefed by the HEI or the Trust, respondents were positive about their input:

'Extremely helpful supportive despite a busy workload of his own. Vital for DMP to attend first introductory session. helped those of us whose DMPs turned up.' (PIP)

In other cases the IP in training found it was harder and took longer to establish an effective link if the DMP was unclear about their role and responsibilities:

'Very worthwhile but he seemed unsure of what was expected of him at times.' (NIP)

'Undertaken with a Medical Consultant in clinic and on the wards, he was not really sure why I was there even though I explained the reason, I was very grateful to his forebearance and it was a useful learning experience.' (PIP)

'Inadequate, neither of us really knew what we were doing and preparation for it by Uni had been poor.' (NIP)

Expectations of the period of supervised practice seemed to vary markedly between respondents. Some of those who described difficulties in receiving sufficient time with the DMP tended to have expected the whole 12 days to be spent with a doctor. Some appeared to have passively accepted this:

'It was not ideal not much of the 12 days was with them.' (NIP)

Comments from other respondents suggested that they had realised that they would have to be proactive and lead the process, so they had proactively pursued their DMP and/or organised other learning opportunities:

'It was self-directed, hard to pin my designated practitioner down.' (NIP)

'Need to drive it yourself and ensure get regular clinical supervision.' (PIP)

Interpretation of how the supervised practice period should be conducted varied. Where the trainee thought that only time spent with their specific DMP was allowable or worthwhile they felt disappointed. Others, however, actively took opportunities to work with others and many respondents described how working with different clinicians had enhanced their period of supervised practice.

'Surgery placement – with 2 GPs observed different consultation, prescribing styles.' (NIP)

'Buddied with SpR to teach her "drugs" (and for her to teach) me clinical for 1 year worked very well.' (PIP)

'My supervised learning practice was extremely valuable a variety of experienced practitioners supervised.' (PIP)

'Observed the GPs and nurse practitioner in our practice.' (NIP)

'I sought my own supervised learning in practices not all with DMP. Also spent time with pharmacists looking at audit, community prescribing, and poly pharmacy.' (NIP)

'Working at the interface of acute hospitals and primary care I varied my learning in practice by spending days with other disciplines, A/E consultant, GP, nurse prescriber – all agreed with mentor.' (NIP)

In primary care, where the management of long-term conditions is often now the role of nurses rather than GPs, trainee NMPs recognised that certain patient assessment skills that they needed could be developed with nurses' in specific clinics rather than in the more wide-ranging consultations of GPs:

'Difficult to assimilate GP clinics to chronic disease clinics. Working with practice nurses was v. helpful.' (PIP)

Some respondents' comments gave insights into what might make a good DMP and conversely, what they felt was missing in their period of supervised practice. Respondents praised DMPs who shared consultations and/or sat in on the trainee's consultations in order to give feedback. They described how feedback encompassed both consultation skills and treatment selection.

'DMP was excellent, always discussed cases and always answered questions. Listened to client in consultation and gave me some very good tips on consultation skills.' (NIP)

'Difficult to get them to sit in with me, mostly me sitting in with them watching their prescribing.' (NIP)

'DMP sat in on approx 4 consultations, regular face to face meeting to monitor progress.' (NIP)

One trainee described a gradual transition from observing the DMP's consultations to the DMP sitting in on the NMP's clinic and discussing options for management:

'I spent a few clinics observing and discussing the DMPs prescribing and then took on my own clinics and had the GP sit in on, we decided upon appropriate prescribing. It was really helpful in putting me in the position of deciding what was the most appropriate action for the patient.' (NIP)

'I spent time with all the members of the practice team including all the GPs in the practice. After each session I had a debrief with my DMP.' (PIP)

While most of the comments made by respondents related to their own learning. Some respondents commented that their DMP also gained from being involved with training of NMPs:

'Excellent we both benefited from the experience.' (NIP)

5.8.6 Transition from training to practice

Table 5.8.6.1 shows that the majority of both NIPs and PIPs felt either largely or completely prepared to practise prescribing at the end of their course.

Table 5.8.6.1: Respondents' preparedness to practise as an IP at the end of the course

	NIPs	PIPs
Completely prepared	23.2% (195)	30.3% (44)
Largely prepared	61.4% (516)	60.7% (88)
Prepared to a limited extent	15.2% (128)	9.0% (13)
Not prepared	0.1% (1)	0

In the light of the earlier finding in relation to physical assessment skills, we investigated this as a possible reason for lower perceived preparedness for practice and analysed data on preparedness to practise by reported adequacy of training in physical assessment skills. The results are shown in Table 5.8.6.2.

Table 5.8.6.2: PIPs' Perceived preparedness for practice and reported adequacy of training in physical assessment skills

	Adequate	Not adequate
Completely prepared	24 (55.8%)	19 (44.2%)
Largely prepared	32 (36.4%)	56 (63.6%)
Prepared to a limited extent	3 (23.1%)	10 (76.9%)

The percentage of PIPs who reported their training in physical assessment skills was adequate fell from 55.8% among those who felt completely prepared for practice, to 23.1% among those who felt their training prepared them for practice to a limited extent.

In order to explore how the experience of PIPs might be used to reflect on learning about physical assessment skills we analysed qualitative data from the 76 PIPs who commented about learning needs that, in their view, had been met to a limited extent and the 93 who commented in relation to the extent to which stated learning outcomes were met. Analysis of these spontaneous comments showed that while physical/clinical examination skills were the most frequently mentioned, history-taking and consultation skills also featured:

> 'Would have liked more training on examination skills.'
>
> 'Diagnostic skills i.e. examination of the patient – only chest infection and BP monitoring.'
>
> 'Consultation skills, (I had) enough physical examination.'
>
> 'Felt a lot of emphasis was on clinical examination rather than good history taking; (needed) more on accurate note-taking and consultation skills.'

Many respondents had expected all of the training in the necessary clinical assessment skills to be provided by the HEI:

> 'Some very basic days – waste of time, the important bits the physical assessment needed more and had limited teaching on this.'
>
> 'The institution taught days did not meet learning outcomes particularly in relation to clinical skills as institution did not have flexibility for my speciality.'
>
> 'The sessions on clinical assessment and history taking were insufficient.'
>
> 'Diagnostics – this could have been covered in more detail – felt it was very rushed.'

Because the prescribing course, by its nature, has to cater for trainees across a range of practice and clinical areas the period of supervised practice is a key component of skills training. However only a small number of respondents made reference to how they had used the period of supervised learning in practice to develop these skills:

> 'Physical examination. assessment of patients. Any areas I felt were lacking I discussed with consultant colleagues and completed as far as possible outside the course.'
>
> 'I needed to learn patient assessment which I learned from the medical staff at the practice.'

Focus group data showed that some HEIs tasked the DMP with the assessment of a range of professional behaviours, and the use of relevant equipment not specified by the regulator:

> 'If there's any specific clinical exam skills that they will want to use within their prescribing area that we don't teach – such as phlebotomy or spirometry, which they have to have a locally health certified certificate for – then these are put in the beginning of this assessment guide (provided for the DMP by the HEI), and either the DMP or another registered practitioner can sign them off.' [FG3A]

Data from the HEI focus groups revealed that the issue for pharmacists and patient assessment skills was well recognised by education providers and some commented on the expectations of students regarding the acquisition of clinical assessment skills, particularly with respect to the use of equipment and techniques. Several HEI reported a mismatch in student expectations and the realities of the programme, most often relating to the acquisition of clinical skills and the time in practice:

> 'The other issue that we have – we've had some issues with our student groups in the past - not so much now, 'cause I think the message is getting through – that... we teach a very generic programme, and their expertise comes from their own practice, and from the practice mentor, and the clinical skills development comes from the time that they spend in practice.' [FG1G]

The RPSGB specifies competency in cranial nerve examination for all pharmacist NMP students, regardless

of area of practice. Many students, and DMPs, were reported by HEI participants to have questioned this requirement. The programme providers, although sometimes sharing the same question, have underlined the relevance of a number of different techniques in order to produce a rounded NMP who can recognise broad application of such skills:

> 'I think that's sometimes where the students don't quite appreciate the need that they've got to develop those skills 'cause they will be on their own, and responsible for their decisions. Anecdotally, some of the feedback from the DMPs as people go out into practice there is a feeling, "Well why, why are you having to learn this? You won't need to use that skill" To which we often say, "Well your job may change, you may leave that job and go somewhere else, and you'll need to have a transferable skill." And until you're doing the job, I think probably some people don't appreciate the importance of that.' [I2A]

Some have further responded to student feedback to supply extra training in other techniques, and the RPSGB has required HEI providers to produce student feedback on this issue and show how they have responded to it as part of the current accreditation process. One programme lead described the change their HEI had made as a result:

> 'And what their (the students') concern was that they were expected to know cranial nerves – which is one of the requirements of the Pharmaceutical Society – but they felt that if they had to know cranial nerves – which they felt was less useful – they would like additional support with respect to ECGs and chest x-rays and because we use the, the [clinical skills centre], which is the one that the medics, the dentists, the nurses and the pharmacists use at [hospital], we were actually able to incorporate that. So we actually do more than required.' [FG3E]

It tends to be assumed that clinical skills are not an issue for nurses as they are a pre-requisite for prescribing training. Indeed the HEI providers in our focus groups noted that nurses' managers were expected to sign a statement that a prospective nurse student had specific skills, such assessment and diagnostic skills, and a thorough knowledge of the clinical area in which they were going to prescribe. Some providers questioned, however, whether the managers had made a thorough assessment:

> 'We have the same documentation [as another HEI in the group], but I personally feel that it's taken quite loosely by line managers, and trust managers – even when they're medical prescribing leads. For example, their ability to take a clinical history, physical assessment – they tick the box on the basis that the student gives the manager a brief, you know, verbal reassurance.' [FG3C]

A relatively inexperienced provider noted the impact on the confidence of a senior nurse practitioner if they failed an assessment, and felt that they might be unfairly 'set up' to fail by others e.g. managers who signed off their clinical skills upon admission:

> 'I would agree that they – that needs to be assessed by somebody other than their manager who might think that they're great down the corridor – getting on with the job... It seems such a shame that these girls have come along, and they've worked really hard and they're doing well all through the course, and then they fail, and how does that make them feel? You know, these are experienced practitioners and it's just awful!' [FG3G]

On crucial issues such as numeracy, despite requesting assurance from the nursing student and manager, some HEI administered their own assessment:

> 'But with numeracy, we do it – we appear to do it slightly differently to everybody else, in that yes – we expect them to be numerate when they come. We do a pre-course diagnostic numeracy test, and H's been going round the patch doing lots of CPD for numeracy. But we actually test them under exam conditions when they come in, and build on that, but test them again at intervals if they haven't been successful. And I think I would estimate probably about sixty percent get through it on the first attempt, eighty-five percent are through it by the second, and then we have a few stragglers.' [FG1J]

Most nurse (61.9%) and pharmacist (77.9%) prescribers reported that they had undertaken a uni-professional training programme; 24% of NIPs reported sharing their training programme with pharmacists. The remainder of nurses reported sharing their training with pharmacists and AHPs (7.7%) or other AHPs only (6.3%). Of the remaining pharmacists one in five reported sharing their training with nurses and fewer than 5% with both nurses and others.

Few PIP respondents made comments relating to whether their course was uni-professional or joint. One respondent reported a positive experience despite some possible tensions arising from the different 'wants' of nurses and pharmacists:

'On the SP course the nurses wanted more of certain things and the pharmacists more of others. We learned about each others skills.' (PIP)

Other PIPs made less positive observations with some perceiving that the needs of pharmacists were less well met:

'Felt the course was designed specifically for nurses should have also covered basic diagnostic and observational techniques more.'(PIP)

'Entirely aimed at nurses, struggled to develop patient assessment skills as poorly taught since nurses already have these skills.'(PIP)

5.8.7 The transition to prescribing practice

Reports of delays in NMPs starting to prescribe following training have been reported in the past. Therefore we asked respondents how soon after their course they began to prescribe as an IP and the results are shown in Figures 5.8.7.1 and 5.8.7.2. Both NIPs and PIPs reported a range of experiences in respect of delay in prescribing following completion of the course. Whilst nearly one-quarter of NIPs and one-third of PIPs experienced minimal delay (0–1 month), nearly one-third of NIPs (29%) and one in five PIPs waited over four months between completion of course and issuing their first prescription. Only one PIP prescribing in an NHS Trust reported a delay of six months or longer compared with 13 in general practice.

The length of time between official completion of the NIP course at the Education Institution and the issuing of first prescription

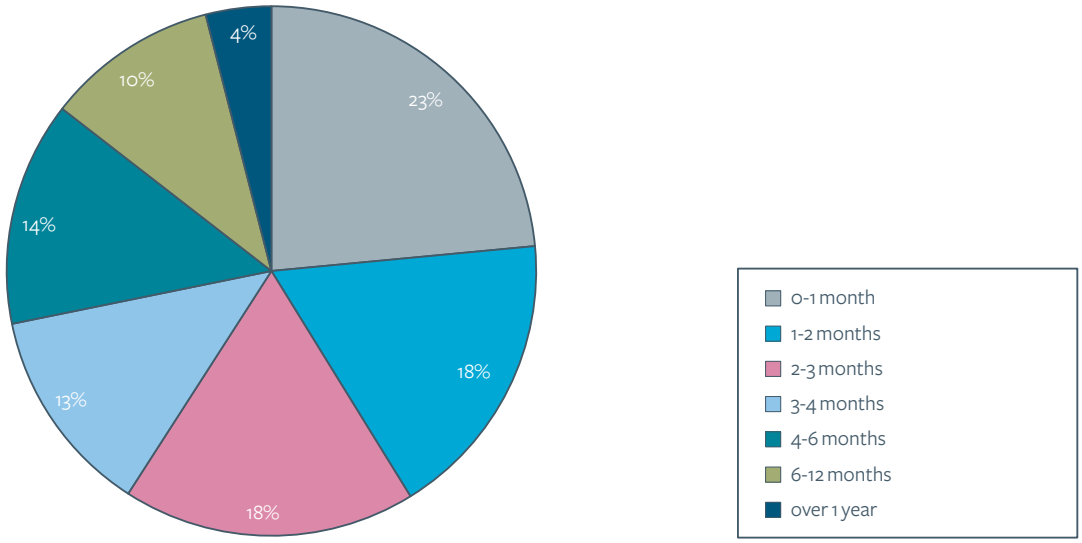

Figure 5.8.7.1: The length of time between official completion of the prescribing course at the Education Institution and the issuing of first prescription

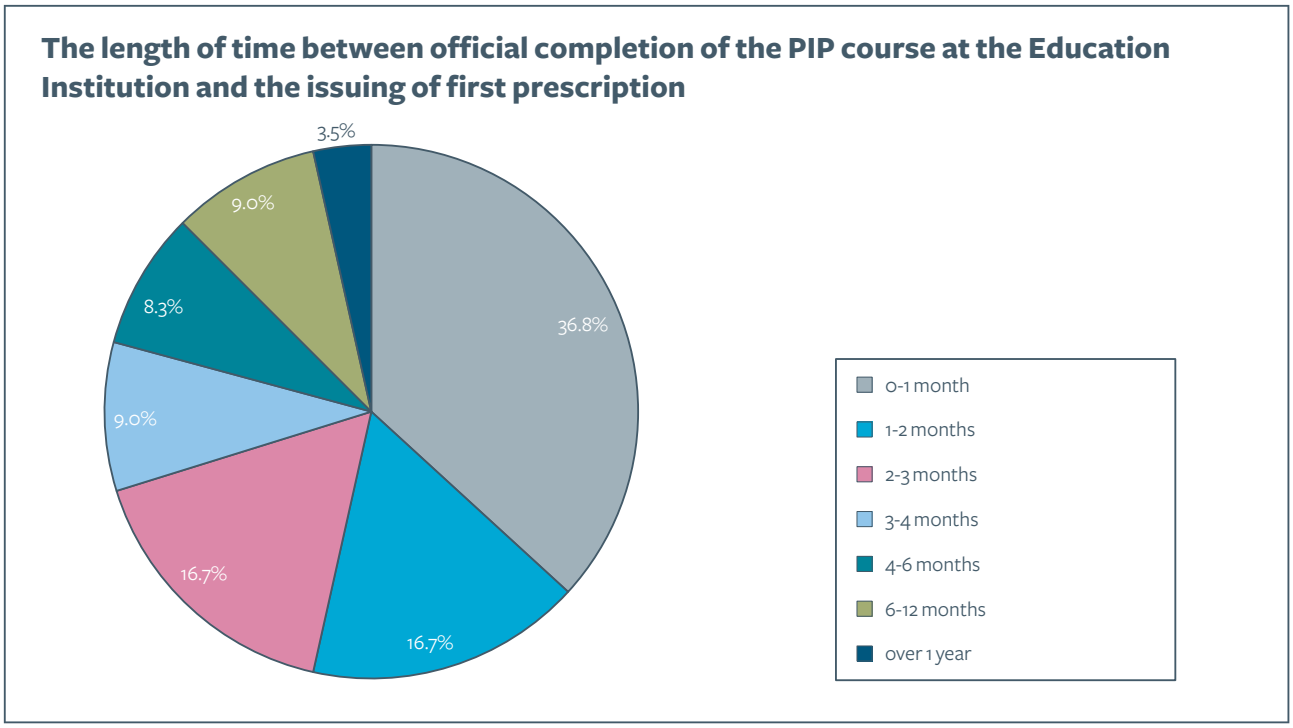

Figure 5.8.7.2: The length of time between official completion of the PIP course at the Education Institution and the issuing of first prescription

32.6% of NIP respondents and 29.7% (43) of PIP respondents responded to an item on reasons for the delay and a variety of reasons were given, as shown in Figures 5.8.7.3 and 5.8.7.4. The most commonly cited reason by NIPs was awaiting prescription pads, with organisational barriers, awaiting registration and admin./ university delays next most frequently cited reasons for delays to actively beginning prescribing. The most commonly cited reason by PIPs was organisational barriers, followed by awaiting registration. There were no differences by work setting for either NIPs or PIPs.

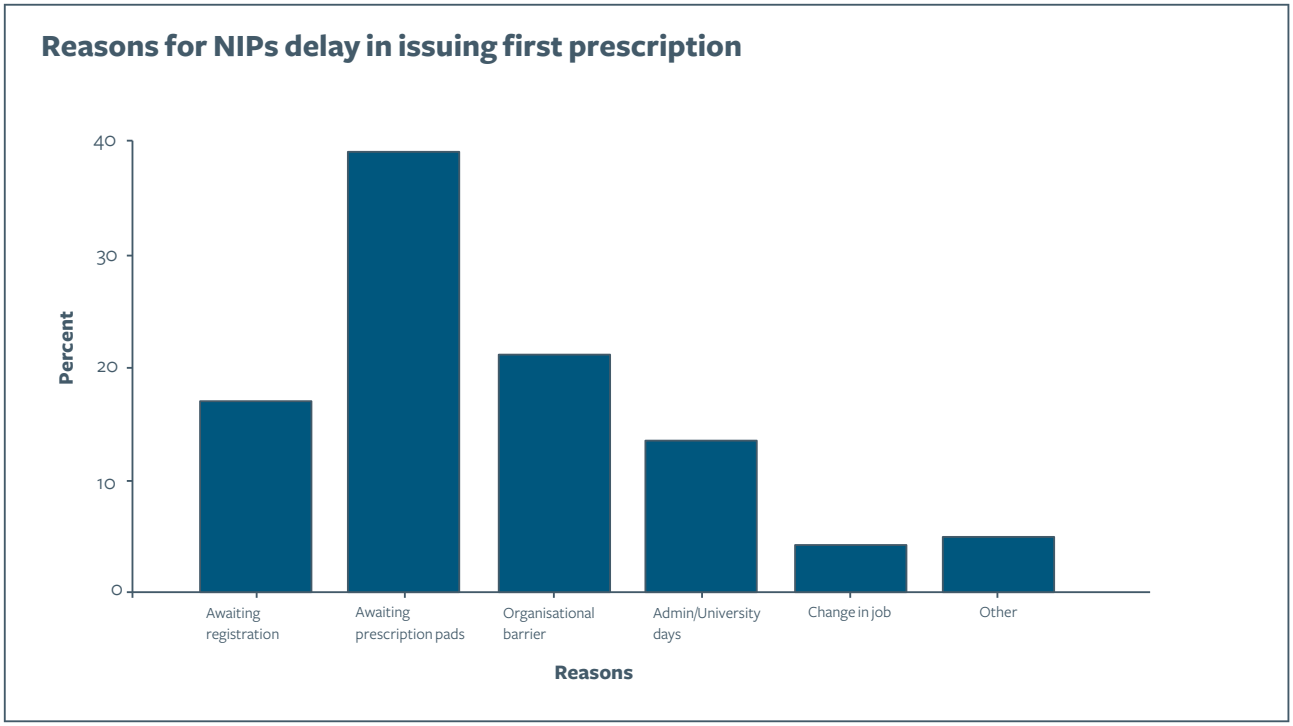

Figure 5.8.7.3: Reasons for NIPs delay in issuing first prescription

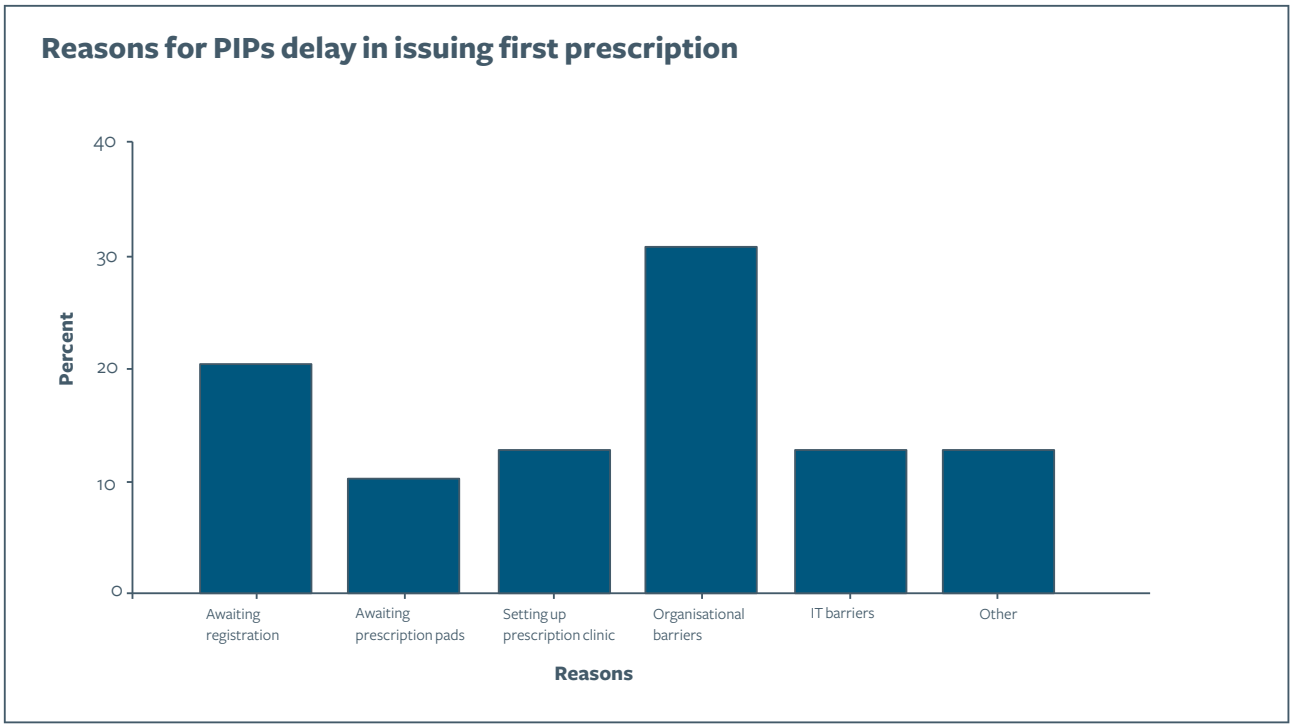

Figure 5.8.7.4: Reasons for PIPs delay in issuing first prescription

Organisational barriers for PIPs sometimes related to Trusts not yet having a NMP policy in place. IT issues in primary care related to practice clinical systems not having the NMP as a recognised prescriber:

> 'Problems with adding me as a prescriber to system.'

> 'Long delays... from the computer company facilitating computerised prescriptions – all really frustrating.'

> 'Set up on systems.'

Specific opportunities for qualified NMP to undertake CPD related to their prescribing role were reported by HEI, but with disappointing engagement from former students. Some HEI providers were being supported by NMP employers to provide opportunities. This revealed difficulty in providing CPD of relevance across different prescribers, i.e. the generic approach in the qualifying course is not sustainable for most CPD:

> 'In [SHA] we've just been given some money by the Strategic Health Authority for three university providers to do some CPD for the Trusts, but when you look at the numbers of prescribers that we've trained over just the last five years – and the money that's available – the different needs of the groups, professional groups – you know, it's difficult to see how everybody's needs will be met. But [PCT] identified particularly that the independent community prescribers had had no CPD, as far as they could remember, from when it first came in.' [FG3B]

Another funded provider reported that an imminent review day for past students had been cancelled due to lack of demand:

> 'The money's been made available in [Region] for CPD... but I know there was one programme tomorrow, which has actually been cancelled because there were only two people coming along for it.' [FG3J]

Several implied the CPD contribution of the different possible pathways, by completing linked modules in order to gain a further academic award:

> 'There's a Masters programme that we've just put together which is the non-medical prescribing plus one of these – the advanced diagnostic technique, or the triaging: they can add the two together and it becomes sixty credits, and then that leads them onto some other, and then they get a postgraduate certificate for that, etc.' [FG1K]

A DMP felt that NMPs should, and could, access courses for medical prescribers:

> 'There's always the potential... to join in the courses which are primarily designed for, for medics I suppose, and well-established courses... It's the same for us [doctors] – that we have to identify our learning needs, and seek out how we're going to satisfy those, 'cause we are very much moving away

> from the traditional didactic ″find a lecture″ somewhere: it led to a lot more work yourself in order to identify your needs and make sure you're keeping up to date. There's a lot of resource out there – it's just tapping into it!′ [I2A]

Most agreed that CPD for NMP had to be self-directed, and that this was best achieved by reflection on learning needs and seeking out appropriate resources, as in this personal example from a provider who was also a practising NMP:

> ′Obviously within my practice I've identified areas where I feel I need to gain more skills, so I – like cardiovascular examination, heart sounds and that type of thing, I don't feel I'm very good at, and I want to – it's not essential for me, for hypertension but, you know, I get the odd person in with atrial fibrillation or whatever, and I'd just like to... be able to detect it a bit more. But, you know, I've always got the option of referring... And a lot of what I feel I'm identifying is more around the clinical examination than, say, around communication skills or managing the consultations, but maybe that's 'cause of my HEI hat: we can teach it, and I've got the learning resources there if I needed to. So looking at my own CPD, it would definitely be that's what I'm thinking about if I'm ever identifying courses or opportunities where I can actually expand my own clinical knowledge.′ [I2B]

This chapter has addressed educational preparation for nurse and pharmacist independent prescribing. The next chapter brings together data from the evaluation in order to consider workforce planning.

5.9 Workforce planning

5.9.1 Key points

- Half of Trusts have a strategy or written plan for the development of non-medical prescribing.
- Effective linkage between NMP leads and HEIs appears to be working well in some but by no means all areas. HEI providers want these links to be built upon and strengthened.
- Most NIPs and PIPs reported that the decision to become a prescriber was driven by their own personal choice, with a smaller percentage saying it was a joint decision with their employer.
- Backfill was identified most frequently by NMP leads as a limiting factor for the operation of NMP.
- The most frequently identified enhancing factors were the NMP lead role, availability of DMPs and ringfenced funding for training.
- More Trusts have identified priorities for NIP than PIP, with case management/community matrons the most frequently reported priority.
- The evidence suggests that NMP has been largely driven by individual practitioners to date. If workforce planning is to be effective, more Trusts need to develop their strategic approach for NMP.

This chapter will present results from the study relating to workforce planning, drawing together findings from several sources. From the national surveys of NMP leads we present data on approaches to workforce planning for NMP, on limiting and enhancing factors, and future service priorities for NMP, along with HEI provider perspectives on the relationship between the NHS and programme capacity and content. Data from the surveys of NIPs and PIPs sheds further light on specific issues including the drivers for becoming a prescriber.

5.9.2 Approaches to workforce planning for NMP

In the survey of NMP leads we explored the extent to which Trusts were taking a strategic approach to workforce planning. When asked 'Is NMP identified and recognised within your Trust's planning and long-term objectives?' the majority of respondents (77%, n=68) said it was, and there were no differences between types of Trust.

Fewer Trusts (51%) were reported by respondents to have a strategy or written plan for NMP.

Table 5.9.2.1 shows, by type of Trust, those respondents who reported their Trust has a strategy or written plan for NMP.

Table 5.9.2.1: Reported NMP strategy by type of Trust (n=85)

	Yes	No	Total
Primary Care	15 (58%)	11 (42%)	26
Acute / Foundation	13 (35%)	24 (65%)	37
Mental Health	15 (75%)	5 (25%)	20
Care	2	-	2
	45 (51%)	40	85

Respondents from Acute/Foundation Trusts were less likely than those from PCTs to report their Trust having a strategy, and respondents from Mental Health Trusts were the most likely to report having one.

Those respondents who reported that their Trust had a strategy for NMP were then asked whether the strategy included:

- year-on-year numbers of new independent prescribers
- year-on-year 'types' are italics meant here instead of independent prescribers

Trust NMP strategies were more likely to include year-on-year numbers of new IPs than types/models of new IP (58% vs 49%). The results by types of Trust are shown in Tables 5.9.2.2 and 5.9.2.3.

Table 5.9.2.2: Reported strategy to guide year-on-year numbers of NMPs by type of Trust (n=45)

	Yes	No	Total
Primary Care	11 (73%)	4	15
Acute/Foundation	7 (54%)	6 (46%)	13
Mental Health	6 (40%)	9 (60%)	15
Care	2	-	2
	26 (58%)		45

PCT respondents were the most likely (73%) to report that their Trust strategy included year-on-year numbers of NMPs.

Table 5.9.2.3: Inclusion of guidance on year-on-year types/models of new NMPs within Trust NMP strategy by type of Trust (n=45)

	Yes	No	Total
Primary Care	7 (47%)	8	15
Acute / Foundation	6 (46%)	7 (54%)	13
Mental Health	7 (47%)	8 (53%)	15
Care	1	1	2
	22		45

There were no differences between Trusts in likelihood of including year-on-year types/models of new IPs.

Respondents who reported that their Trust had a NMP strategy which included year on year types/models of NMP were asked whether this was linked to a series of factors. The results are shown in Table 5.9.2.4.

Table 5.9.2.4: Does the strategy that guides the year-on-year types (models) of new independent prescribers link to any of the following

	Yes	No
Characteristics of the available workforce	18 (78%)	5 (21%)
Population health needs of the Trust	16 (70%)	7 (30%)
Employee requests	12 (52%)	11 (48%)
Waiting times	6 (26%)	17 (73%)
Quality & Outcomes Framework (primary care only)	5 (22%)	18 (78%)
EU Directives on doctors' working hours	4 (17%)	19 (83%)

The factors with the highest level of agreement were the characteristics of the available workforce, the population health needs of the Trust and employee requests.

Data from our surveys of NIPs and PIPs sheds further light on the drivers for individual practitioners to become a prescriber. The findings show that in many cases the main driver was the practitioner's own decision (64.4% for PIPs and 54.2% for NIPs) (Table 5.9.2.5).

Table 5.9.2.5: The main driver for becoming a PIP or NIP

	PIPs	NIPs
Own decision	64.4%	54.2%
Employer request	4.8%	7.1%
Both equally	30.1%	38.5%
Other	3.4%	2.5%

Roughly one in three PIPs and NIPs said the decision to train as a prescriber was a joint one between them and their employer and very few said it was as a result of an employer request. This finding, together with the fact that the majority of NIPs and PIPs say they became a prescriber to enhance their pre-existing service/patient care, indicates that to date NMP has generally not been driven strategically by Trusts.

5.9.3 The relationship between workforce planning and educational provision

In order for HEIs to plan capacity and content of their programmes effective joint working with the NHS is necessary. In our HEI focus groups there were a number of comments about the need for Trusts and PCTs, under the direction of their NMP leads, to actively plan and oversee their workforce needs for prescribing. In the view of the HEI providers this would ensure good quality of applicants and proper use of their skills once qualified. HEI providers wanted someone in the local NHS structures to have better oversight of NMP in practice. Some providers were attending local meetings with NMP leads and others in the Trusts, PCTs and SHA to understand what at least one termed their 'marketplace' but this was by no means universal.

Many providers expressed a view that they needed to have closer relationships with non-medical prescribing leads in local trusts and PCTs. They felt that it was necessary for there to be planning and oversight regarding the training and deployment of non-medical prescribers:

> 'Well I think that's another issue about, "Does the employer" – particularly with the secondary care – with the acute trusts... "Do they know what their prescribers are doing?" Because I suspect that, in a lot of cases, they don't... And I think that's something that we've tried to tighten up on in one of our acute trusts... They have to identify what their activity will be. So that, in terms of governance, there's some evidence there as to where they're at with all their prescribers, and they're not just loose cannons and mavericks out there doing whatever they like.' [Agreement] [FG1J]

'I'd like to see a more tripartite system really, whereby the prescribing lead was involved with the DMPs, as well as the university, for the requirements of the student, because you know this is an ongoing programme and they should have more local information on the resources, manpower resources for DMPs and medical prescribers within each locality.' [FG3B]

There was some evidence of active oversight, but not universal. It was difficult to discern whether providers had approached NMP leads and not found them receptive, or whether simply more involvement was needed. One provider felt that the local NMP leadership was not strong:

> 'Different PCTs will have their non-medical prescribing groups, and I think locally, I don't think it's that strong...' [I2B]

The different scenarios operating in demand for programmes was summarised by this participant in a HEI provider focus group:

> 'So, you know, you've got PCTs that are actually encouraging their practice pharmacists to do it. Then you've got those who are working in community pharmacy, are very much doing it from their own basis: it's something they see that could enhance their role. I think maybe not always knowing what that prescribing role is going to be... at the end of it, but are keen to do that. I'm not quite sure what happens in secondary care: I think that might be a mix. I think it probably is a pharmacist who's keen to do it, but then it's got to look at how that fits into the service that they're offering.' [I2B]

In response to these comments, some examples of such action were shared:

C: It's vitally important that beforehand somebody needs to take on the responsibility to see whether that student is going to be 'usable' at the end of the course. And I think that lies very much on the non-medical prescribing lead. And a lot of the trusts have got clinical governance on non-medical prescribing policies whereby prescribers – even before they go on the course – have to identify the area that they're practising. And afterwards they have what we call an 'intention to prescribe form', that they have to fill in, in regards to their area of practice and specific drugs that they are prescribing. And that will be held in their file, which will be reviewed on an annual basis as part of their staff appraisal.

A: That's excellent.

C: And I think that's vitally important: so there's a need identified, actually right at the beginning.

B: And I think, building on from that, it's something that should be an issue with each Trust Drugs and Therapeutics Committee, because it's very ad-hoc – some trusts that the practitioners – that come out of our programmes belong to – they actually put their proposal to the Drugs and Therapeutics Committee within the clinical governance structure before they get prescribing sanctions and before they're issued with their FP10s – if they're using FP10s – and it goes to the Drugs and Therapeutics Committee and they identify which therapeutic areas they will be prescribing in, and they agree to prescribe according to the local formularies. [FG3]

Partnership working to provide the programme was cited:

> 'Yeah, and our degree was actually round the partnership working with all the organisations, and everyone feeding back to each other on things that we can either develop within the programme, or take back into the Trust and work with the Trust to develop them. So that's what I would say – partnership working with everyone.' [FG1G]

From the HEI provider perspective most providers in our focus groups reported steady, or slightly decreasing, numbers of students. One reason suggested for reduced demand was the restructuring of the NHS:

> 'Obviously – a lot of it's because of service reorganization... and Trusts amalgamating, and a lot of the changes in hierarchy, in structure and managers, and such – like – movement that... they'll have to just wait for things to stabilise, but then that has had an impact on us.' [FG1G]

Most HEIs seemed to draw students from the local area, supported by funding from local Trusts or PCTs. Indeed, some programme providers reported working actively with local employers to identify future need:

B: The way we work is we mainly work with our local trusts, so we find out how many numbers they're going to need, and it's certainly less than it was when it was sort of a block contract.

C: And the SHA, our SHA... they keep an overview of which HEI is offering what, and we're quite diverse, our three universities, aren't we?

B: Yes, I think they do it in [SHA] as well. [FG3]

HEI providers reported a lack of demand from some practitioner groups. Relatively low numbers of midwives and AHPs undertaking courses was noted, and explained by reports of the difficulties these groups experienced in finding DMPs:

> 'But that's around allied health, and it's been really difficult, and we've had some really keen practitioners want to come on and do the programme, and have not been able to secure a medical supervisor. Mainly because, obviously you know, the medical supervisor may not see... what they might get from spending so much time with them. So that's been a crucial issue.' [FG1G]

Another group of professionals experiencing similar problems were community matrons, again because their patient population was broader than any one practice, thus reducing DMP motivation:

> 'We've had an issue – we've had several issues where district nurses have got community matron posts. They've started the programme and, half way through, their DMP's refused to be their DMP because they're not just going to be working for patients on their caseload – they've got a wider role.' [FG3B]

The data from the surveys of NIPs and PIPs shed further light on this issue. Only one in ten NIPs and one in 13 PIPs reported that it was difficult to identify a DMP and the majority knew their DMP, had an existing work relationship and approached them personally to ask them to undertake the DMP role. However District Nurses (one in four) and Community Matrons (one in five) reported that this was difficult more frequently and this is likely to be the case where the potential prescriber works with patients from a number of general practices. The number of District Nurses in the survey was small, (n=17); the number of Community Matrons participating in the survey overall was 60. Although the overall picture showed that individuals reported little difficulty in finding a DMP there are indications elsewhere that if NMP development is to shift from largely being driven by individual choice to a more strategic level there are some data that suggest availability and willingness of MIPs to undertake the DMP role is already a limiting factor in at least some Trusts.

Many providers agreed that admission to these programmes was challenging, but that strict admission criteria led to better retention of students:

L: They've got such a high criteria to meet, that our retention has really increased. It's been much better, 'cause we're sort of obviously filtered out quite a lot of people that would have left.

B : The hardest bit of the course is getting on it! [FG1]

The HEI provider focus group discussions indicated that capacity of courses seemed, on the whole, to be sufficient and that the HEIs felt that they had sustainable programme numbers.

There was relatively little discussion of student choice in the context of demand for courses. One provider felt that their distance learning course might be attractive to students and managers who would struggle to find backfill for weekly release for face-to-face sessions, whilst acknowledging their lack of local HEI 'competitors':

> 'We haven't got any other competitors within [Region1] at the moment... We do get quite a few from [Region3] and from [Region4] as well, you know, when they've got [HEI5] and [HEI6] on their

doorstep... so I think that it does help to look at distance learning. I think it's the backfill issue as well... you know, taking people out of their places of work... and it's harder for the institutions to cover.' [I12B]

5.9.4 Trust priorities for the future

In order to gain a picture of future developments in NIP and PIP utilisation, respondents were asked which Trust NIP and PIP models were being prioritised in training places in 2008/9. The results for NIPs are shown in Table 5.9.4.1.

Table 5.9.4.1: Trusts' NIP model priorities (n=86)

	Number (%)
Case management/community matrons	23 (26.5%)
Hospital outpatients	13 (15%)
Specialist departments	9 (10%)
Community-based specialist departments	9 (10%)
Memory clinics	5 (6%)
Outreach	4 (5%)
Nurse-led services	4 (5%)
Substance misuse	4 (5%)
Accident & emergency	3 (3.5%)
Rapid response	2 (2%)
General practice	2 (2%)
Palliative care	2 (2%)
Sexual health	2 (2%)
Other: community mental health, learning disabilities, long-term conditions management, out of hours	4

Eighty-six Trusts reported priorities for NIP models, the most frequent being case management/community matrons, by just over a quarter of respondents.

The results for PIPs are shown in Table 5.9.4.2. Fewer Trusts (29) reported priorities for PIP models.

Table 5.9.4.2: Trusts' PIP model priorities (n=29)

	Number (%)
Outpatients	6 (21%)
Case management	5 (17%)
GP clinics	4 (14%)
Inpatients	4 (14%)
Specialist hospital departments	3 (10%)
Community pharmacy	2 (7%)
Other: substance misuse, medication management, patient safety, ward pharmacists, community teams	5

Trusts' priorities for PIP models were more evenly spread with outpatients and case management the most frequently cited.

When asked which other NIP and PIP models were being prioritised in non-medical prescribing service delivery, 37 respondents listed a wide range of areas (Table 5.9.4.3).

Table 5.9.4.3: Other NMP models prioritised by Trusts (n=37)

	Number (%)
Memory clinics	3 (8%)
Community matrons	3 (8%)
Independent prescribing	3 (8%)
Nurse-led services	3 (8%)
Specialist services	2
Case management	2
Assertive outreach	2
Substance misuse	2
Long-term conditions management	2
Other: diabetes, CVD/heart failure, respiratory, orthopaedics, urology, supplementary prescribing, inpatient specialist services, multi-disciplinary teams, developing PGDs for midwifery, GP practices, palliative care, prison services, crisis resolution	13

Respondents were asked about the factors that had led to prioritisation of either particular IP models or future workforce planning in the Trust. The results are shown in Table 5.9.4.4.

Table 5.9.4.4: Factors that have led to the prioritisation of IP models/ future workforce planning (n=57)

	Number (%)
Redesigning of services agenda	22 (39%)
Improving access to medicines	9 (16%)
Increase in nurse-led services	5 (9%)
Transfer of roles to nurses from junior doctors	5 (9%)
Reacting to the needs of the local population	4 (7%)
Other	12

The most frequently reported factor was service re-design, followed by improving access to medicines. The following 'other' responses were each reported by two respondents: success of plot sites, improving continuity of care, DH guidance for independent prescribing and these by one respondent each: recognition of steering group activity to develop CPD, a review of the nurse specialist role in the Trust, shift of services from secondary to primary care, increased team numbers, out of hours provision of community matron and rapid response services. A single respondent replied 'it has been opportunistic rather than planned'.

5.9.5 Limiting and enhancing factors for independent prescribing

Limiting factors

When asked about factors that were limiting the increase in operation of IP the most frequent was backfill, cited by almost half of the respondents (Table 5.9.5.1). Costs of mentorship and of CPD were cited by one in five respondents.

Table 5.9.5.1: Factors limiting the operation of independent prescribing (n=81)

	Yes	No
Backfill	42 (47.7%)	39 (44.3%)
Costs of mentorship	19 (21.6%)	62 (70.5%)
Costs of CPD	19 (21.6%)	62 (70.5%)
Prescribing budgets	11 (12.5%)	70 (79.5%)
Set up costs for new prescribers	7 (8%)	74 (84.1%)
Training costs	5 (6%)	76 (86%)
Estates costs	1 (1%)	80 (91%)

The reported effects of potentially limiting factors by type of Trust are shown in Table 5.9.5.2. A summary for individual factors follows below.

Table 5.9.5.2: Rate limiting factors for NMP by type of Trust

	Backfill	Costs of mentorship	Costs of CPD	Prescribing budgets
Primary Care	14 (58%)	11 (46%)	7 (29%)	5 (21%)
Acute / Foundation	16 (46%)	3 (9%)	8 (23%)	1 (3%)
Mental Health	10 (50%)	3 (15%)	3 (15%)	5 (25%)
Care	2	2	1	0
	42	19	19	11

Backfill

Overall around half of all respondents reported that backfill was a limiting factor for the further increase in IP, with only small differences between types of Trust.

Costs of mentorship

Overall around a quarter of respondents reported that cost of mentorship was a limiting factor. This was more likely to be the case in Primary Care Trusts (46%) than other Trusts (range 9% to15%).

Costs of continuing professional development

Overall around a quarter of respondents reported that cost of CPD was a limiting factor and similar in Primary Care Trusts (29%) and Acute Trusts (23%) (Table 5.9.5.2).

Prescribing budgets

Overall prescribing budgets were reported as a limiting factor by 14% of respondents (Table 5.9.5.2). Only 3% of respondents in Acute Trusts said so compared with 25% of those in mental health Trusts and 21% in PCTs.

Set up costs for new prescribers, training and estates costs

Set up costs were reported as a limiting factor by 9% of respondents. Training costs were reported as a limiting factor by 6% of respondents. There were no differences by type of Trust or by SHA. Costs associated with estates were reported as a limiting factor in only 1% of Trusts.

Enhancing factors

For each of a list of factors respondents were asked to state which were applicable in their Trust (Table 5.9.5.3). The NMP leads' own role was the most frequently mentioned factor by 73%, with ringfenced funding and availability of DMPs at 61% and 59% respectively.

Table 5.9.5.3: Factors enhancing the operation of independent prescribing in your trust

	Yes	No	Not in operation in the Trust
NMP lead role	64 (73%)	15	2
Ringfenced funding for training	54 (61%)	9 (10%)	16
Availability of DMPs	52 (59%)	21 (24%)	6
Trust provision of initial training for DMPs	30 (34%)	19 (22%)	31
Backfill paid for by the Trust	12 (14%)	23 (26%)	46 (52%)
Payment to DMPs	10 (11%)	22 (25%)	48 (54.5%)
Other	2	6	35

Results for individual enhancing factors by type of Trust and at SHA level are shown in Tables 5.9.5.4 to 5.9.5.9.

Table 5.9.5.4: Enhancing factors for NMP by type of Trust: NMP lead role

	Yes	**No**	**N/A**
Primary Care	20	4	0
Acute/Foundation	28	6	1
Mental Health	14	5	1
Care	2	0	0

The NMP lead role was seen as a key enhancing factor by respondents and 42 made individual comments about their experiences. Five were new to the role and still in set up mode. Others' comments showed that while the experience of some was positive, others had found the role more challenging to carry out. The two respondents below reported that there was good support within their Trust.

'I am well supported to carry out my role.'

'Only recently taken on the role as Lead as we did not have one within the Trust for the past two years... have good support from our clinical leads.'

Other respondents did not report such positive experience and the allocation of protected time to undertake the NMP lead role was a key issue:

'NMP lead - to undertake effectively is time consuming and needs resourcing to reflect the time commitment, which I would estimate to be .5 WTE – currently just added onto my current role.'

'This role has developed in addition to my substantive role and this has no additional resource within it.'

'Hard work with no time – no identified admin support.'

'In the past it has been tagged on to a job, but really it is a job itself to make sure that safety is paramount. It is a time consuming role, and is much bigger than one anticipates.'

'It is difficult to undertake the role in addition to one's 'day job' – it is stressful to try to manage the PGD system, to deal with queries and to make sure that relevant information is cascaded.'

'It has been difficult to find time to combine this with my other nursing role.'

'Role not supported, no time available to take forward.'

While it was not possible within the survey to explore these issues further these comments indicate that there may be differences in the ways in which Trusts operate and support the NMP lead role.

Table 5.9.5.5: Enhancing factors for NMP by type of Trust: ringfenced funding for training

	Yes	**No**	**N/A**
Primary Care	19	2	3
Acute/Foundation	22	3	8
Mental Health	11	4	5
Care	2	0	0

Table 5.9.5.6: Enhancing factors for NMP by type of Trust: availability of DMPs

	Yes	No	N/A
Primary Care	18	6	
Acute/Foundation	19	9	5
Mental Health	14	5	1
Care	1	1	

Table 5.9.5.7: Enhancing factors for NMP by type of Trust: Trust provision of DMP training

	Yes	No	N/A
Primary Care	8	6	10
Acute/Foundation	13	7	14
Mental Health	9	5	6
Care	1	1	0

Table 5.9.5.8: Enhancing factors for NMP by type of Trust: payment to DMPs

	Yes	No	N/A
Primary Care	4	5	15
Acute / Foundation	4	9	21
Mental Health	2	7	11
Care	1	1	0

Table 5.9.5.9: Enhancing factors for NMP by type of Trust: backfill paid by Trust

	Yes	No	N/A
Primary Care	3	5	16
Acute	5	10	20
Mental Health	4	7	9
Care	-	1	1

5.10 Stakeholder workshop

In this chapter we present the outputs from our workshop with stakeholders. Participants worked in groups on two topics to identify the actions they thought were needed in response to the evaluation findings: firstly quality and safety; and secondly workforce planning and development. The key action points are shown in the two boxes below.

Quality and safety – action needed
Common QA framework for all prescribers
Common competencies
Prescribing standards based on NICE, NSFs applied to all prescribers
Guidance on specific / appropriate audits
Appraisal to include prescribing
CPD requirements applied to the prescribing role
Prescribing to feature in revalidation for all prescribers
Communication of QA methods in use to increase confidence in NMP
Greater involvement of patients and the public

Workforce planning and development
Demonstrate value of NMP
– Educate and engage managers
– Strengthen the evidence base
– Use local champions to promote NMP
– Disseminate and build on good practice
– A 'push' to promote NMP
Organisational strategy for NMP
– NMP lead in every Trust
– Active dissemination of strategy and engagement of commissioners
– Focus on service delivery based on clear identification of need
– Better use of skill mix
– Succession planning
– Planning for absence cover
– Actively develop skills in prescribing for patients with co-morbidities
Improve transition from training to practice to ensure those trained do prescribe
– More planning
– Prompt registration
– Support for newly-qualified NMPs
– Follow up inactive prescribers to find out reasons why, and manage as many as possible into prescribing roles
Incentives
– Recognition of the additional responsibilities that come with the NMP role
– Link with PDP, KSF
– Financial recognition for NMPs and DMPs
– Commissioners to develop robust standards for NMPs

5.10.1 Priorities for action

Stakeholders were asked to review our findings and preliminary recommendations, and to identify their top five priorities, and also to put any forward additional recommendations that they felt were warranted by the data presented. The following emerged as the highest priorities:

1. Common quality assurance framework for all prescribers
2. Organisational strategy for NMP
3. Demonstrating the value of non-medical prescribing
4. Greater patient and public involvement
5. More planning and support for newly-qualified NMPs

5.10.1.1 Common quality assurance framework for all prescribers

There was a strong feeling that it is now time to have a common framework for quality assurance of prescribing by all clinicians:

> 'The same quality assurance processes should apply for all prescribers regardless of profession.'

> 'There should be no difference in QA methods requirements for NIPs and PIPS vs MIPs.'

A common theme was that having several sets of competencies for prescribing for different NMPs was no longer helpful and that, in any case, there were none for medical prescribers:

> 'None exist for medical prescribers others are very similar – consensus.'

Some stakeholders were uncertain of how NMP quality was currently being assured:

> 'Monitoring of NMPs, e.g. PACT, feedback from peers, medics, etc. – how routinely is this undertaken?'

Others described how they would expect quality to be monitored based on their own experience:

> 'Close monitoring of prescribing data by lead for NMP and pharmacist lead.'

> 'Sample/selection of NMP portfolio and random selection of clinical case notes annually.'

> 'If they work within general practice and are employees of general practice then I would expect that the quality monitoring would be picked up through prescribing visits for QOF for example, and that the NMP would be treated as part of the whole prescribing team in general practice.'

Several participants commented that prescribing by NMPs was subject to more scrutiny than that of medical independent prescribers:

> 'Primary care – PACT data can be reviewed as one part of the process. This is obviously not the case in secondary care at present, although the implementation of E-Prescribing will enable more data to be available. There would be no difference between NIPs/PIPs and medics in this environment, and from my experience primary care QA of NIPs is far greater than for Medical Prescribers.'

The importance of networks was also emphasized:

> 'In terms of quality assurance there is a need for national but especially local support networks in the workplace, with peers.'

Standards and audit

Standards for prescribing could, said our stakeholders, be built into commissioning. One participant described how this had been done locally:

> 'Our PCT commissioners have just written into the SLA with (PCT) Community Services that all NMPs should abide by the clinical governance framework and Joint Medicines Management Policy as one of the standards for the SLA.'

Audit was seen as a key tool in quality assurance and important in demonstrating the quality of NMP, and again the point was made that standards and audit should apply to medical as well as non-medical prescribers:

> 'Regular audit for all prescribers – looking at relevance of meds, suitability of drug, diagnosis – same applied to doctors.'

> 'Initial incentive would be creation of a single set of standards for prescribing based on NSF or NICE guidance that applies across prescribing.'

Participants also suggested that specific audits could be recommended:

> 'Audits of particular prescriptions of groups of medicines (such as antibiotics) should be encouraged. This would be attractive to the commissioners and providers, as would help to demonstrate safe practice – i.e. within local antimicrobial policies and also helping to reduce Healthcare Acquired Infections. I have seen such evaluations in primary care, and good audit in secondary care, with

remarkable results on HAIs.'

Appraisal, PDPs, and CPD

Stakeholders confirmed our finding that many NIPs and PIPs do not have regular appraisals and said that when they did, prescribing was not always covered:

'Few pharmacists have a 'clinical' appraisal, especially in primary care.'

There is therefore a need for consideration of methods to include prescribing as part of the appraisal process and stakeholders made suggestions about how this might be done:

'Annual appraisal of CPD needs for NIPS and PIPs as part of performance review, preferably using a recognised tool e.g. National Prescribing Centre, NIPEC Tool. This will determine the required level of input to demonstrate competency, to meet educational and practice needs.'

'Continuation of prescribing portfolio and peer review and continued clinical supervision.'

Our participants discussed the future revalidation of NMPs and thought that prescribing should be a specific element of future requirements for both CPD and, in the longer term, revalidation.

Participants were strongly supportive of multi-professional learning. One had facilitated multi-professional CPD on targeted topics, preceded by audit:

'Shared learning, e.g. local example of high use of silver-based dressings by community nurses. Initial case notes audit suggests educational needs around evidence base, variation between (PBC) clusters and influence of pharma industry.'

'Shared learning for non-med/med prescribers.'

5.10.1.2 Organisational strategy for NMP

Although stakeholders reported that NMP policies were now in place in many NHS Trusts they agreed with our finding that far fewer Trusts had a strategy for NMP:

'Trusts need a strategy not a policy.'

Some of our participants expressed scepticism about the presence and effectiveness of workforce planning in relation to NMP:

'There is no workforce/variable workforce planning in primary care.'

A key issue was that senior managers and commissioners were perceived not to be aware of NMP and thus it was not necessarily considered when redesign of services was being discussed. Participants still saw a need to raise the profile of NMP:

'Still need to promote understanding of the concept.'

'Raise awareness and understanding of the potential benefits and limitations that NMP can bring to services.'

'Who's the champion for IPs – nationally, regionally, locally?'

The importance of ensuring that commissioners and workforce planners are fully aware of the potential uses of NMP was a common theme. The forthcoming NPC guide for commissioners was mentioned by several participants as a valuable tool in this respect:

'Greater understanding of NMP by Commissioners who may be responsible for service redesign, e.g. greater focus on community clinics but need to ensure appropriate skill mix so that IPs can play an active role.'

'More drive for commissioners. The NPC has recently finished a guide for commissioners looking at NMPs. This is a good piece of work as many don't understand the benefits.'

'Education of workforce planners of the reliability and suitability of using NIPs in the service design.'

'Engaging with workforce planners to help them understand role of NIPs and PIPs – NPC work may be useful here their Guide for Commissioners when published.'

Stakeholders thought that part of the reason for this lack of awareness and understanding was that not all NHS Trusts have a NMP lead, and were of the view that a lead was needed in every Trust. However, even in organisations that have a NMP lead stakeholders reported that they did not always have a recognised route to feed into Trust planning and strategy development:

'NMP lead role needs to be incorporated into organisational structures.'

There was some recognition that procedures for selection of candidates had been strengthened over the years but a perceived weakness still remaining was the link between service needs and identifying suitable clinicians for training. There was a sense that the desire by individuals to enhance the care they provide was still more prevalent than a planned approach:

'Clear indication for IP training – I think that it is often a decision made by the individual rather than – 'How can this training help the service/patients?'

'Before HCPs embark on courses their managers need to ensure that prescribing need is identified first – sounds obvious but not always done!'

'Not enough planning before selection of candidates – lack of thinking about needs of service e.g. OOH, hospitals.'

'Gap between education and training development and funding and organisational planning at local level.'

A key issue was whether Trusts, regardless of whether they had a written strategy or plan, were considering NMP as a routine part of their reviews of local services. What is needed, as one participant put it, is:

'Strong focus on service delivery based upon identified service need.'

Some stakeholders had identified what was needed locally to address this:

'I think the next step certainly for us is to ensure commissioner engagement in the review of the workforce – are we getting the best from NMPs/using their skills appropriately and are we planning for the future in terms of utilization of NMP.'

5.10.1.3 Demonstrating the value of NMP

Stakeholders felt there were several components of 'demonstrating value'. As one put it:

'With current NHS financial pressures... look at where PIPs and NIPs could be utilised to develop services in a costs and clinically effective way. Still much influence on medically driven initiatives, again much of this down to commissioning but much of which could be undertaken by NIPs and PIPs.'

Some participants felt that there is not a shared vision of where NMP could go in the future. There was a sense that the initial plan for implementing SP and IP was now completed, and that the vision needed to be revisited with input from key groups:

'Professional bodies – need to help develop the vision with employers/practitioners.'

A key point raised by several participants was the need for evaluation, research and QA to provide evidence:

'Develop and build an evidence base, on clinical effectiveness of NMP (cost and safety).'

'Lack of trust of NIPs/PIPs – could be rectified by more robust QA mechanisms.'

Stakeholders highlighted the types of evidence that they thought is needed:

'Good quality research in clinical outcomes from PIPs/NIPs.'

'Cost and clinical effectiveness needs to be evidenced by the roles of non-medical partners and consultants.'

'Research questions relevant to practice.'

They also stressed the importance of making findings widely available and usable:

'Ensure that there is a clear research dissemination strategy which is more likely to impact on practice.'

'Link to organisational processes – find good practice and roll out.'

'"How to do it" packs so organisations can roll it out – make comparisons with current models.'

5.10.1.4 Greater patient and public involvement

Stakeholders' suggestions about increasing patient and public involvement were twofold. Firstly, working more closely with patients and providing more and better information about NMP:

'Need more promotion of HCP roles to the public – a big shift in perception of how care is provided is required.'

'In the future workforce planning may be/need to be influenced by patient demand – encourage

patients to make appropriate use of workforce.'

Secondly, recognising that few Trusts or individual prescribers systematically seek feedback from patients, to increase the use of patient feedback as part of the quality assurance process:

'Increase use of patient surveys and feedback in relation to NIPS and PIP prescribing. MIP have a model for this already if so could this be used?'

'Comprehensive assessment of patient experience/satisfaction.'

5.10.1.5 More planning and support for newly-qualified NMPs

Our stakeholders wanted to see a more supported transition from being a prescriber in training to a practising prescriber. Part of the reason for this was the NIPs and PIPs who had qualified as IPs but were not practising as IPs.

'Represents a significant waste of training and skill.'

'This represents an enormous drain on NHS resources'.

The mismatch between the application made by a potential IP, which has to include an identified clinical need, and the numbers of IPs not prescribing, was highlighted:

'As part of course applications for prescribing, applicants must state the identified clinical need for the prescribing role. This is rarely followed up by HEIs (and in reality cannot be) but why therefore are some not prescribing?'

The importance of Trusts also using the service needs identified as a basis for considering what support might be put in place was also mentioned:

'Identify needs for NMPs and develop support/development systems prior to commencement of training.'

Participants stressed the importance of following up NMPs after their training course so that barriers to prescribing could be addressed as early as possible:

'Find out why some NIPs/PIPs aren't prescribing and who they are.'

'Need to carefully review those not prescribing.'

Taking action to manage these non-prescribing IPs into prescribing roles was viewed as key. In some cases the need would be to reinforce the original competencies:

'Re-engage qualified NIPS who are not prescribing, engaging them in CPD and development to ensure they are competent and able to use their prescribing qualification.'

There was also the issue of addressing changes, both in job, and in role, that might require changes in competencies:

'Also a focus on CPD, competence and how competence needs can alter over time and as a practitioner progresses, changes area of practice, etc'.

'(Need) emphasis during training on self-assessment of competence – how do individuals re-assess their competence as role and experience changes post qualification?'

There was debate about the extent to which individuals might be expected to self -assess and self-develop extended competencies and the extent to which formal support and mentoring were needed:

'Support and mentoring for the first few years after qualification + proper and appropriate supervision.'

Prescribing for patients with co-morbidities was recognised as a challenging area for NMPs, with some participants suggesting that more active management was needed to encourage the development of new competencies:

'If NIPs are to prescribe for co-morbidities, ensure they have skills and competencies to do so, rather than assuming they can – using appraisal and CPD.'

Some participants also suggested a gradual increase in the scope of practice after qualifying to build confidence, moving to more challenging areas over time:

'Exclude co-morbidities at first.'

As a result of the stakeholder input our study findings have formed the basis for identifying priorities for the future. In addition to forming an integral part of the research process and findings, the stakeholder event was

the starting point for disseminating the study findings and its outcomes will further inform the dissemination of the research.

6 Discussion

6.1 Scope, scale, and models of nurse and pharmacist prescribing: current contribution and future direction

Four years after the introduction of current legislation enabling nurses and pharmacists to prescribe independently across virtually the entire British National Formulary, there are now over 16,000 nurse independent prescribers (NMC, personal communication, 2010) and over 1,000 pharmacist independent prescribers (RPSGB, personal communication, 2010) in England. This represents about 2.5% of the nursing workforce who are qualified to prescribe medicines independently, and 3 % of the pharmacist workforce.

6.1.1 Nurse prescribing

Our results suggest that NIPs are now becoming well integrated into health care settings across England – they are working in the vast majority of Trusts in England and work in approximately one in three GP practices in primary care and one in four wards and outpatient departments in secondary care settings. Others prescribe in patients' homes, or in settings such as WiCs, OOH services, community clinics, and outreach teams. Our data indicate that a typical NIP is employed on Agenda for Change Band 7 and is likely to be between 46 and 50 years old, working in primary care, and prescribing on average 25.6 hours per week. Results suggest that most NIPs are prescribing reasonably regularly, with an overall volume of prescribing suggestive of at least daily prescribing. In addition to their predominant mode of IP, many NIPs continue to use PGDs and, to a lesser extent, supplementary prescribing as part of their role in prescribing and supplying medicines to patients. Nurses are independently prescribing for a range of conditions, likely to be associated with their pre-existing role and practice areas before embarking on prescribing training. These clinical conditions traverse acute and long-term conditions, with prescribing for people with infections, diabetes, and respiratory conditions particularly prevalent.

Results indicate that nurse independent prescribing has led to increased involvement of nurses in some clinical areas, notably dermatology, pain management and infections. Our findings suggest however that up-skilling the workforce to prescribe has largely been driven by a desire to improve the quality of existing services, rather than a more strategic approach to developing the prescribing workforce to fill gaps in service provision or to plan ahead to meet future service needs.

Results highlight that nurse prescribing may have led to a shift of workload from doctors to nurses: the majority of nurses report diagnosing as well as prescribing, facilitating their ability to independently manage care episodes. Most also report prescribing in their main treatment areas in place of doctor prescribing. The most marked changes to service delivery reported by Trust NMP leads was also a shift from doctor to nurse services and more nurse-led services.

The positive contribution of nurse prescribers is further highlighted by study findings which indicate a positive impact on the target policy indicators of care quality, clinical effectiveness, improved patient access to medicines and better use of health care professionals' skills. Patient views on these indicators largely support the picture of a positive impact on key issues such as better control of their condition and satisfaction with their medicines (see below).

6.1.2 Pharmacist prescribing

The model of PIP prescribing in operation is different than that of NIPs, and is reflective of the different contexts and policy drivers for PIP. Pharmacist independent prescribing only came into force following the legislative changes in May 2006 and therefore the current smaller number of qualified PIPs is to be expected. Although there is a steadily rising number of PIPs, not all Trusts in England currently employ a PIP as part of the workforce; of those that do, an average of one–two are employed. A typical pharmacist prescriber is employed on Agenda for Change Band 8, is aged between 31 and 35 years, works in primary care, and prescribes on average 5.1 hours per week as a prescriber. PIPs are thus typically younger, paid on a higher band, and likely to spend less hours per week prescribing than NIPs. Whilst pharmacist prescribers use independent prescribing as their main form of prescribing and supplying medicines, many also reported continuing to use supplementary prescribing, and, to a lesser extent, PGDs. Pharmacists are prescribing independently in both primary and secondary care, with a focus on prescribing for people with cardiovascular conditions: hypertension, cardiology, and coronary heart disease prevention were the most frequently reported areas in which PIPs prescribed. Most PIPs were not diagnosing as part of their prescribing role, but working from a diagnosis made by another. This clearly relates to the nature of the conditions pharmacists are prescribing for – patients with conditions such as hypertension and coronary heart disease would present first to a doctor for a diagnosis. Our data also show that the majority of PIPs' consultations are elective reviews of medicines with patients already having received a diagnosis and referred on to them. The number of hours PIPs spend prescribing, and the smaller number of patients and items per week they prescribe in comparison with NIPs, reflects the sessional nature of PIPs' prescribing work.

PIPs are also prescribing regularly within their prescribing role and nearly half reported that they prescribe instead of doctors, reflecting some workload shift of prescribing responsibilities. The shift to pharmacist prescribing from doctors and to pharmacist-led services was less apparent in the study findings than for NIPs, and reflects the more bounded prescribing role that pharmacists have taken up, in terms of their sessional role, and focused largely on cardiovascular and some long-term conditions prescribing.

Nevertheless, PIPs also considered that they were making a positive impact on the target indicators for NMP, reporting that the ability to prescribe had improved quality of care, clinical effectiveness, patient access to medicines and increased use of their skills. As with NIPs, patients' views largely support the positive impact of PIPs.

Looking to the future, for both nurses and pharmacists, consideration is being given to embedding the pre-requisites for a prescribing role in pre-qualifying undergraduate curricula. Numbers of NIPs and PIPs are likely to continue to rise across England, as further cohorts qualify as prescribers. The ability to prescribe controlled drugs will open new avenues of prescribing for some NIPs and PIPs in areas such as pain management and palliative care. Key questions might include whether prescribing within competence with a pre-determined, bounded clinical focus is a rate-limiting factor for the further contribution of nurses and pharmacists to prescribing. The majority of NIPs in our study reported not feeling confident to prescribe for co-morbidities, and a third of NIPs and PIPs did not consider that they could meet all of a patient's prescribing needs, at a time when our population is living longer with multiple long-term conditions. Clearly, current and future models of non-medical prescribing need to be viewed within the context of ensuring safe and clinically appropriate prescribing and current models of training and education. Key issues for the future expansion of PIP prescribing specifically concern whether there are policy and practice drivers to expand the clinical foci of PIPs further. This may also entail a re-consideration of numbers of prescribing pharmacists operating with a diagnostic role, and a need to ensure that both current and future prescriber cohorts are equipped for such a role through education and training in history-taking, clinical assessment and diagnostic skills. More PIPs than NIPs in our study reported confidence in prescribing for co-morbidities and prescribing controlled drugs and these may be areas for future expansion for PIP, building on the core role in cardiovascular prescribing that many PIPs now operate in.

Current and future non-medical prescribing models and their development and contribution also need to be viewed as part of a multi-disciplinary, whole workforce approach to using prescribing to meet service need, and to respond to the current NHS imperative to improve quality, innovation, productivity, and prevention (QIPP).

6.2 Safety, quality, and clinical appropriateness of nurse and pharmacist prescribing

Overall, the study results suggest that the safety and clinical appropriateness of nurse and pharmacist prescribing is satisfactory. Results from our national surveys of NIPs and PIPs, analysis of recorded consultations of prescribing decisions, audit of patient records against national prescribing standards and our audit of national safety datasets all indicate nurses and pharmacists are prescribing safely and appropriately and that there is no cause for concern. A number of issues are highlighted for further consideration however.

NIPs' and PIPs' perceptions of their prescribing practice suggests that the vast majority are prescribing safely, with the requisite knowledge and skills, and within their competence.

6.2.1 Clinical appropriateness of prescribing

Results from our analysis of prescribing practice largely confirm these views. Overall, the results of the MAI applied to this sample of NIPs' and PIPs' consultations indicate a high level of clinically appropriate prescribing decisions were being made. On all of the indicators, on the majority of occasions, appropriate judgements were made by the nurse and pharmacist prescribers across a range of medicines being prescribed to patients. Previous research on a national scale into nurse prescribers' prescribing decisions in England and Ireland reports similar results (Latter *et al.* 2007b; Drennan *et al.* 2009). Overall, the evidence would seem to support satisfactory prescribing by nurse prescribers. There is no comparable data available for pharmacist prescribers – the study is the first to evaluate clinical appropriateness of PIP using the MAI.

Whilst comparisons of the study results with doctors' prescribing decisions should be drawn with some degree of caution due to lack of directly comparable studies, to interpret our findings further, we have drawn some comparisons below.

A number of studies (Hanlon *et al.* 1992; Samsa *et al.* 1994; Kassam *et al.* 2003; and Bregnhoj *et al.* 2005) that have utilised the MAI to evaluate appropriateness of prescribing have focused on establishing and testing its reliability, as opposed to evaluating quality of prescribing per se. A number of later studies have used the MAI to either provide a cross-sectional analysis of doctors' prescribing appropriateness, or to analyse the effects of an intervention aimed at improving prescribing practices. Some insight into the prevalence of doctors' prescribing appropriateness can be gained for example from Hanlon *et al.*'s (1996) intervention study: intervention group baseline data from records of doctors' prescribing show a range of inappropriate prescribing decisions across the 798 medicines, for example 29.2% for correct directions and medicine 'not indicated' in 10.5% of medicines prescribed, dosage as incorrect in 17.4% of instances, duration of therapy unacceptable in 15.4% of cases.

Appropriateness of prescribing decisions across different studies may also be indirectly compared using the mean MAI weighted score across all medicines. In this study, the overall mean weighted score was 1.003 from a potential range of 0–18, with high scores indicating highest inappropriateness. This compares well with previous research into doctors' prescribing decisions using the MAI, and results therefore suggest that the clinical significance of any inappropriate prescribing decisions by nurses and pharmacists in this study was low. Other studies have also generally reported low weighted scores, indicating the potential clinical importance of any inappropriate decisions is likely to be less than significantly harmful. For example, out of a potential MAI score of 18, Schmader *et al.* (1994) report an overall weighted MAI score of 2.2, Taylor *et al.* (2001) report mean weighted scores of 2.2. and 2.4 from the two raters in their study, Stuijt *et al.* (2008) report a baseline score of 3.79 across the 184 medicines in their study and Kassam *et al.* (2003) report a mean score of 4.52. Clearly, this sample of nurses and pharmacists were prescribing overall as appropriately as doctors in previous studies when judged on an MAI weighted score of prescribing.

The safety, quality, and clinical appropriateness of NIP and PIP prescribing in this study can also be compared with other studies using an analysis of the number of appropriate versus inappropriate medicines prescribed (i.e. those that attract no versus one or more ratings of inappropriateness). In the current study, 28% of medicines prescribed had no inappropriate ratings, and 60% had no inappropriate ratings from three of the four raters. Other studies report a range of ratings, from 26% of the 1644 medicines having no inappropriate ratings in Schmader *et al.*'s (1994) study, 47.5% of the 729 medicines in Kelly *et al.*'s (2000) study and 66% of the 53 medicines in Taylor *et al.*'s (2001) study. Whilst the current study's results fall within the low end this range, it should also be borne in mind that both Schmader *et al.* and Kelly *et al.*'s studies employed only one rater, and Taylor *et al.* used two raters, compared to the current study's four raters, with the consequent

likelihood of higher inappropriate ratings being accrued for each medicine.

The finding in the current study, that medicines prescribed by NIPs and PIPs had highest mean inappropriate ratings on the MAI indicator of cost, bears some similarities to other research on doctors' prescribing decisions using the MAI. Schmader *et al.* (1994) also found that this indicator attracted the highest number of inappropriate ratings in their study of doctors' prescribing. Likewise, results for cost of drugs prescribed in Taylor *et al.*'s (2001) study on antimicrobial prescribing by hospital doctors showed highest inappropriate ratings for cost. Schmader *et al.* suggest that drug costs may be less important to doctors than other clinical decisions when prescribing. However, like the current study, results of reliability tests for the MAI in some studies report relatively low agreement on cost appropriateness: in Taylor *et al.*'s (2001) study the p-pos was only 0.54. The authors suggest this may reflect a lack of knowledge of raters, and this may also be the explanation in the current study, as suggested by the % of 'don't know' responses reported under this MAI item (see Table 5.3.3.4). As suggested above, NMPs' decisions about the costs of medicines they are prescribing warrants further research.

A number of important differences between these previous studies into prescribing appropriateness and the one reported here should be noted however. The data in most previous studies using the MAI have been drawn from medical records of prescribing, which may be less complete in the detail required for evaluation than the method of audio-recorded consultations described here. Thus for example if no note is made in the record of the reason for prescribing, a rating of 'not indicated' would be accrued. In Hanlon *et al.*'s (1992) original scoring system, a rating of 'not indicated' also automatically led to inappropriate ratings on duration and cost. Therefore ratings on these indicators may be high due to missing data rather than inappropriate prescribing decisions per se; in the present study, unavailable data were coded as 'not known', leading to a potentially more discriminating summary of prescribing decisions. Additionally, in the early studies, evidence for inappropriate ratings related to drug-drug and drug-disease interactions were dependent on clinical evidence of same, as opposed to potential interactions. Therefore ratings on these dimensions may be understandably lower than in this study. In addition, generally, the later MAI studies have used only one rater to evaluate prescribing decisions. Finally, differences in samples should be noted: two studies (Kelly *et al.* (2000) and Stuijt *et al.* (2008) have utilised medicines prescribed for long-term care home residents, Kassam *et al.* (2003) used a community pharmacy setting and Taylor *et al.* (2001) focused on antimicrobial prescribing on hospital settings. Medicines evaluated in the present study were prescribed by NIPs and PIPs working predominantly in primary care settings and, for PIPs, many were elective review consultations with a pre-existing diagnosis made by another health care professional.

Other studies using different prescribing assessment tools, have also reported results of health care professionals' prescribing decisions. As highlighted in the literature review, Bissell *et al.* (2008) provided an analysis of prescribing errors and appropriateness of 71 medicines prescribed by pharmacist and nurse supplementary prescribers using a tool developed from the literature and group discussion. No errors were identified, and only three prescriptions were judged inappropriate overall, based on brand rather than generic medicines being prescribed in two instances and not the least expensive drug being prescribed in the other instance. Tully and Cantrill (2005) report on the appropriateness of long-term prescriptions by doctors for 50 medicines started during a hospital admission for 25 patients, using 14 explicit indicators developed by the authors. Although using a different tool, the study used a similar process of four raters for each medicine and so for certain comparable indicators an analysis of results across the different professions in the study samples is interesting. In Tully and Cantrill's study, of the indicators comparable with those in the MAI, duration was rated appropriate in 92.4% of ratings and inappropriate in 7.6%, effectiveness was rated appropriate in 78% of ratings and inappropriate in 22%, hazardous drug-drug interactions was rated appropriate in 83.9% of ratings and inappropriate in 16.1% ratings, and hazardous drug-disease combinations rated appropriate 84.7% with inappropriate ratings at 15.3%. Data for Tully and Cantrill's study were transcribed from patients' medical records and so may have been less complete; the authors state that judgments classified as 'other' were not included in the analysis. Whilst precise comparisons are therefore again difficult, nevertheless, overall the % of inappropriate ratings accrued by NIPs and PIPs in the present study is comparable to or less than those of doctors in the Tully and Cantrill study.

Generally, other studies report a range of prescribing inappropriateness across a range of indicators, and using different methods of analysis. In Britten *et al.*'s (2003) study, only four out of 92 independent assessments of pharmacological appropriateness of prescriptions issued by 24 GPs were judged as inappropriate. More generally, Beutow *et al.*'s (1996) systematic literature review of inappropriate prescribing by doctors in UK general practice reported variation in prevalence by prescribing indicator, with drug dosages outside of therapeutic range consistently recording the highest rates of inappropriateness and lowest rates

generally associated with choice of drug, except costs minimisation. For example, in nine of the 62 studies reviewed, the indications for drug treatment were invalid or unstated. However, due to differences in the indicators used in this review, and the publication biases reported by Beutow *et al.*, direct comparisons with the results in this study are difficult.

Finally, we looked to compare the data on reliability of the rating process in the current study with results of other studies. However, the design of the current study differs from almost all others in the number of raters used, the audio-recorded capture of real-life consultations (as opposed to records) as well as the adapted MAI rating system used (inclusive of Don't Knows, Not Applicable and coder missing data). Even in Tully and Cantrill's (2005) study, the same four raters judged all medicines prescribed – whereas in the current study 20 raters made ratings in total, and this therefore adds a further dimension of variation to our calculation of reliability. Thus the low Kappa values in the current study are not directly comparable with the two or single rater studies of Hanlon *et al.* (1992), Fitzgerald *et al.* (1997) and Kassam *et al.* (2003). However, the p-pos results in this study are comparable with those found in other studies using the MAI – for example, Taylor *et al.* (2001) reported values of 1.00 to 0.54, with 0.96 overall. In Tully and Cantrill's (2005) four rater study, p-pos ranged from 0.86 to 0.99. Overall, the p-pos rates in this study suggest a satisfactory level of agreement between raters. The small numbers of inappropriate ratings and low agreement rates make it difficult to draw conclusions in this area.

6.2.2 Adherence to prescribing guidelines

Results from the audit of patient records largely confirm a picture of safe and appropriate prescribing, with NIPs and PIPs prescribing in line with nationally agreed standards across the four conditions specified. However, the recurring theme across all the therapeutic areas, regardless of the profession of the prescriber, is the consistency of prescribing patterns within a practice. Established local prescribing policy appears to dominate over national guidance, resulting in brand loyalty for the combination inhalers, or a titred approach to dosing at odds with NICE recommendations, as in the 10 and 20mg doses of simvastatin. Similarly the variance in dipstick testing is most likely due to localised guidance. It is tempting to suggest that local prescribing policy or the views of the medical practitioners influence the NIPs and PIPs more than national guidance, but these are small numbers. As in all matters related to prescribing, the variables associated with influences on prescribing are many; to generalise to all NIPs and PIPs based on the practice of this small number of practitioners would be unwise. These results warrant further investigation across a larger sample of NIPs and PIPs.

Whilst overall the results suggest the clinical appropriateness of NIP and PIP prescribing is satisfactory, results of the analysis of qualitative comments provided by the raters in the MAI analysis suggest that further attention may need to be given to the history-taking, assessment and diagnostics skill of nurse and pharmacist prescribers. Comments on the potential limitations in the depth or breadth of this were made in around one-quarter of the consultations assessed. The need for attention to these skills in NIPs and PIPs is also confirmed by findings from the HEI programme leads, and from the PIPs' report of the adequacy of their training and current skills.

In our analysis of quality of prescribing, we also examined the communication about medicines that nurses and pharmacists are engaged in. Discussing beliefs and concerns about medicines and involving patients in decisions is central to patient adherence to medicines (NICE, 2009) and was highly valued as a key attribute of prescriber consultations in our study. Thus it is a key indictor of prescribing quality and effectiveness. As in previous studies on nurses' communication about medicines (Latter *et al.*, 2007c), the majority of NIPs and PIPs in this study considered they were asking patients about concerns and misunderstandings about medicines and informing patients about side effects. The finding that fewer report asking about patients' medicines beliefs and about the need for their medicines also supports recent research into nurse prescribers' communication patterns (Latter *et al.*, 2010) and is an issue that requires further research and attention by those responsible for training programmes and CPD.

6.2.3 Clinical governance and risk management

Overall our findings indicate that most Trusts have operationalised their core responsibilities for the clinical governance and risk management of nurse and pharmacist independent prescribing. Most NIPs and PIPs also report using a range of quality assurance tools and CPD in their practice, and on-going support from an experienced prescriber. Viewed in conjunction with the study results on safety and appropriateness of prescribing, these data as a whole suggest that current governance and risk management strategies in

operation are on the whole adequate to maintain patient safety. However, the picture is not without potential caveats: a minority of Trusts reportedly did not have important strategies in place such as systems for dealing with poor performance and were not undertaking audit of prescribing. The proportion of Trusts with patient feedback strategies to quality assure non-medical prescribing was notably poor, and stakeholders in our workshops called for more engagement of patients and the public in NMP. Additionally, a minority of NMP leads and IPs themselves were not convinced that CPD was adequate to maintain patient safety.

There are some indications that quality assurance and monitoring of prescribing may be less well integrated into acute/Foundation Trusts settings, and a more detailed analysis of processes in such settings may be warranted. Additionally, there are some indications to suggest that NIPs who work across a number of health care teams (District Nurses, Community Matrons, and Health Visitors) may be disadvantaged in accessing support and supervision in both initial and continuing prescribing education and professional development. Given the shift to primary care-led NHS and the emphasis given by our respondents to community case management prescribing roles, this finding also deserved further attention.

Given the recent legislative changes to enable nurses and pharmacists to prescribe unlicensed medicines, and impending legalislation to enable prescribing of controlled drugs by NIPs and PIPs, it will be increasingly important to ensure adequate governance, monitoring, risk management, and support and supervision for all NMPs in all Trusts. The future may also require a more unified, cross-professional approach to governance and management of prescribing by Trusts. Stakeholders at our workshop were clear that what was required was a common set of prescribing competencies and standards, with appraisal, CPD, and re-validation integrated with prescribing responsibilities for all professional prescribers.

6.3 Patient experiences and preferences

Respondents prescribed for by NIPs and PIPs had generally comparable characteristics although there were more responses from women for the nurse prescribing survey compared with the pharmacist prescribing survey and patients of NIPs reported having had more experience of previous consultations with their independent prescriber (almost three quarters had three or more previous consultations with the NIP compared with half with the PIP). Fewer than one in ten patients of NIPs had only seen this prescriber once before compared with twice as many patients of PIPs. Nurses in general practice have been involved in the monitoring and management of long-term conditions for a long time prior to the extension of independent prescribing to involve the full BNF, whereas pharmacists' involvement has been more recent. For nurses, it is generally accepted that the introduction of prescribing responsibilities was, in many cases, formalising existing practice.

Views and experiences based on their most recent consultation with their independent prescriber were similar in both groups. The majority were very satisfied with their visit to their nurse (94%) or pharmacist (87%) prescriber. Respondents' views on their relationship with the prescribing nurse were similar to their views on their relationship with the prescribing pharmacist. Overall they felt they had a good relationship (89% from prescribing nurse survey;79% from prescribing pharmacist survey) and they had confidence in the IP (84% from prescribing nurse survey; 77% from prescribing pharmacist survey). The findings of our Discrete Choice Experiment also showed that patients valued pharmacist and nurse prescribing services as an alternative to GP prescribing in primary care.

Patients' consultations were mainly for long-term conditions. For NIPs 35.6% were for diabetes and a further 20.2% for chest infections, asthma and breathing problems. For PIPs 31.0% were for hypertension, 13.1% for 'cholesterol', 9.7% for angina/heart problems, and 8.3% for asthma. The vast majority of patients were very satisfied with their visit to the NIP (94%) and PIP (87%). Over three-quarters of patients of both NIPs and PIPs said they had been told as much about their medicines as they wanted, that they were involved in decisions about the medicines prescribed, and that they felt the prescriber understood their point of view. Few patients said there were some things about the consultation that could have been better (23% NIPs and 25% PIPs). These findings echo those of previous research on pharmacist supplementary prescribing and nurse independent prescribing (Latter and Courtenay, 2004; Latter *et al.*, 2005; Smalley, 2006; Stewart *et al.*, 2008; Bissell *et al.*, 2008; Drennan *et al.*, 2009; and Watterson *et al.*, 2009). Smalley, in her postal survey of patients being treated by a pharmacist supplementary prescriber in a general practice hypertension clinic, reported that over three quarters of the 88 respondents agreed that they now felt more involved in making treatment decisions and 81% agreed that supplementary prescribing by pharmacists 'is a good idea' (Smalley, 2006). Similarly high levels of satisfaction were shown in another survey of patients of pharmacist supplementary prescribers by Stewart and colleagues, with 89% agreeing or strongly agreeing that they were

satisfied with the consultation and 79% thought the pharmacist 'told them everything about' their treatment (Stewart *et al.*, 2008). In our Discrete Choice Experiment the attribute 'attention paid by professional to your views about medicines' was judged the most important by patients.

Previous studies have found that patients reported having longer appointments with non-medical prescribers and that this was viewed positively (Latter and Courtenay, 2004; Bissell *et al.*, 2008; Drennan *et al.*, 2009; and Watterson *et al.*, 2009). The findings from our study on views about length of consultation show that around 40% of patients of both NIPs and PIPs said they had longer appointments with their NMP than their doctor. However 23% and 25% of patients of NIPs and PIPs respectively said they wished it had been possible to spend more time. In our DCE study consultation length alone was not highly valued and other features of the consultation – listening to patients' views on medicines and explanation about medicines, as well as the comprehensiveness of the consultation – were more highly valued.

Almost half of patients of both NIPs and PIPs (45% in each case) stated their condition was better controlled since being treated by their NIP or PIP, with around a third of patients in both groups disagreeing and the rest unsure. Almost half of patients in both groups said they were happier with their medicines since being treated by their NIP or PIP, with around a quarter disagreeing and the rest unsure. However when asked whether they were more likely to take medicines prescribed by their NIP or PIP most patients were unsure or disagreed, with a minority agreeing (20% for NIPs and 23% for PIPs).

When comparing care provided by their NIP or PIP to being treated by their GP most patients in this study did not report a strong preference for either their non-medical or medical prescriber. Findings from our Discrete Choice Experiment are congruent in that respondents consulting for a long-term condition (exemplified by hypertension in the DCE) equally preferred a prescribing service provided by their own doctor or a prescribing pharmacist rather than any available doctor at the surgery. In the DCE consulting a NIP was preferred over the option of doing nothing for a headache and fever; the family doctor was found to be the preferred choice over a prescribing nurse for treating this condition. However, this preference was reversed in those who had previously consulted a nurse prescriber. For both of the scenarios in the DCE, certain attributes of the consultation, such as listening to patients views about medicines and explanation about medicines, were considered more important than the profession of the prescriber.

Stewart *et al.*, in their survey of patients of a pharmacist supplementary prescriber, reported that 65% agreed that, given a choice, they would prefer to be treated by a doctor (Stewart *et al.*, 2008). Our findings show that the preferences of patients of pharmacist independent prescribers are more supportive of pharmacist prescribing. Possible reasons for the difference may be patients' increasing experience of pharmacist prescribing and also the setting in which care is provided. The pharmacist supplementary prescribers in the study by Stewart *et al.* were required to have been prescribing for three months or longer so patients may only have had one or two consultations (Stewart *et al.*, 2008). The patients in our survey were receiving care in the general medical practice setting and while most of the patients in Stewart's study were being prescribed for in primary care, three of their eight PSPs prescribed either in a community pharmacy or in both a general practice and a community pharmacy. There are some indications from other research that patients express some more concerns about prescribing in community pharmacies than other settings (Hobson *et al.*, 2010). Our study also raises the question about the nature of the relationship between NIPs and PIPs and their patients. Responses to some questions showed that patients of NIPs tended to give more positive ratings than those of PIPs. Patients in our study were asked about their experience of either a NIP or a PIP so it was not possible to make direct comparisons between the two. Given that direct experience of consultations with non-medical prescribers was greater in the NIP group it is likely that the relationship between NIP and patient had been built up over a period of time, perhaps leading to greater experience and trust in their care. In their qualitative study with 18 patients of medical and non-medical prescribers in primary and secondary care, Hobson and colleagues report that although the expert knowledge of pharmacist prescribers about medicines was valued, 'nurses were highly regarded, accepted and preferred as prescribers with few concerns' (Hobson *et al.*, 2010). This finding contrasts with those from a survey of members of the public which found high awareness of non-medical prescribing and that the proportion saying they would be comfortable with prescribing by pharmacists was higher than that for nurses (Stewart *et al.*, 2009). In practice, our study results indicate that at present it is likely that patients with certain conditions will see either a PIP (for cardiovascular related conditions and some LTCs) or an NIP (for infections, and LTCs such as diabetes and respiratory conditions).

6.4 Educational preparation for non-medical prescribing

The study findings indicate that current educational programmes of preparation of nurse and pharmacists prescribing are operating largely satisfactorily. Most NIPs and PIPs in our study who had undertaken training at a wide range of HEIs in the last few years reported that they felt largely prepared to practice as a prescriber. Experiences with a DMP in practice were highly valued as part of this preparation. HEI leads and DMPs reported no major problems with the programmes currently in operation. This picture of educational preparation confirms earlier research into nurse independent prescribing (Latter *et al.*, 2007d; Drennan *et al.*, 2009; and Watterson *et al.*, 2009) and pharmacist supplementary prescribing (Warchal *et al.*, 2006; Weiss *et al.*, 2006; and Blenkinsopp and Chatterton, 2007). Furthermore the study provides evidence about how HEI providers have refined and developed their programmes in response to experience and feedback. We hypothesise that the changes that have been made should address some of the issues raised by NIPs and PIPs.

Approximately two-thirds of nurse and three-quarters of pharmacist prescribers had undertaken a uni-professional training programme; one in four NIPs reported sharing their training programme with pharmacists. The remainder of nurses reported sharing their training with pharmacists and AHPs or other AHPs only. Of the remaining pharmacists one in five reported sharing their training with nurses and fewer than 5% with both nurses and others. Study findings indicate that most education programmes preparing nurse and pharmacist prescribers operate with a variable balance of face-to-face teaching and self-directed learning (including online resources). The trend towards more multi-professional educational programmes is likely to continue and indeed may have shifted further since our study participants undertook their educational preparation. It is possible that the difficulties in backfilling nurses and pharmacists to release them for prescribing training and the limited protected study time and costs reported in our study may drive further developments in on-line, distance learning models of course delivery.

Whilst the overall evaluation of educational preparation is satisfactory, our results indicate there are a number of issues that may warrant attention by the professional and regulatory bodies. A number of findings converge to suggest that history-taking, assessment and diagnostic skills may benefit from attention. Many PIPs did not feel adequately prepared in physical assessment skills, education leads reported variable entry-level skills in this area by nurses and some dissatisfaction about the output expected from the course of PIPs in this respect. Although overall ratings of IPs' prescribing consultations were satisfactory, our panel of raters commented on possible deficiencies in their assessment and diagnostic skills in around one in four cases, indicating room for improvement. The perceived limitations in this area confirm previous research into pharmacist supplementary prescribers: Weiss *et al.* (2006) and Blenkinsopp and Chatterton (2007) report that they were initially least confident in their clinical examination skills. The pharmacy regulator has made it a core condition of accreditation of combined SP/IP programmes for pharmacists that the HEI 'undertake(s) an evaluation of the teaching provided to enable students to develop clinical examination skills, once the first cohort has completed the programme. The evaluation must include assessment results for this essential core element and feedback from students on the teaching provided' and the report has to be submitted to RPSGB. This will ensure a feedback loop into pharmacy programmes. However there is a more fundamental point about whether these skills are a pre-requisite for, or an output from, such programmes.

For nurses, this was previously raised as an issue in Latter *et al.*'s (2005) national evaluation of extended formulary independent nurse prescribing in England. Attention needs to be given to the adequacy of nurses' pre-course assessment and diagnostic skills and to ensure that the sign-off by managers is sufficiently robust. Clarity is required concerning the expectation that assessment and diagnostic skills for PIPs form part of the period of supervised practice during the programme rather than delivered within the HEI component of the programme. The divergence between pre-course requirements for nurses in this area and the expectation of assessment and diagnostic skills being an output for PIPs, may also need addressing, especially if more programmes continue to become multi-professional and as other AHPs, such as physiotherapists and podiatrists, potentially come on board as independent prescribers (DH, 2009c).

There were also some signs from our data that whilst DMP availability is unproblematic for most, some groups, including those who may be targeted in future workforce plans (e.g. community matrons and others working across health care teams) were disadvantaged in accessing support and supervision for prescribing preparation. Backfill was also reported to be rate-limiting in many Trusts in the study, and costs of mentorship problematic for some. As further cohorts of nurse and pharmacist prescribers enter training and potentially a greater range of health processionals are enabled to train as independent prescribers, these issues will need close monitoring to ensure education and training continues to act as fit-for-purpose preparation for non-medical prescribing.

6.5 Workforce planning

Most Trusts reported that NMP was included in overall planning and Trust objectives, however closer questioning revealed that half of Trusts have a specific strategy or written plan for the development of non-medical prescribing. Some, but by no means all, of the Trusts that reported having a strategy provided indications that their planning includes year on year estimates relating to models of NMP and numbers of new IPs that will be required. More Trusts have identified priorities for NIP than PIP, with case management/ community matrons the most frequently reported priority. However evidence from our study suggests that NMP has been largely driven by individual practitioners to date, not by Trust strategy. If workforce planning is to be effective, more Trusts need to develop their strategic approach for NMP.

Since this research was completed changes in future commissioning of services have been announced in the White Paper 'Equity and Excellence: Liberating the NHS' (DH 2010). The implications for NMP of the proposed transfer of responsibility for commissioning to the new 'GP commissioning groups' are not yet clear. The nature and membership of the groups remains, at the time of writing, under discussion. It seems likely that multi-disciplinary input will be incorporated as well as lay and patient involvement. Nurses and pharmacists will need to play their part in the commissioning process. Responsibility for the NHS QIPP (Quality, Innovation, Productivity and Prevention) programme will also ultimately be held by GP commissioning groups. This evaluation has contributed to the evidence base on quality, safety and cost of non-medical prescribing and its findings can be used by both service providers and commissioners to inform future developments.

7 Study strengths and limitations

7.1 NIP and PIP survey

The NIP and PIP survey is the largest survey to date of experiences of IP in England. The survey sample included all PIPs currently registered as IPs at the time of the survey, and approximately 10% of all registered NIPs, selected using random sampling, and is therefore likely to be nationally representative. A comprehensive questionnaire was developed, building on a previous national survey, and following input from key nurse and pharmacist stakeholders, including the study Advisory Group. Satisfactory response rates for both NIPs and PIPs were achieved. However, the survey relied on self report data of nurses' and pharmacists' experiences, with no direct corroboration of the information provided.

7.2 Trust NMP Leads survey

Trust NMP leads were invited to participate following a systematic process of identifying all Trusts, stratifying them and then through SHA NMP leads identifying those Trusts that had a NMP lead and their individual details. The SHA NMP leads supported the survey, emailing Trust leads to make them aware of the survey and encouraging those who were invited to take part to do so. The research team made several attempts at follow up with individuals who had not responded. The resulting response rate was adequate at around 50%. A limitation of the survey was that not all of the NMP Trust leads were able to specify numbers of independent prescribers in their Trust. Some were new or relatively new to their posts and may not have been familiar with all of the information needed. The survey relied on self report and there was no means of corroborating the information provided.

7.3 HEI focus groups

A strength of this component of the evaluation was that participants were systematically sampled and the focus group members were diverse in terms of their institutions, programmes, length of experience and backgrounds. The likelihood of transferability of these data to a wider group of programme providers remains strong. Inevitably, however, group discussion participants are self-selected. Qualitative research enables us to present different viewpoints, and opinions of varying strengths as well as the reasons underlying events and viewpoints. For practical reasons fewer DMPs participated in the focus groups and their views are thus represented to a more limited extent.

7.4 Phase 2 case study sites

The selection of ten case sites allowed an in-depth evaluation of nurse and pharmacist prescribing in practice, using multiple methods of data collection and triangulation of methods to enhance the rigor of our findings and conclusions. The sample of sites is representative of current models of NIP and PIP, and includes a range of clinical settings inclusive of a WiC, OOH service, Trust-wide community service and a hospital setting. We purposively selected IPs who were prescribing for typically prescribed-in treatment areas. Sites were also geographically spread across England. Inevitably, our IP participants were self-selecting; however, a relatively large proportion – approximately half – of all NIPs and PIPs in our national survey indicated they would like to be considered for selection as a case site, suggesting self-selecters were not significantly atypical of the wider cohort. Nurses and pharmacists prescribing above a threshold level was a further sampling criteria in order to

ensure sufficient prescribing records and consultations for data analysis; it is possible that IPs prescribing less frequently may have yielded different data. At the hospital and Trust-wide site in particular, data collection offered challenges due to difficulties in accessing patients and patient records, leading to a low response rate for some elements of data collection, and such sites may present methodological challenges in future research in these areas.

7.5 Analysis of consultations using the MAI

Although there is no gold standard for measuring prescribing appropriateness, we used the MAI because it is widely accepted to have good clinimetric and psychometric properties in comparison to other prescribing measurement tools. Previous research into doctors' prescribing decisions using the MAI also allowed us to make inter-professional and international comparisons of our findings with previous studies. The use of audio-recorded consultations from practice allows rich detail of prescribing consultations to be assessed, and offers advantages over ratings based on data recorded in patient records. We used a relatively large number of raters, including a range of medical, pharmacist and nursing professionals to rate the consultations. A limitation is that we cannot exclude the possibility of IPs self-selecting consultations when the researcher was not in-situ; however, our previous experience with such sampling methods suggests that consultations recorded in this way are not atypical of day-to-day consultations. A limitation of the MAI is that it does not include an analysis of some dimensions of prescribing consultations, such as the adequacy and quality of discussions about medicine-taking. The reliability results from our study were not directly comparable with other studies, due to modifications of the application of the MAI and the fact that four raters rated each consultation. Nevertheless, there are indications that a satisfactory level of inter-rater reliability, consistent with other studies, was achieved.

7.6 Case record review

Practice was audited against national guidelines using data collection tools based on the national template in three of the four clinical areas. Data collection tools were developed with expert clinical review input and were piloted in the field with nurse and pharmacist practitioners prior to use in the main study. Data analysis and interpretation were not conducted by the individuals extracting the audit data but by the research team. Data collection focused on extraction of sufficient and specific data to enable robust analysis. Sample size was pragmatic and decided in discussion with academic colleagues and numbers (40 per prescriber and 80 per clinical area) were sufficient to provide some pointers to areas where improvement might be needed. However the nature of the case studies and the numbers of prescribers involved inevitably limit the generalisability of the findings.

7.7 Patient experience survey and the Discrete Choice Experiment

This is the largest survey of patients of independent nurse and pharmacist prescribers to date and the first to have focused primarily on the management of long-term conditions. To our knowledge it is also the first survey of patients of pharmacist independent prescribers and, for nurse independent prescribers, the first since the 2006 changes enabled prescribing from the wider BNF. A potential limitation was that there was no existing validated questionnaire. Where possible we used questions drawn from previous surveys and piloted new questions to cover areas not addressed in prior studies. Another limitation of the study is that because researcher access to patient contact details was not granted at several sites follow ups were precluded. This is likely to be the main reason why response rates were not as high as would have been desirable, with the mean response rate 27% and the range from 19% to 53% by site. Therefore it is possible that the respondents were not representative of the total population. The sample size did not allow testing for differences according to all patients' characteristics. Strengths of the DCE study were that the design used an evidence-based approach in planning the intervention, basing the research on key findings from the health care literature and previous DCE applications to pharmacy and nurse practice research. Issues relating to measuring design efficiency and choosing the most appropriate design available in terms of its statistical properties were considered and taken into account. Key limitations of the DCE study included the representativeness of the respondents. Responses were limited to a small number of field sites. We considered asking patients

to complete both the DCE and the patient experience survey, however the time required to complete both questionnaires was long and likely to have reduced participation. Furthermore in order to have sufficient numbers of patients of NIPs and PIPs it would have been necessary to have a greater number of sites and this was beyond the resources of the current study. Reducing the length of the DCE questionnaire would have compromised its ability to collect sufficient data for the study to be valid. Future studies could explore ways of overcoming the methodological difficulties to link DCE responses to patients' direct experiences on their direct consultation with the independent prescribers.

7.8 Economic evaluation

Evidence-based data from the literature and the ENPIP study supported the development of the modelling for both vignettes. Benefits for the population when introducing innovative non-medical prescribing services were also considered and output from the DCE analysis was integrated into the hypertension modelling. Separate vignettes were considered to reflect the most frequent prescribing services provided by NIP and PIP. Due to time constraints the robustness of the model was tested varying only the workload and wages for the IPs, or excluding the training costs from the costing analysis. NIP consultation costs for infection were based on the mean consultation time for NIPs across all conditions they treat. We do not know whether consultations for acute conditions such as infections are shorter, as long as, or longer than, consultations for other conditions (e.g long-term conditions such as diabetes, wound management, or family planning). The same principle applied when costing the consultation time with the GPs and PIPs. Time and budget constraints did not allow collecting information on prescription medications and their costs were assumed equal across alternatives. Time constraints and limited data available did not allow investigating the uncertainty associated with probability estimates at longer term. A one-week time frame might be too short to capture difference in prescribing services and their implication for patient health and their satisfaction/ benefit. Benefit data from the DCE analysis were limited to the hypertension vignette. Results were limited to total population estimates rather than accounting for any demographic or socioeconomic differences between individuals accessing the alternative prescribing services.

8 Further research

The study indicates that a number of issues related to nurse and pharmacist independent prescribing may warrant further investigation. We recommend:

Further work to examine the choices and the costs of medicines prescribed in relation to key national guidelines and across a larger sample of NIPs and PIPs. This work also needs to investigate the nature and effects of influences on these prescribing decisions, including practice-level influences in primary care and a more detailed understanding of how team working and inter-team referral affects prescribing decisions between health care team members;

In-situ analysis of the prescribing communication skills used by NIPs and PIPs in consultations to promote patient adherence, in the wake of the NICE (2009) guidelines on medicines adherence, including the balance between discussion of concerns and necessity beliefs;

A more detailed analysis of prescriber monitoring and feedback systems in operation in Trusts, particularly in acute/Foundation Trusts settings;

Further analysis of the experiences of a larger sample of NIPs and PIPs who work across health care teams, including their case mix, access to support and supervision in both initial and continuing prescribing education and professional development. This work should feed back into educational programmes to strengthen preparation for NIPs and PIPs working with patient groups with high levels of co-morbidities;

A more extensive evaluation of patient views on pharmacist prescribing, as experience with this model increases;

The robustness of the preliminary model for cost minimisation analysis developed here can be tested for future use, varying: the ratio of professionals available in the general practice; the percentage of practices in a PCT with an independent prescriber; the percentages of different types of clinical consultation; the length of visits, and accounting for any demographic or socioeconomic differences between individuals;

We also recommend extending the model tested here to other clinical conditions for which NIPs and PIPs frequently prescribe, in particular including NIP consultations for their most frequent LTCs – diabetes and asthma. Further analysis should also allow comparing the GP prescribing service to the NMP service as stand-alone services. Information on prescription medication costs could also be included in costing exercises comparing the different alternatives, as well as benefit data and the uncertainty associated with probability estimates at longer term. A broader analysis should also value and compare information on health and non health outcomes over time across alternatives prescribing models;

Further research across a larger sample of doctors, representative of doctors as a whole enabling comparisons of those with and without direct experience of working with NIPs and PIPs, in order to provide an analysis of their views and knowledge on NIP and PIP and the impact this has on team prescribing;

Further research into the scale, benefits, quality, and safety of prescribing of unlicensed medicines and controlled drugs as the new legislation enabling nurse and pharmacist prescription of these drugs comes into force; and

Further research into best models of preparation and practice of prescribing for co-morbidities by nurses and pharmacists.

9 Conclusions and implications

On qualifying, the majority of both nurses and pharmacists make use of their independent prescribing authority. Independent prescribing is the main form of delivering medicines to patients after qualifying as a prescriber, but many also continue to use both PGDs and supplementary prescribing as part of their role.

Nurse, and to a lesser extent pharmacist, independent prescribing is becoming a widely integrated feature of health service delivery, with nurses qualified to prescribe in nearly all Trusts in England and pharmacists prescribing in an increasing number of Trusts. Approximately 2–3% of both the nursing and pharmacist workforce are qualified to prescribe medicines independently.

Nurses and pharmacists are prescribing predominantly in primary care, with substantial numbers also in secondary care settings. They prescribe for a range of conditions: nurses across a range of acute and long-term conditions associated with their roles, pharmacists predominantly for cardiovascular and a number of other long-term conditions. Key issues for further expansion of NMP may include preparing nurses and pharmacists to prescribe across conditions for patients with co-morbidities, and consideration given to pharmacists prescribing for a wider range of conditions.

Prescribing volume indicates a regular contribution by nurses and pharmacists to the prescription of medicines for patients.

The evidence suggests that NMP has been largely driven by individual practitioners to date, and has been used to increase the quality of existing services, as opposed to enabling service re-design. Only approximately half of Trusts reported a strategy or written plan for the development of non-medical prescribing. If workforce planning is to be effective, more Trusts need to develop their strategic approach for NMP.

Study results indicate that nurse and pharmacist prescribing is currently safe and clinically appropriate. There was some indication that assessment and diagnostic skills associated with prescribing could be improved, and some medicines prescribed may not be the most cost effective and/or consistent with national guidelines on prescribing.

Most nurses and pharmacists generally reported communicating with patients about medicines in line with national guidelines, discussing issues likely to facilitate effective patient medicine-taking, although discussing concerns, misunderstandings, and side effects of medicines were reported more frequently than discussion of patients' beliefs about medicines and their necessity. This latter finding may warrant consideration by HEIs delivering NMP education and training programmes. Most patients of both NIPs and PIPs said they had been told as much about their medicines as they wanted, that they were involved in decisions about the medicines prescribed, and that they felt the prescriber understood their point of view.

Clinical governance and risk management strategies for non-medical prescribing are in place within the majority of Trusts. Most NIPs and PIPs also report using a range of quality assurance tools and CPD in their practice, and have on-going support from an experienced prescriber. However, a minority of Trusts reportedly did not have important strategies in place, such as systems for dealing with poor performance and audit of prescribing, and patient feedback strategies were not used by the majority.

Stakeholder workshop participants recommended greater public and patient involvement in NMP, a common quality assurance framework for all prescribers – inclusive of nurses, pharmacists, doctors and other allied health professionals – as well as more planning and support for newly qualified NMPs.

These and other strategies will require consideration as priorities for implementation, as mechanisms to ensure safety and quality of current forms of non-medical prescribing, and as further changes enabling prescribing of unlicensed medicines and controlled drugs come into force.

Acceptability of independent prescribing to patients is high as evidenced by the majority of patients reporting they were very satisfied with their visit to their nurse or pharmacist prescriber and overall they felt they had a good relationship with and confidence in the IP. The findings of our Discrete Choice Experiment also showed that patients valued pharmacist and nurse prescribing services as an alternative to GP prescribing in primary care.

When comparing care provided by their NIP or PIP to being treated by their GP most patients in this study did not report a strong preference for either their non-medical or medical prescriber. Findings from our DCE are congruent in that respondents consulting for an exemplar long-term condition equally preferred a prescribing service provided by their own doctor or a prescribing pharmacist. Consulting a NIP was preferred over the option of doing nothing for a headache and fever; the family doctor was found to be the preferred choice over a prescribing nurse. However, this preference was reversed in those who had previously consulted a nurse prescriber.

The study findings indicate that current educational programmes of preparation for nurse and pharmacist prescribing are operating largely satisfactorily, and provide fit-for-purpose preparation for current nurse and pharmacist prescribing roles. However, we recommend that attention needs to continue to be given to nurses' and pharmacists' assessment and diagnostic skills which underpin their independent prescribing role.

Nurse and pharmacist prescribers report making a positive impact on the policy targets for non-medical prescribing: quality of care, clinical effectiveness, patient access, and choice.

Results indicate that non-medical prescribing was generally viewed positively by other health care professionals, although there is some evidence to suggest that some doctors remain unclear about nurses' and pharmacists' prescribing authority.

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11 Appendices

11.0 Summary of literature review search terms

database	subject headings	keywords	limits applied
AMED	1. 'nursing care' 2. 'prescribing' or 'prescriptions drug' or 'drug therapy' 1. and 2.	Nurs* prescribe* Pharm* prescribe* 'non medical prescribing' 'nurse prescribing'	
BNI	'prescribing' and 'nursing role'	'non medical prescribing' 'nurse prescribing'	
CINAHL	'prescriptive authority'	'nurse prescribing' pharm* prescrib* 'pharmacist prescribing' 'non medical prescribing' 'nurse prescribing'	'research'
EMBASE	'Prescription', 'nursing'; 'advanced practice nurse'; 'expert nurse'; 'nurse'; 'nurse consultant'; 'nurse practitioner'; 'practical nurse'; 'registered nurse'; 'pharmacist'		'article', 'survey' or 'conference'
EMBASE		'nurse prescribing' 'pharma* prescribing' 'pharmacist prescribing' 'pharmacist'; 'non medical prescribing' 'nurse prescribing'	
HMIC	'nurse prescribing'	'non medical prescribing' 'nurse prescribing'	
Ovid Medline		'pharmacist prescribing' 'non medical prescribing' 'nurse prescribing'	
PsychINFO		'non medical prescribing' 'nurse prescribing'	

11.1 Advisory group members

Tony Avery: Professor of Primary Care, University of Nottingham

Anne Baileff: Head of Clinical Standards, Southampton Community Healthcare

Zoltan Bozoky: Senior Principal Research Officer, Policy Research Programme, Research and Development Directorate, Department of Health

Trevor BesWiCk: Director, South West Medicines Information and Training, Bristol NHS Foundation Trust

Ros Bryar: Professor of Community & Primary Care Nursing, City University

Tim Coupland: Head Nurse/Clinical Nurse Specialist, Gloucestershire Partnership NHS Foundation Trust

Rachel Elliot: Lord Trent Professor of Medicines and Health, University of Nottingham

Trudy Granby: Assistant Director of Non-Medical Prescribing Support, NPC Plus

Claire Huckerby: Pharmaceutical Advisor, Dudley PCT

Jane Nicholls, Non-Medical Prescribing Lead, London SHA

Gul Root: Principal Pharmaceutical Officer, Department of Health

Maureen Morgan: Professional Advisor, Chief Nursing Officer's Department, Department of Health

Paul Robinson: Policy Lead, Non-Medical Prescribing, Department of Health

Sarah Smith: Service User

Evaluation of Nurse and Pharmacist Independent Prescribing: Questionnaire for Nurses

Who should complete this questionnaire?

The questionnaire should be completed by the person named on the front of the envelope.

Completing the questionnaire

For each question please tick clearly inside one of the boxes using a black or blue pen. In some cases you may be asked to circle the appropriate number.

Sometimes you will find the box you have ticked has an instruction to go to another question. By following the instructions carefully you will miss out questions that do not apply to you. Don't worry if you make a mistake; simply cross out the mistake and put a tick in the correct box.

Your answers will be anonymous and confidential

Data will be coded for anonymity and kept confidential within the research team. Details that you provide in Section 1 will be kept separate from the rest of the questionnaire

Section 1: General Information

1. Do you work:

☐ Full time ☐ Part time

If you work part time, how many hours per week do you work? …… (hours)

2. Please indicate which (if any) of the following educational / academic qualifications you have obtained *(tick all that apply):*

☐ Certificate ☐ Diploma ☐ Masters

☐ Degree ☐ PhD

Other: ……

3. Please indicate your age by ticking the relevant box: *(please* ☒ *one only):*

☐ Under 25 ☐26-30 ☐31-35 ☐36-40 ☐ 41 – 45

☐46-50 ☐51-55 ☐56- 60 ☐61- 65 ☐ over 65

4. Please list your recordable professional qualifications and dates obtained:

		Date: (month/year)
☐	Registered Nurse Adult	……./……..
☐	Registered Nurse Mental Health	……./……..
☐	Registered Nurse Learning Disabilities	……./……..
☐	Registered Nurse Children	……./……..
☐	Registered Nurse General	……./……..
☐	Registered Nurse Fever	……./……..
☐	Midwifery	……./……..
☐	Specialist Community Public Health Nursing - HV	……./……..
☐	Specialist Community Public Health Nursing - SN	……./……..
☐	Specialist Community Public Health Nursing - OH	……./……..
☐	Specialist Community Public Health Nursing - RFHN	……./……..
☐	Lecturer/ Practice Educator	……./……..
☐	Specialist Practitioner – Adult Nursing	……./……..
☐	Specialist Practitioner – Mental Health	……./……..
☐	Specialist Practitioner – Children's Nursing	……./……..
☐	Specialist Practitioner – Learning Disability Nurse	……./……..
☐	Specialist Practitioner – General Practice Nursing	……./……..
☐	Specialist Practitioner – Community Mental Health Nursing	……./……..
☐	Specialist Practitioner – Community Learning Disabilities Nursing	……./……..
☐	Specialist Practitioner – Community Children's Nursing	……./……..
☐	Specialist Practitioner – District Nursing	……./……..

5. Please give details of your Nurse Independent Prescriber (NIP*) course:

Where undertaken (which higher education institution [HEI]):

……..……

Dates undertaken (month and year): start date ……/…….
finish date ……/…….

Level of academic award (Degree level, Masters level)…….

Other information…… ……

6. Please give details of your current job title:

……

……

7. Have you changed your job title since attending the Nurse Independent Prescribing course? *(please* ✓ *one only):*

☐ Yes

☐ No

If **Yes** please give details of your job title immediately prior to commencing the course:

……

……

*NIP (previously known as EFNP – Extended Formulary Nurse Prescriber)

8. In relation to your work as a prescriber, what NHS Agenda for Change (AfC) pay scale are you currently on (please circle):

Band 5	Band 6	Band 7	Band 8a
Band 8b	Band 8c	Band 8d	Band 9

9. Which statement is most applicable to you?

Since qualifying as a Nurse Independent Prescriber (NIP): (*please* √ *one only)*

☐ I am currently prescribing as a NIP → Continue with question **10**

☐ I have prescribed as a NIP but am no longer doing so → Continue with questions **9b** and **9c** and please read **9d**

☐ I have never prescribed as a NIP → Continue with questions **9b** and **9c** and please read **9d**

9b. Please give reasons why you are not prescribing independently:

……

……

……

9c. If you are not prescribing independently, are you prescribing medicines using supplementary prescribing?

☐ YES

☐ NO

9d. This questionnaire is **only** for Nurse Independent Prescribers who are currently independently prescribing. If you are NOT currently independently prescribing your responses to questions 1 -9 are important to us, but you do not need to complete the remainder of this questionnaire. **Please return the questionnaire with the remaining questions uncompleted** in the FREEPOST envelope provided.

Thank you for your time

This questionnaire asks you about your experiences before, during and after the Nurse Independent Prescribing course. Please answer all questions as fully as you can and with reference to your independent prescribing only.

Section 2: Experiences *before* the Nurse Independent Prescribing Course

Please answer the following questions in relation to the *Nurse Independent Prescribing Course only*:

10. Was the **main** driver for you to become an Independent Prescriber (please choose one that best describes your experience)?

☐ Your own decision ☐ Your employer's request

☐ Both of these equally ☐ Other: please state: …….

Which of the following were important to you in deciding to become a NIP?
(Please tick all that apply)

	Yes	No
To increase the quality of your pre-existing patient/service user care provision?	☐	☐
To set up a change in a patient/service user clinical specialty?	☐	☐
To make better use of the skills of the clinical team in which you practice?	☐	☐
To increase your professional status?	☐	☐
To make patient access to medicines quicker and more efficient?	☐	☐
To increase patient choice?	☐	☐
To meet other organisational targets? e.g. waiting times	☐	☐

Other? Please describe……

11. Before undertaking the NIP course were you able to demonstrate the pre-requisite assessment and diagnosis skills?

	Yes	No
	☐	☐
If yes, did you do this through continued assessment in your work place (CPD)	Yes	No
	☐	☐
Or by formal training, such as:	Yes	No
Pre-course module/unit	☐	☐
Part of previous or concurrent award e.g. advanced practice programme	☐	☐

Other (please describe)
……

12. In which of the following areas were you involved in the treatment management of patient/service users a) BEFORE undertaking the Nurse Independent Prescribing course and b) NOW? (Please tick all that apply).

a) before	b) now		a) before	b) now	
☐	☐	Aesthetics	☐	☐	Midwifery
☐	☐	Asthma	☐	☐	Minor injuries
☐	☐	Cardiology	☐	☐	Neonatal
☐	☐	Care of the older person	☐	☐	Neurology
☐	☐	CHD prevention	☐	☐	Orthopaedics
☐	☐	COPD	☐	☐	Obesity/weight management
☐	☐	Dermatology	☐	☐	Oncology
☐	☐	Diabetes	☐	☐	Osteoporosis prevention
☐	☐	Drug/substance abuse	☐	☐	Paediatrics
☐	☐	Emergency care	☐	☐	Pain management
☐	☐	ENT	☐	☐	Palliative care
☐	☐	Epilepsy	☐	☐	Public health
☐	☐	Family planning	☐	☐	Renal medicine
☐	☐	Gastrointestinal	☐	☐	Respiratory
☐	☐	Gynaecology	☐	☐	Rheumatology
☐	☐	Hypertension	☐	☐	Sexual health
☐	☐	Infections	☐	☐	Smoking cessation
☐	☐	Mental health	☐	☐	Wound care

Please add any other treatment management areas:

☐ ☐ …… ☐ ☐ ……

Section 3: Experiences *during* the Nurse Independent Prescribing course

13. Was your course: *(please √ one only):*

☐ Nurses only

☐ Joint nurses and pharmacists

☐ Joint nurses and others (please say who……..)

☐ Joint pharmacists and nurses and others (please say who ……)

14. Overall, to what extent did the whole course (Educational Institution taught days + period of learning in practice) meet its stated learning outcomes? *(please √ one only):*

Met completely	Met largely	Met to a limited extent	Not met
☐	☐	☐	☐

14a. Please comment on the reason for your response…….

……

……..

15. Overall, to what extent did the learning outcomes of the whole course meet your learning needs? *(please √ one only):*

Met completely	Met largely	Met to a limited extent	Not met
☐	☐	☐	☐

15a. What learning needs were not covered? …….

……

……..

16. Did your course adequately prepare you in the following areas:

	Adequate	Not adequate
Consultation, decision-making and therapy	☐	☐
Influences on, and psychology of, prescribing	☐	☐
Prescribing in a team context	☐	☐
Clinical pharmacology, including the effects of co-morbidity	☐	☐
Evidence-based practice and clinical governance in relation to nurse prescribing	☐	☐
Legal, policy and ethical aspects	☐	☐
Professional accountability and responsibility	☐	☐
Prescribing in the public health context	☐	☐

Other (please describe)
……

17. Of the 26 taught days of the course how many were face to face?

……

18. Please indicate the extent to which you received the statutory requirement of 12 days supervised learning in practice *(please* √ *one only):*

☐ Less than 12 days supervised learning in practice

☐ Exactly 12 days supervised learning in practice

☐ More than 12 days supervised learning in practice

Please comment on your supervised learning in practice experience with your Designated Medical Practitioner (DMP):

……

……

19. Was your DMP *(please √ one only):*

☐ Already known to you and approached by you to be your DMP?

☐ Already known to you and approached by someone else to be your DMP?

☐ Not previously known to you and chosen by someone else to be your DMP?

☐ Not previously known to you and approached by you to be your DMP?

Other (please state) ……

20. Overall, was it difficult to identify a DMP for you?

☐ Yes

☐ No

21. At the end of the course how prepared did you feel to practice independent prescribing? *(please √ one only):*

Completely prepared	Largely prepared	Prepared to a limited extent	Not prepared
☐	☐	☐	☐

21a. What else did you need to feel fully prepared to practice independent prescribing?

……

……..

……..

Section 4: Experiences *after* the Nurse Independent Prescribing course.
(Please answer the following questions with reference to your Nurse Independent Prescribing only)

4.1 Prescribing practice

22. What was the length of time between official completion of your prescribing course at the Education Institution and issuing your first prescription? *(please √ one only):*

☐ 0-1 month ☐ 1-2 months ☐ 2-3 months ☐ 3-4 months ☐ 4-6 months

☐ 6-12 months ☐ over 1 year (please specify)……...

If the delay was 3 months or longer, please give reasons as to why the delay occurred: . . . . . .

. . . . . .

. . . . . .

23. Since qualifying as an Independent Prescriber has this led to any change in your overall service delivery to patients / service users?

	Yes	No
An increase in the quality of your pre-existing patient/service user care provision?	☐	☐
You have set up a change in a patient/service user clinical specialty?	☐	☐
Better use of the skills of the clinical team in which you practice?	☐	☐
An increase in your professional status?	☐	☐
Quicker and more efficient patient access to medicines?	☐	☐
An increase in patient choice?	☐	☐

Other? Please describe……

24. Please tell us about the setting/s and state the number of hours per week in which you prescribe independently:

	Number of hours worked
a) General medical practice in primary care	. . . . .
b) NHS Walk-In Centre	. . . . .
c) NHS Trust	. . . . .
d) NHS Mental Health Trust	. . . . .
e) Home visits to patients	. . . . .
f) Mental health service users	. . . . .
g) Community midwifery	. . . . .
h) Care homes	. . . . .
i) Nursing homes	. . . . .
j) Prison	. . . . .
k) Hospice	. . . . .
l) Private hospitals	. . . . .
m) Private clinics	. . . . .
n) Family planning clinic	. . . . .
o) Sexual health clinic	. . . . .
p) Other (please comment): ……..……	

25. We are interested in knowing which treatment areas you are prescribing in most frequently. Please indicate the frequency with which you are prescribing (relative to each other), **by placing a 1 beside the most frequent, 2 beside the next most frequent and so forth. (max 4 choices)**

___ Aesthetics	___ Midwifery
___ Asthma	___ Minor injuries
___ Cardiology	___ Neonatal
___ Care of the older person	___ Neurology
___ CHD prevention	___ Orthopaedics
___ COPD	___ Obesity/weight management
___ Dermatology	___ Oncology
___ Diabetes	___ Osteoporosis prevention
___ Drug/substance abuse	___ Paediatrics
___ Emergency care	___ Pain management
___ ENT	___ Palliative care
___ Epilepsy	___ Public health
___ Family planning	___ Renal medicine
___ Gastrointestinal	___ Respiratory
___ Gynaecology	___ Rheumatology
___ Hypertension	___ Sexual health
___ Infections	___ Smoking cessation
___ Mental health	___ Wound care

Please add any other treatment management areas: …….

…….

26. In relation to the 2 most common treatment areas in which you prescribe, do you prescribe independently for both routine and complex cases?

	Routine	Complex
Most common treatment area	☐	☐
Second most common treatment area	☐	☐

27. Do you prescribe independently for children?

☐ Yes

☐ No

If **Yes** please specify the treatment areas in which you prescribe for children:

……

……

28. When you prescribe, on average how many minutes do you spend in consultation with each patient?

_____ mins per patient

Comment ……

29. Are there circumstances where you prescribe or supply/administer medicines other than independently?

	Yes	No
a. Prescribe as a supplementary prescriber	☐	☐
b. Supply and/or administer using Patient Group Directions (PGD)	☐	☐
c. Print off a prescription and ask another Independent Prescriber to sign	☐	☐

30. Overall, what percentage of your prescribing practice is:
(NB Total should add up to 100%)

		%
a.	Independent prescribing practice	. . . . .
b.	Supplementary prescribing practice	. . . . .
c.	Patient Group Directions	. . . . .
d.	Prescriptions signed by others	. . . . .
	Total	. . . . .

31. In relation to diagnosis, in your prescribing practice do you:

☐ Make the diagnosis on **most** occasions?

☐ Work from a diagnosis made by a doctor / other health care professional on **most** occasions?

☐ Other: …….

32. Can you generate your own computer-generated prescriptions? *(please √ one only):*

☐ Yes ☐ No

32a. If No – please give reasons:

……

……

33. Is all of your prescribing on the NHS? *(please √ one only):*

☐ Yes ☐ No

33a. If No - please tell us the circumstances in which you issue private prescriptions:

……...

……

34. In a typical week how many **patients** do you prescribe for as a nurse independent prescriber?

(i.e. NOT prescriptions signed by another IP or any supplementary prescribing) *(please √ one only):*

☐ less than 5 ☐ 6-10 ☐ 11-20 ☐ 21-30 ☐ 31-40 ☐ 41-50 ☐ 51 plus: state number: ……...

34a. Comments on the reason for your response:

……..….

……

35. In a typical week how many **items** do you prescribe as a nurse independent prescriber?

(i.e. NOT prescriptions signed by another IP or any supplementary prescribing) *(please √ one only):*

☐ less than 5 ☐ 6-10 ☐ 11-20 ☐ 21-30 ☐ 31-40 ☐ 41-50 ☐ 51 plus: state number: ……...

35a. Other/ comments on the reason for your response:

……..….

……

36. In relation to your 2 most common treatment areas identified in Q25, do you prescribe instead of, or in addition to, a medical independent prescriber for the same group of patients?

	Instead of	**In addition to**
Most common treatment area	☐	☐
Second most common treatment area	☐	☐

37. As a result of your independent prescribing, do you think that doctors in your clinical setting are prescribing….. *(please √ one only):*

☐ Less ☐ The same amount ☐ More

4.2 Clinical governance and risk management

38. Does your Trust require you to work solely as a Supplementary Prescriber for a probationary period immediately after qualifying as an independent prescriber?

☐ Yes ☐ No

If yes, for how long?

☐ 0 to 3 months ☐ 4-6 months ☐ 7-12 months ☐ other: state number of months: ……...

39. Which of these do you use routinely for prescribing in your most common treatment areas as stated in Q25?

	Treatment area 1			Treatment area 2		
		Yes	No		Yes	No
a.	National guideline	☐	☐	a. National guideline	☐	☐
b.	PCT guideline	☐	☐	b. PCT guideline	☐	☐
c.	Practice guideline	☐	☐	c. Practice guideline	☐	☐
d.	NHS Trust guideline	☐	☐	c. NHS Trust guideline	☐	☐
d.	BNF	☐	☐	d. BNF	☐	☐
e.	EMIS, Odyssey, face-to-face, CAS (or equivalent prescribing decision support)	☐	☐	e. EMIS, Odyssey, face-to-face CAS (or equivalent prescribing decision support)	☐	☐
f.	Other / Comment:……			f. Other / Comment:……		

40. Which of these tools have been used in your clinical setting to quality assure your prescribing?

	Treatment area 1		Treatment area 2	
	Yes	No	Yes	No
a. Significant event analysis	☐	☐	☐	☐
b. Case audit in specific clinical area	☐	☐	☐	☐
c. Patient/service user survey	☐	☐	☐	☐
d. Peer review	☐	☐	☐	☐
e. Monitoring of my prescribing data	☐	☐	☐	☐
f. Personal Records	☐	☐	☐	☐

f. Other /Comment:
……

41. Are the tools and processes used to quality assure your prescribing different from those used for the medical prescribers you work with?

☐ Yes ☐ No ☐ Don't know

If yes, please specify how they are different:……

……

42. Do you receive or have access to regular reports on the medicines you have prescribed? *(please √ one only):*

☐ Yes ☐ No

If Yes, please tell us what sort of data you receive ……

……

43. Does your practice / directorate / department routinely conduct audit of prescribing?

☐ Yes ☐ No (Go to Q45) ☐ Don't know (Go to Q45)

44. Is your prescribing included in this?

☐ Yes ☐ No ☐ Don't know

45. Since qualifying as a NIP, if you began to prescribe in a new clinical area, please tell us how you prepared yourself to achieve competence in the new area:

……

……

……

46. How confident would you be about departing from a prescribing protocol, guideline or local formulary?

☐ Very confident ☐ Fairly confident ☐ Some confidence ☐ Not at all confident ☐ Not applicable

47. What measures would you put in place before you departed from a prescribing protocol, guideline or local formulary?

Please specify

……

……

4.3 Opinions on Independent Prescribing

48. Please indicate (by circling the appropriate number) the extent to which you agree or disagree with the following statements. *(Please circle the number that most closely resembles your opinion):*

My role as a nurse independent prescriber:	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
a) Improves the quality of care I am able to provide for patient/service users	5	4	3	2	1
b) Increases the capacity of my organisation to provide more appointments for patient/service users	5	4	3	2	1
c) Ensures better use of my skills	5	4	3	2	1
d) Means that the use of the doctors' time is more effective and can be used for more complex cases	5	4	3	2	1
e) Has increased my job satisfaction	5	4	3	2	1
f) Has increased the respect I receive from doctors	5	4	3	2	1
g) Enables patient/service users to have a longer appointment time than they would with the doctor	5	4	3	2	1
h) Means I can deal with all of the patient/service user's prescribing needs	5	4	3	2	1
i) Means my time is used more effectively	5	4	3	2	1
j) Has increased choice for patients	5	4	3	2	1
k) Has improved my relationship with patients	5	4	3	2	1
l) Has helped improve the cost-effectiveness of service delivery in my clinical area	5	4	3	2	1
m) Has helped improve the clinical effectiveness of patient care in my clinical area	5	4	3	2	1
n) Other (please comment):	5	4	3	2	1

49. Please indicate the extent to which you agree / disagree with each of the following statements by circling the number that best reflects your opinion, based on your experience of nurse independent prescribing in the area where you currently work:

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
a. I believe patients/service users find it easier to access medicines through me than a doctor	5	4	3	2	1
b. I believe patients/service users find it easier to access their prescriptions from me than a pharmacist	5	4	3	2	1
c. The doctors I work with are supportive of nurse independent prescribing	5	4	3	2	1
d. I ask patients about whether they have any concerns about the medicines I prescribe.	5	4	3	2	1
e. I am aware of the Nursing and Midwifery Council's guidance on good practice in record keeping for prescribing	5	4	3	2	1
f. I believe that as a nurse who can prescribe independently I am less dependent on doctors	5	4	3	2	1
g. The doctors I work with are unclear about my prescribing rights	5	4	3	2	1
h. As a nurse who can prescribe independently from the British National Formulary I am anxious about this responsibility	5	4	3	2	1
i. As a nurse who can prescribe independently from the British National Formulary I fear making an incorrect diagnosis	5	4	3	2	1
j. I would feel happy prescribing a greater range of controlled drugs	5	4	3	2	1
k. I explore what patients think about medicines in general.	5	4	3	2	1
l. I always consider the cost of the items I prescribe	5	4	3	2	1
m. I am satisfied with inter-disciplinary communication about independent prescribing in my area of practice	5	4	3	2	1
n. I always discuss any misunderstandings patients have about medicines	5	4	3	2	1

(Q.49 cont.) Please indicate the extent to which you agree / disagree with each of the following statements by circling the number that best reflects your opinion, based on your experience of nurse independent prescribing in the area where you currently work:

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
o. I have concerns about prescribing for patients who have co-morbidities	5	4	3	2	1
p. I am asked by *colleagues* to prescribe in an area outside my competence	5	4	3	2	1
q. I am asked by *patients* to prescribe in an area outside my competence	5	4	3	2	1
r. I always provide information about the side effects of medicines.	5	4	3	2	1
s. I have concerns that I am prescribing outside my area of competence	5	4	3	2	1
t. I find it difficult to ensure that I fully record a prescribing episode in patient notes	5	4	3	2	1
u. In this organization, the clinical governance requirements for prescribing are adequate	5	4	3	2	1
v. I would feel safe being treated as a patient in this service	5	4	3	2	1
w. I receive appropriate feedback about my performance	5	4	3	2	1
x. I ask patients about whether they think the medicines I prescribe are necessary for them.	5	4	3	2	1
y. Prescribing errors are handled appropriately in my working environment	5	4	3	2	1
z. I do not have the clinical examination skills to be a safe independent prescriber	5	4	3	2	1
aa. Leadership is driving us to be a safety-centred organisation	5	4	3	2	1
bb. My suggestions about safety would be acted upon if I expressed them to management	5	4	3	2	1

cc. I do not have the pharmacological knowledge to be a safe independent prescriber.	5	4	3	2	1
dd. I always ask patients about their beliefs about medicines	5	4	3	2	1

50. How often do you see pharmaceutical company representatives?

☐ 1-2 week ☐ 1-2 month ☐ less than once per month ☐ Rarely ☐ Never ☐ Not applicable

51. If you see pharmaceutical company representatives how helpful do you find them?

☐ Very useful ☐ Useful ☐ Not useful ☐ Don't know ☐ Not applicable

Comments: ……

4.4 Views on support and continuing professional development (CPD)

52. Do you have a regular appraisal which includes your prescribing role? *(please √ one only)*

☐ Yes ☐ No

If Yes, how often does your appraisal take place:

☐ Every 3-6 months ☐ Every 6-12 months ☐ Every 1-2 years ☐ Less frequently than every 2 years

53. Do you have a personal development plan that includes prescribing? *(please √ one only)*

☐ Yes ☐ No

53a. Please comment further:

……

……

54. How often do you have a session to review your independent prescribing practice with a medical prescriber? *(please √ one only)*

Once a week	Once a fortnight	Once a month	Every 3 mnths	Every 6 mnths	Once a year	Never
☐	☐	☐	☐	☐	☐	☐

55. Do you have ongoing support from an experienced prescriber? *(please √ one only)*

☐ Yes ☐ No

55a. Please comment further:

……

56. Do you have access to a network of Non-Medical Prescribers? *(please ✓ one only):*

☐ Yes ☐ No

If Yes, please state which network e.g. national, organisational, clinical speciality

……..…

57. How do you keep up to date for your prescribing? *(tick all that apply)*

☐ Peer network

☐ Using the internet

☐ National Prescribing Centre NMP sessions

☐ Pharmaceutical industry representatives

☐ National Prescribing Centre's Electronic Information Resource (NPCi)

☐ BNF

☐ Reading peer review journals

☐ Access to Trust and other local newsletters

☐ National Electronic Library for Health

☐ National Electronic Library for Medicines

☐ Other: …….

58. What support from your practice / directorate / department do you have for continuing professional development?

	Yes	No
1. Study leave	☐	☐
2. Protected learning time	☐	☐
3. Access to budget for external training courses	☐	☐
4. In-house training courses	☐	☐

5. Other /Comment: ……..……

…..……

59. Would you describe your existing CPD activity as adequate to ensure your prescribing is safe?

☐ Yes ☐ No

59a. If no, please give reasons why this is not possible:

……

……

……

60. Please list up to three factors (if any) that in your opinion are helpful in enabling you to carry out independent prescribing in practice:

1……

2……

3. ……

61. Are there any barriers to maximising the contribution you could make as a NIP?

☐ No → Continue with question 62

☐ Yes→ Continue with question 61a

61a. If **Yes,** please list up to three factors that in your opinion make it difficult for you to independently prescribe in practice:

1……

2……

3……

62. If you have any other comments about your experience of Nurse Independent Prescribing, please provide these below:

……

……

……

……

……

……

……

……

……

……

……

……

If you have any questions or queries please do not hesitate to contact a member of the project team on the telephone number(s) below- please contact Alesha Smith in the first instance.

Project team:

Prof Sue Latter:	School of Health Sciences, University of Southampton; 02380 597959
Prof Alison Blenkinsopp:	School of Pharmacy, Keele University, Keele, Staffs ST5 5BHG; 01782 583444
Prof Steve Chapman:	School of Pharmacy, Keele University, Keele, Staffs ST5 5BHG
Ms Alesha Smith:	School of Health Sciences, University of Southampton; 02380 597589
Dr Deborah Fenlon:	School of Health Sciences, University of Southampton.
Dr Karen Gerard:	School of Health Sciences, University of Southampton.
Prof Paul Little:	School of Medicine, University of Southampton
Dr Peter Nicholls:	School of Health Sciences, University of Southampton.
Ms Gillian Dorer:	Lay representative

Many thanks for your time and co-operation in completing this questionnaire

63. **Please indicate if you would be willing to take part in the next phase of this research study:** In the next phase the research team will be speaking to prescribing nurses and pharmacists and some of their patient/service users and colleagues in person, to find out more about NIP and PIP. We anticipate this commencing in early 2009 and we will seek permission from the Local Research Ethics Committee and clinical manager(s) before proceeding. At this stage, we would be grateful if you could indicate below whether, IN PRINCIPLE, you would be willing to consider participating in this phase of the research. Agreement in principle means only that you will be considered as part of the overall sample for the next phase. Should you be selected from this sample, we would like to be in contact with you to discuss further what your participation would mean. Agreement to participate further now will not be binding in the future and you will be free to withdraw at any stage. All data you provide here will remain anonymous and confidential to the research team.

☐ I would be interested in taking further part in the research study

☐ I am not interested in taking part

If you are interested in taking part or in discussing this further please complete the following details which will aid us in sampling for phase two and will help us contact you at a convenient time:

63a. Please give the name of the Trust in which you work, and its geographical location:

……

……

63b. Is there more than one Independent Prescriber working in your clinical area?

☐ Yes, there is more than one Nurse Independent Prescriber working in my clinical area

☐ Yes, there is also a Pharmacist Independent Prescriber/s working in my clinical area

☐ No, I am the Nurse Independent Prescriber working in my clinical area

63c. Your name: ……

63d. Your telephone number……..

63e. Best times to contact me are:

……..……

11.3 Pharmacist independent prescriber survey questionnaire

Evaluation of Nurse and Pharmacist Independent Prescribing: Questionnaire for Pharmacists

Who should complete this questionnaire?

The questionnaire should be completed by the person named on the front of the envelope.

Completing the questionnaire

For each question please tick clearly inside one of the boxes using a black or blue pen. In some cases you may be asked to circle the appropriate number.

Sometimes you will find the box you have ticked has an instruction to go to another question. By following the instructions carefully you will miss out questions that do not apply to you. Don't worry if you make a mistake; simply cross out the mistake and put a tick in the correct box.

Your answers will be anonymous and confidential

Data will be coded for anonymity and kept confidential within the research team. Details that you provide in Section 1 will be kept separate from the rest of the questionnaire

Section 1: General Information

1. Do you work:

☐ Full time ☐ Part time

If you work part time, how many hours per week do you work? …… (hours)

2. Please indicate which (if any) of the following educational / academic qualifications you have obtained *(tick all that apply):*

☐ Certificate ☐ Diploma ☐ Masters

☐ PhD ☐ Other ……..

3. Please indicate your age by ticking the relevant box: *(please* ☑ *one only):*

☐ Under 25 ☐26-30 ☐31-35 ☐36-40 ☐ 41 – 45

☐46-50 ☐51-55 ☐56- 60 ☐61- 65 ☐ over 65

4. Please give details of your Pharmacist Independent Prescriber (PIP) course: (*please √ one only)*

☐ **Combined independent prescribing/supplementary prescribing course**

Where undertaken (which higher education institution [HEI]):

……

Dates undertaken (month and year): start date ……/…….
finish date ……/…….

Level of academic award (Degree level, Masters level)…….

☐ **Supplementary course and an independent prescribing conversion course**

Where the conversion course was undertaken (which higher education institution [HEI]):

……

Dates conversion course was undertaken (month and year):
start date ……/…….
finish date ……/…….

5. Please give details of your current job title:

……

6. Have you changed your job title since attending the Pharmacist Independent Prescribing course? *(please √ one only):*

☐ Yes

☐ No

If **Yes** please give details of your job title immediately prior to commencing the course:

……

7. In relation to your work as a prescriber, what NHS Agenda for Change (AfC) pay scale are you currently on (please circle):

Band 5	Band 6	Band 7	Band 8a
Band 8b	Band 8c	Band 8d	Band 9

8. Which statement is most applicable to you?

Since qualifying as a Pharmacist Independent Prescriber (PIP): (*please* √ *one only)*

☐ I am currently prescribing as a PIP → Continue with question **9**

☐ I have prescribed as a PIP but am no longer doing so → Continue with questions **8b** and **8c** and please read **8d**

☐ I have never prescribed as a PIP → Continue with questions **8b** and **8c** and please read **8d**

8b. Please give reasons why you are not prescribing independently:

……

……

……

8c. If you are not prescribing independently, are you prescribing medicines using supplementary prescribing?

☐ YES

☐ NO

8d. This questionnaire is **only** for Pharmacist Independent Prescribers who are currently independently prescribing. If you are NOT currently independently prescribing your responses to questions 1 -8 are important to us, but you do not need to complete the remainder of this questionnaire. **Please return the questionnaire with the remaining questions uncompleted** in the FREEPOST envelope provided.

Thank you for your time

This questionnaire asks you about your experiences before, during and after the Pharmacist Independent Prescribing course. Please answer all questions as fully as you can and with reference to your independent prescribing only.

Section 2: Experiences *before* the Pharmacist Independent Prescribing Course

Please answer the following questions in relation to the *Pharmacist Independent Prescribing Course only*:

9. Was the **main** driver for you to become an Independent Prescriber (please choose one that best describes your experience)?

☐ Your own decision ☐ Your employer's request

☐ Both of these equally ☐ Other: please state: ……

Which of the following were important to you in deciding to become a PIP? (Please tick all that apply)

	Yes	No
To increase the quality of your pre-existing patient/service user care provision?	☐	☐
To set up a change in a patient/service user clinical specialty?	☐	☐
To make better use of the skills of the clinical team in which you practice?	☐	☐
To increase your professional status?	☐	☐
To make patient access to medicines quicker and more efficient?	☐	☐
To increase patient choice?	☐	☐
To meet other organisational targets? e.g. waiting times	☐	☐

Other? Please describe…….

10. In which of the following areas were you involved in the treatment management of patient/service users a) BEFORE undertaking the Pharmacist Independent Prescribing course and b) NOW? (Please tick all that apply).

a) before	b) now		a) before	b) now	
☐	☐	Aesthetics	☐	☐	Midwifery
☐	☐	Asthma	☐	☐	Minor injuries
☐	☐	Cardiology	☐	☐	Neonatal
☐	☐	Care of the older person	☐	☐	Neurology
☐	☐	CHD prevention	☐	☐	Orthopaedics
☐	☐	COPD	☐	☐	Obesity/weight management
☐	☐	Dermatology	☐	☐	Oncology
☐	☐	Diabetes	☐	☐	Osteoporosis prevention
☐	☐	Drug/substance abuse	☐	☐	Paediatrics
☐	☐	Emergency care	☐	☐	Pain management
☐	☐	ENT	☐	☐	Palliative care
☐	☐	Epilepsy	☐	☐	Public health
☐	☐	Family planning	☐	☐	Renal medicine
☐	☐	Gastrointestinal	☐	☐	Respiratory
☐	☐	Gynaecology	☐	☐	Rheumatology
☐	☐	Hypertension	☐	☐	Sexual health
☐	☐	Infections	☐	☐	Smoking cessation
☐	☐	Mental health	☐	☐	Wound care

Please add any other treatment management areas:

☐	☐	……	☐	☐	……

Section 3: Experiences *during* the Pharmacist Independent Prescribing course

11. Was your course: *(please √ one only):*

	SP	IP	SP/IP*
Pharmacists only	☐	☐	☐
Joint nurses and pharmacists	☐	☐	☐
Joint pharmacists and others (please say who……..)	☐	☐	☐
Joint pharmacists and nurses and others (please say who ……)	☐	☐	☐

* Please only use this column if you completed the combined SP/IP course

12. Overall, to what extent did the whole course (Educational Institution taught days + period of learning in practice) meet its stated learning outcomes? *(please √ one only):*

Met completely	Met largely	Met to a limited extent	Not met
☐	☐	☐	☐

12a. Please comment on the reason for your response……

……

..……..

13. Overall, to what extent did the learning outcomes of the whole course meet your learning needs? *(please √ one only):*

Met completely	Met largely	Met to a limited extent	Not met
☐	☐	☐	☐

13a. What learning needs were not covered? ……

14. Did your course adequately prepare you in the following areas:

	Adequate	Not adequate
Consultation, decision-making and therapy	☐	☐
Physical assessment skills	☐	☐
Influences on, and psychology of, prescribing	☐	☐
Prescribing in a team context	☐	☐
Clinical pharmacology, including the effects of co-morbidity	☐	☐
Evidence-based practice and clinical governance in relation to pharmacist prescribing	☐	☐
Legal, policy and ethical aspects	☐	☐
Professional accountability and responsibility	☐	☐
Prescribing in the public health context	☐	☐

Other (please describe)
……

15. Of the 26 taught days of the course how many were face to face?

……

16. Please indicate the extent to which you received the statutory requirement of 12 days supervised learning in practice *(please* √ *one only):*

☐ Less than 12 days supervised learning in practice

☐ Exactly 12 days supervised learning in practice

☐ More than 12 days supervised learning in practice

Please comment on your supervised learning in practice experience with your Designated Medical Practitioner (DMP):

……

17. Was your DMP *(please √ one only):*

☐ Already known to you and approached by you to be your DMP?

☐ Already known to you and approached by someone else to be your DMP?

☐ Not previously known to you and chosen by someone else to be your DMP?

☐ Not previously known to you and approached by you to be your DMP?

Other (please state) ……

18. Overall, was it difficult to identify a DMP for you?

☐ Yes

☐ No

19. At the end of the course how prepared did you feel to practice independent prescribing? *(please √ one only):*

Completely prepared	Largely prepared	Prepared to a limited extent	Not prepared
☐	☐	☐	☐

19a. What else did you need to feel fully prepared to practice independent prescribing?

……

……..

……..

Section 4: Experiences *after* the Pharmacist Independent Prescribing course.
(Please answer the following questions with reference to your Pharmacist Independent Prescribing only)

4.1 Prescribing practice

20. What was the length of time between official completion of your prescribing course at the Education Institution and issuing your first prescription? *(please √ one only):*

☐ 0-1 month ☐ 1-2 months ☐ 2-3 months ☐ 3-4 months ☐ 4-6 months

☐ 6-12 months ☐ over 1 year (please specify)……...

If the delay was 3 months or longer, please give reasons as to why the delay occurred: . . . . . .

. . . . . .

. . . . . .

21. Since qualifying as an Independent Prescriber has this led to any change in your overall service delivery to patients / service users?

	Yes	No
An increase in the quality of your pre-existing patient/service user care provision?	☐	☐
You have set up a change in a patient/service user clinical specialty?	☐	☐
Better use of the skills of the clinical team in which you practice?	☐	☐
An increase in your professional status?	☐	☐
Quicker and more efficient patient access to medicines?	☐	☐
An increase in patient choice?	☐	☐

Other? Please describe…….

22. Please tell us about the setting/s and state the number of sessions per week (where 1 session = one half day) in which you prescribe independently:

	Number of sessions worked
a) General medical practice in primary care	. . . . .
b) NHS Walk-In Centre	. . . . .
c) NHS Trust	. . . . .
d) NHS Mental Health Trust	. . . . .
e) Home visits to patients	. . . . .
f) Mental health service users	. . . . .
g) Community midwifery	. . . . .
h) Care homes	. . . . .
i) Nursing homes	. . . . .
j) Prison	. . . . .
k) Hospice	. . . . .
l) Private hospitals	. . . . .
m) Private clinics	.....
n) Family planning clinic	.....
o) Sexual health clinic	.....
p) Other (please comment): …….....	

23. We are interested in knowing which treatment areas you are prescribing in most frequently. Please indicate the frequency with which you are prescribing (relative to each other), **by placing a 1 beside the most frequent, 2 beside the next most frequent and so forth (max 4 choices).**

___ Aesthetics	___ Midwifery
___ Asthma	___ Minor injuries
___ Cardiology	___ Neonatal
___ Care of the older person	___ Neurology
___ CHD prevention	___ Orthopaedics
___ COPD	___ Obesity/weight management
___ Dermatology	___ Oncology
___ Diabetes	___ Osteoporosis prevention
___ Drug/substance abuse	___ Paediatrics
___ Emergency care	___ Pain management
___ ENT	___ Palliative care
___ Epilepsy	___ Public health
___ Family planning	___ Renal medicine
___ Gastrointestinal	___ Respiratory
___ Gynaecology	___ Rheumatology
___ Hypertension	___ Sexual health
___ Infections	___ Smoking cessation
___ Mental health	___ Wound care

Please add any other treatment management areas: …….

…….

24. In relation to the 2 most common treatment areas in which you prescribe, do you prescribe independently for both routine and complex cases?

	Routine	Complex
Most common treatment area	☐	☐
Second most common treatment area	☐	☐

25. Do you prescribe independently for children?

☐ Yes

☐ No

If **Yes** please specify the treatment areas in which you prescribe for children:

……

……

26. When you prescribe, on average how many minutes do you spend in consultation with each patient?

_____ mins per patient

Comment ……

27. Are there circumstances where you prescribe or supply/administer medicines other than independently?

	Yes	No
a. Prescribe as a supplementary prescriber	☐	☐
b. Supply and/or administer using Patient Group Directions (PGD)	☐	☐
c. Print off a prescription and ask another Independent Prescriber to sign	☐	☐

28. Overall, what percentage of your prescribing practice is:
(NB Total should add up to 100%)

		%
a.	Independent prescribing practice	. . . . .
b.	Supplementary prescribing practice	. . . . .
c.	Patient Group Directions	. . . . .
d.	Prescriptions signed by others	. . . . .
	Total	. . . . .

29. In relation to diagnosis, in your independent prescribing practice do you:

☐ Make the diagnosis on **most** occasions?

☐ Work from a diagnosis made by a doctor / other health care professional on **most** occasions?

☐ Other: ……

30. Can you generate your own computer-generated prescriptions? *(please √ one only):*

☐ Yes ☐ No

30a. If No – please give reasons:

……

……

31. Is all of your prescribing on the NHS? *(please √ one only):*

☐ Yes ☐ No

31a. If No - please tell us the circumstances in which you issue private prescriptions:

……

……

32. In a typical week how many **patients** do you prescribe for as a pharmacist independent prescriber? (i.e. NOT prescriptions signed by another IP or any supplementary prescribing) *(please √ one only):*

☐ less than 5 ☐ 6-10 ☐ 11-20 ☐ 21-30 ☐ 31-40 ☐ 41-50 ☐ 51 plus: state number: ……...

32a. Comments on the reason for your response:

……..….

……

33. In a typical week how many **items** do you prescribe as a pharmacist independent prescriber?

(i.e. NOT prescriptions signed by another IP or any supplementary prescribing) *(please √ one only):*

☐ less than 5 ☐ 6-10 ☐ 11-20 ☐ 21-30 ☐ 31-40 ☐ 41-50 ☐ 51 plus: state number: ……...

33a. Other/ comments on the reason for your response:

……..….

……

34. In relation to your 2 most common treatment areas identified in Q23, do you prescribe instead of, or in addition to, a medical independent prescriber for the same group of patients?

	Instead of	**In addition to**
Most common treatment area	☐	☐
Second most common treatment area	☐	☐

35. As a result of your independent prescribing, do you think that doctors in your clinical setting are prescribing….. *(please √ one only):*

☐ Less ☐ The same amount ☐ More

4.2 Clinical governance and risk management

36. Does your Trust require you to work solely as a Supplementary Prescriber for a probationary period immediately after qualifying as an independent prescriber?

☐ Yes ☐ No

If yes, for how long?

☐ 0 to 3 months ☐ 4-6 months ☐ 7-12 months ☐ other: state number of months: ……...

37. Which of these do you use routinely for prescribing in your most common treatment areas as stated in Q23?

	Treatment area 1			Treatment area 2		
		Yes	No		Yes	No
a.	National guideline	☐	☐	a. National guideline	☐	☐
b.	PCT guideline	☐	☐	b. PCT guideline	☐	☐
c.	Practice guideline	☐	☐	c. Practice guideline	☐	☐
d.	NHS Trust guideline	☐	☐	c. NHS Trust guideline	☐	☐
d.	BNF	☐	☐	d. BNF	☐	☐
e.	EMIS, Odyssey, face-to-face, CAS (or equivalent prescribing decision support)	☐	☐	e. EMIS, Odyssey, face-to-face CAS (or equivalent prescribing decision support)	☐	☐
f.	Other / Comment:……			f. Other / Comment:……		

38. Which of these tools have been used in your clinical setting to quality assure your prescribing?

	Treatment area 1		Treatment area 2	
	Yes	No	Yes	No
a. Significant event analysis	☐	☐	☐	☐
b. Case audit in specific clinical area	☐	☐	☐	☐
c. Patient/service user survey	☐	☐	☐	☐
d. Peer review	☐	☐	☐	☐
e. Monitoring of my prescribing data	☐	☐	☐	☐
f. Evidence Portfolio	☐	☐	☐	☐

f. Other /Comment:

……

39. Are the tools and processes used to quality assure your prescribing different from those used for the medical prescribers you work with?

☐ Yes ☐ No ☐ Don't know

If yes, please specify how they are different:……

……

40. Do you receive or have access to regular reports on the medicines you have prescribed? *(please √ one only):*

☐ Yes ☐ No

If Yes, please tell us what sort of data you receive ……

……

41. Does your practice / directorate / department routinely conduct audit of prescribing?

☐ Yes ☐ No (Go to Q43) ☐ Don't know (Go to Q43)

42. Is your prescribing included in this?

☐ Yes ☐ No ☐ Don't know

43. Since qualifying as a PIP, if you began to prescribe in a new clinical area, please tell us how you prepared yourself to achieve competence in the new area:

……

……

……

44. How confident would you be about departing from a prescribing protocol, guideline or local formulary?

☐ Very confident ☐ Fairly confident ☐ Some confidence ☐ Not at all confident ☐ Not applicable

45. What measures would you put in place before you departed from a prescribing protocol, guideline or local formulary?

Please specify

……

4.3 Opinions on Independent Prescribing

46. Please indicate (by circling the appropriate number) the extent to which you agree or disagree with the following statements. *(Please circle the number that most closely resembles your opinion):*

My role as a pharmacist independent prescriber:	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
a) Improves the quality of care I am able to provide for patient/service users	5	4	3	2	1
b) Increases the capacity of my organisation to provide more appointments for patient/service users	5	4	3	2	1
c) Ensures better use of my skills	5	4	3	2	1
d) Means that the use of the doctors' time is more effective and can be used for more complex cases	5	4	3	2	1
e) Has increased my job satisfaction	5	4	3	2	1
f) Has increased the respect I receive from doctors	5	4	3	2	1
g) Enables patient/service users to have a longer appointment time than they would with the doctor	5	4	3	2	1
h) Means I can deal with all of the patient/service user's prescribing needs	5	4	3	2	1
i) Means my time is used more effectively	5	4	3	2	1
j) Has increased choice for patients	5	4	3	2	1
k) Has improved my relationship with patients	5	4	3	2	1
l) Has helped improve the cost-effectiveness of service delivery in my clinical area	5	4	3	2	1
m) Has helped improve the clinical effectiveness of patient care in my clinical area	5	4	3	2	1
n) Other (please comment):	5	4	3	2	1

47. Please indicate the extent to which you agree / disagree with each of the following statements by circling the number that best reflects your opinion, based on your experience of pharmacist independent prescribing in the area where you currently work*:*

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
a. I believe patients/service users find it easier to access medicines through me than a doctor	5	4	3	2	1
b. I believe patients/service users find it easier to access their prescriptions from me than a nurse	5	4	3	2	1
c. The doctors I work with are supportive of pharmacist independent prescribing	5	4	3	2	1
d. I ask patients about whether they have any concerns about the medicines I prescribe	5	4	3	2	1
e. I believe that as a pharmacist who can prescribe independently I am less dependent on doctors	5	4	3	2	1
f. The doctors I work with are unclear about my prescribing rights	5	4	3	2	1
g. As a pharmacist who can prescribe independently from the British National Formulary I am anxious about this responsibility	5	4	3	2	1
h. As a pharmacist who can prescribe independently from the British National Formulary I fear making an incorrect diagnosis	5	4	3	2	1
i. I would feel happy prescribing a greater range of controlled drugs	5	4	3	2	1
j. I explore what patients think about medicines in general	5	4	3	2	1
k. I always consider the cost of the items I prescribe	5	4	3	2	1
l. I am satisfied with inter-disciplinary communication about independent prescribing in my area of practice	5	4	3	2	1
m. I always discuss any misunderstandings patients have about medicines	5	4	3	2	1
n. I have concerns about prescribing for patients who have co-morbidities	5	4	3	2	1

(Q.47 cont.) Please indicate the extent to which you agree / disagree with each of the following statements by circling the number that best reflects your opinion, based on your experience of pharmacist independent prescribing in the area where you currently work:

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
o. I am asked by *colleagues* to prescribe in an area outside my competence	5	4	3	2	1
p. I am asked by *patients* to prescribe in an area outside my competence	5	4	3	2	1
q. I always provide information about the side effects of medicines	5	4	3	2	1
r. I have concerns that I am prescribing outside my area of competence	5	4	3	2	1
s. I find it difficult to ensure that I fully record a prescribing episode in patient notes	5	4	3	2	1
t. In this organization, the clinical governance requirements for prescribing are adequate	5	4	3	2	1
u. I would feel safe being treated as a patient in this service	5	4	3	2	1
v. I receive appropriate feedback about my performance	5	4	3	2	1
w. I ask patients about whether they think the medicines I prescribe are necessary for them	5	4	3	2	1
x. Prescribing errors are handled appropriately in my working environment	5	4	3	2	1
y. I do not have the clinical examination skills to be a safe independent prescriber	5	4	3	2	1
z. Leadership is driving us to be a safety-centred organisation	5	4	3	2	1
aa. In this organization, the regulations for governance of prescribing are in line with those recommended by the Royal Pharmaceutical Society	5	4	3	2	1
bb. My suggestions about safety would be acted upon if I expressed them to management	5	4	3	2	1

cc. I do not have the pharmacological knowledge to be a safe independent prescriber.	5	4	3	2	1
dd. I always ask patients about their beliefs about medicines	5	4	3	2	1

48. How often do you see pharmaceutical company representatives?

☐ 1-2 week ☐ 1-2 month ☐ less than once per month ☐ Rarely ☐ Never ☐ Not applicable

49. If you see pharmaceutical company representatives how helpful do you find them?

☐ Very useful ☐ Useful ☐ Not useful ☐ Don't know ☐ Not applicable

Comments: ……

……

4.4 Views on support and continuing professional development (CPD)

50. Do you have a regular appraisal which includes your prescribing role? *(please √ one only)*

☐ Yes ☐ No

If Yes, how often does your appraisal take place:

☐ Every 3-6 months ☐ Every 6-12 months ☐ Every 1-2 years ☐ Less frequently than every 2 years

51. Do you have a personal development plan that includes prescribing? *(please √ one only)*

☐ Yes ☐ No

51a. Please comment further:

……

……

52. How often do you have a session to review your independent prescribing practice with a medical prescriber? *(please √ one only)*

Once a week	Once a fortnight	Once a month	Every 3 mnths	Every 6 mnths	Once a year	Never
☐	☐	☐	☐	☐	☐	☐

53. Do you have ongoing support from an experienced prescriber? *(please √ one only)*

☐ Yes ☐ No

53a. Please comment further:

……

54. Do you have access to a network of Non-Medical Prescribers? *(please √ one only):*

☐ Yes ☐ No

If Yes, please state which network e.g. national, organisational, clinical speciality

……

55. How do you keep up to date for your prescribing? *(tick all that apply)*

☐ Peer network

☐ Using the internet

☐ National Prescribing Centre NMP sessions

☐ Centre for Pharmacy Postgraduate Education

☐ Pharmaceutical industry representatives

☐ National Prescribing Centre's Electronic Information Resource (NPCi)

☐ BNF

☐ Reading peer review journals

☐ Access to Trust and other local newsletters

☐ National Electronic Library for Health

☐ National Electronic Library for Medicines

☐ Other: ……

56. What support from your practice / directorate / department do you have for Continuing Professional Development (CPD)?

	Yes	No
1. Study leave	☐	☐
2. Protected learning time	☐	☐
3. Access to budget for external training courses	☐	☐
4. In-house training courses	☐	☐

5. Other /Comment: ……

57. Would you describe your existing CPD activity as adequate to ensure your prescribing is safe?

☐ Yes ☐ No

57a. If no, please give reasons why this is not possible:

……

……

……

58. Please list up to three factors (if any) that in your opinion are helpful in enabling you to carry out independent prescribing in practice:

1……

2……

3. ……

59. Are there any barriers to maximising the contribution you make/could make as a PIP?

☐ No → Continue with question 60

☐ Yes→ Continue with question 59a

59a. If **Yes,** please list up to three barriers that in your opinion make it difficult for you to independently prescribe in practice:

1…… ……..

2……

3……

60. If you have any other comments about your experience of Pharmacist Independent Prescribing, please provide these below:

……

……

……

……

……

……

……

……

……

……

……

……

If you have any questions or queries please do not hesitate to contact a member of the project team on the telephone number(s) below- please contact Alesha Smith in the first instance.

Project team:

Prof Sue Latter:	School of Health Sciences, University of Southampton; 02380 597959
Prof Alison Blenkinsopp:	School of Pharmacy, Keele University, Keele, Staffs ST5 5BHG; 01782 583444
Prof Steve Chapman:	School of Pharmacy, Keele University, Keele, Staffs ST5 5BHG
Alesha Smith:	School of Health Sciences, University of Southampton, 02380 597589
Dr Deborah Fenlon:	School of Health Sciences, University of Southampton.
Dr Karen Gerard:	School of Health Sciences, University of Southampton
Prof Paul Little:	School of Medicine, University of Southampton
Dr Peter Nicholls:	School of Health Sciences, University of Southampton
Gillian Dorer:	Lay representative

Many thanks for your time and co-operation in completing this questionnaire

61. **Please indicate if you would be willing to take part in the next phase of this research study:** In the next phase the research team will be speaking to prescribing nurses and pharmacists and some of their patient/service users and colleagues in person, to find out more about NIP and PIP. We anticipate this commencing in early 2009 and we will seek permission from the Local Research Ethics Committee and clinical manager(s) before proceeding. At this stage, we would be grateful if you could indicate below whether, IN PRINCIPLE, you would be willing to consider participating in this phase of the research. Agreement in principle means only that you will be considered as part of the overall sample for the next phase. Should you be selected from this sample, we would like to be in contact with you to discuss further what your participation would mean. Agreement to participate further now will not be binding in the future and you will be free to withdraw at any stage. All data you provide here will remain anonymous and confidential to the research team

☐ I would be interested in taking further part in the research study

☐ I am not interested in taking part

If you are interested in taking part or in discussing this further please complete the following details which will aid us in sampling for phase two and will help us contact you at a convenient time:

61a. Please give the name of the Trust in which you work, and its geographical location:

……

……

61b. Is there more than one Independent Prescriber working in your clinical area?

☐ Yes, there is more than one Pharmacist Independent Prescriber working in my clinical area

☐ Yes, there is also a Nurse Independent Prescriber/s working in my clinical area

☐ No, I am the Pharmacist Independent Prescriber working in my clinical area

61c. Your name: ……

61d. Your telephone number……..

61e. Best times to contact me are:
……..……

11.4 Pilot interview schedule for non-medical prescribing leads

NMP Leads Survey:
Pilot Question Schedule
October 2008

Section 1: Core Questions

1. Details of NMP Lead

a. SHA: ……..……

b. Name and type of all Trusts which you cover:

……

……

c. If you cover more than 1 trust, please select 1 as the basis for answering the questions below.

Chosen trust name: ……..

d. As a non-medical prescribing lead, are you responsible for *(please circle all that apply)*:

Nurses
Pharmacists
Allied Health Professionals

2. Details of prescribers in the Trust

Questions	Numbers
How many NIPs are in the trust?	
How many PIPs are in the trust?	
How many nurse SPs does the trust have?	
How many pharmacist SPs does the trust have?	
How many nurses use PGDs to deliver medicines?	
How many pharmacists use PGDs to deliver medicines?	
How many Medical Independent Prescribers are there in the Trust?	

1

3.	Are you able to identify how many NMP within the trust are actually prescribing?

☐ Yes

☐ No

☐ Don't Know

4.	Please fill in the appropriate chart below (*depending on what IP models are in operation)* *

* **Please note:** not all questions will be relevant for each IP model, please feel free to make comments about this below.

Primary Care Trusts		Key staff numbers (NIP, PIP)	Opening times of service	No of patients using the service over given period*	Waiting times	Consultation length	Average number of prescriptions per quarter	Estates & equipment costs?	Use of prescribing guidelines on drug costs?
1. General medical practice	Nurse practitioners								
	Practice Nurse								
	Pharmacist sessional prescribing								
2. NHS Walk-In-Centre									
3. Community nurses (adult) e.g. home visits or care homes									
4. Community children's nurses									
5. Family planning clinic									
6. Sexual health clinic									
7. Community pharmacy									

* We are not sure what time periods this data will be in e.g. annually, quarterly, monthly (if any), please record the number and unit of time given

Comments: ……

……

……

Acute Trusts		Key staff numbers (NIP, PIP)	Opening times of service	No of patients using the service over given period	Waiting times	Consultation length	Average number of prescriptions per quarter	Estates & equipment costs?	Use of prescribing guidelines on drug costs?
1. NHS inpatients	NIPs								
	PIPs								
2. NHS outpatients	NIPs								
	PIPs								
3. Community midwifery									

Mental Health Trusts		Key staff numbers (NIP, PIP)	Opening times of service	No of patients using the service over given period	Waiting times	Consultation length	Average number of prescriptions per quarter	Estates & equipment costs?	Use of prescribing guidelines on drug costs?
1. NHS inpatients	NIPs								
	PIPs								
2. Community Mental Health e.g. substance misuse, memory clinics (elderly), adolescent services	NIPs								
	PIPs								
3. Prison	NIPs								
	PIPs								

Section 2: The Impact of Independent Prescribing on Service Delivery and Patient Care

5. Has independent prescribing had an impact on the cost effectiveness of services?

- ☐ Yes
- ☐ No
- ☐ Don't Know

6. Has independent prescribing had an impact on the clinical effectiveness of services?

- ☐ Yes
- ☐ No
- ☐ Don't Know

7. Thinking about the impact of independent prescribing on the configuration of services, in your Trust, do you think there has been:

	Yes	No
An increase in nurse-led services		
An increase in pharmacist-led services		
An increase in primary care service delivery		
A shift of service delivery from doctors to pharmacists		
A shift of service delivery from doctors to nurses		

8. Has independent prescribing had an impact on the volume of medicines prescribed in the Trust:

- ☐ Increased
- ☐ Decreased
- ☐ No change
- ☐ Don't Know

9. Have prescription patterns changed across professional groups?

- ☐ Yes
- ☐ No
- ☐ Don't Know

10. Are there any other advantages / disadvantages of NMP on service delivery and patient care in addition to above?

……
……
……
……

Section 3: Prioritizing IP models and Future Workforce Planning on Prescribing

11. Does your trust have a NMP strategy? (what we mean by strategy is: a written plan for the development of NMP in the future)

- ☐ Yes
- ☐ No – Please go to question 15

12. Is there a strategy to guide the year-on-year numbers of new independent prescribers at Trust level?

- ☐ Yes
- ☐ No

13. Is there a strategy to guide the year-on-year types (models) of new independent prescribers at Trust level?

- ☐ Yes - Go to question 14
- ☐ No - Go to question 15

14. Does the strategy link to any of the following:

	Yes	No
The population health needs of the Trust?		
The characteristics of the available workforce?		
Waiting list times?		
Employee requests?		
Quality & Outcomes Framework? **PCT Only**		
EU Working Time directives on Drs' hours? **Acute Trusts only**		

15. Is Non Medical Prescribing identified and recognised within planning and long term objectives?

☐ Yes

☐ No

16. What factors led to prioritization of either IP models or future workforce planning in the Trust?

……

……

……

……

17. Which Trust NIP and PIP models are being prioritised in training places in 2008/9? (e.g. hospital out-patients, general practice clinics, case management)

Relating to NIPs	Relating to PIPs
……	……
……	……
……	……

18. Which Trust NIP and PIP models are being prioritised in any shifts in qualified prescribers' service delivery within the trust?

……

……

……

Section 4: Enhancing and Hindering Factors in Operation

19. Are any of the following factors rate limiting for increasing independent prescribers operating in the trust?

	Yes	No
Training costs		
Backfill		
Costs of mentorship		
Costs associated with estates e.g. room hire		
Set up costs for new prescribers e.g. computer and computer-generated prescription software, prescription pads, BNF		
Prescribing budgets		
Costs of CPD		

20. Do any of the following factors enhance the operation of independent prescribing in the Trust?

	Yes	No	N/A
Ring fenced funding for training			
Availability of DMPs			
NMP lead role			
Trust provision for initial training of DMPs to prepare them for this role			
Payment to DMPs			
Backfilled paid for by the trust			
Other (please specify)			

Others: ……

……

……

Section 5: Trust Provisions of CPD opportunities

21. Is Continuing Professional Development (CPD) for independent prescribers provided by the trust ?

☐ Yes – Go to question 22

☐ No - Please specify why CPD is not provided, then continue to question 24.

……
……
……

22. Is the uptake of CPD by independent prescribers monitored?

☐ Yes

☐ No

23. Is the CPD provided by the trust adequate to maintain safety of independent prescribing?

☐ Yes

☐ No

Section 6: Clinical Governance and Risk Management Strategies in Operation

24. Which of the following standards are currently in place in your Trust?

STANDARD	In place	Not in place
1. There is a current database of qualified and registered non medical prescribers (NMPs)		
2. Mechanisms exist that identify and learn from all patient safety incidents and other reportable incidents, and make improvements in practise based on local and national experience and information derived from the analysis of incidents		
3. Mechanisms exist to ensure all NMPs are kept informed of relevant clinical information, e.g. Patient Safety Notices, Drug Alerts and Hazard Warnings		
4. Procedures exist to identify and remedy poor performance		
5. Systems for monitoring prescribing are in place in all sectors of practice (e.g. PACT data)		
6. NMPs are receiving appropriate support or supervision in their prescribing role (e.g. local clinical supervision groups/ learning sets or peer-support groups)		
7. NMPs have an agreed scope of practice or equivalent and a copy of this is retained by the organisation		
8. NMP participate in regular clinical audit and reviews of their clinical services.		
9. There is an up to date non-medical prescribing policy in place		
10. There is a policy covering the use of unlicensed medicines, and medicines used outside the terms of their marketing authorisation?		
11. There is a Controlled Drug Policy that includes prescribing by non-medical prescribers and that reflects the most recent legislation, regulation and guidance		

12. The organisation has a policy for the reporting of adverse events, which is linked into the NPSA national system for reporting and learning and to the MHRA systems		
13. Employed staff have the non-medical prescribing role included in their contract of employment, job description or other relevant document for the purposes of vicarious liability		
14. There are clear lines of responsibility and accountability for overall quality of clinical care		
15. There is a mechanism in place to ensure the selection of suitable candidates for training		
16. Systems are in place to monitor patients' experience of non-medical prescribing		
17. Consideration has been given to cover for absence and succession planning		
18. Non-medical prescribers' access to computer-generated prescriptions and decision making support is supported as required for their role.		
19. Processes exist to support newly qualified prescribers to begin prescribing.		

25. Does your trust have a NMP committee?

- ☐ Yes
- ☐ No – finish questionnaire

26. If yes – who does the group report to? (*tick all that apply*)

- ☐ Directorate Meeting
- ☐ Medicines Management Committee
- ☐ Drugs and Therapeutics
- ☐ Clinical Governance Committee
- ☐ Management Team
- ☐ Pharmacy
- ☐ Trust Board Meeting

☐ Risk Management Committee

☐ None

☐ Other – please specify ……

- Any other comments regarding the survey design, layout etc: ……

……

……

……

……

- Time taken to complete the interview: _____ mins

11.5 Final interview schedule for non-medical prescribing leads

NMP Leads Survey:
Question Schedule
December 2008

Section 1: Core Questions

1. Details of NMP Lead

a. SHA: ……..……

b. Name and type of all Trusts which you cover:

……

……

c. If you cover more than 1 trust, please select 1 as the basis for answering the questions below.

Chosen trust name: ……..

d. As a non-medical prescribing lead, are you responsible for *(please circle all that apply)*:

Nurses
Pharmacists
Allied Health Professionals

2. Details of prescribers in the Trust

Questions	Numbers
How many NIPs are in the trust?	
How many PIPs are in the trust?	
How many nurse SPs does the trust have?	
How many pharmacist SPs does the trust have?	
How many nurses use PGDs to deliver medicines?	
How many pharmacists use PGDs to deliver medicines?	
How many Medical Independent Prescribers are there in the Trust? (e.g. OOH, GPs, medics)	

1

3. Are you able to identify how many NMP within the trust are actually prescribing?

☐ Yes

☐ No

☐ Don't Know

Primary Care Trust

We would like to get an understanding of the types of models/locations in which nurses and pharmacists are prescribing within your trust. We are also interested in the combinations (if any) of NIPs and PIPs working in each location. Please fill out the charts below, depending on what independent prescribing models are in operation

4.

Total number of General medical practices in the trust	

5.

Primary Care Trust Models	**Number of general medical practices with 1 NIP**	**Number of general medical practices with 2 NIPs**	**Number of general medical practices with more than 2 NIPs**
Total number of General medical practices in the trust that have a practice nurse/s working as a NIP			
Total number of General medical practices in the trust that have nurse practitioner/s working as a NIP			

6.

Primary Care Trust Models	Number of general medical practices with 1 PIP	Number of general medical practices with 2 PIPs	Number of general medical practices with more than 2 PIPs
4. Total number of General medical practices in the trust that have PIP working as a pharmacist - sessional prescribing			

7.

Primary Care Trust Models	Number of General medical practices in the trust that have both a NIP and a PIP
Total number of General medical practices in the trust that have both a pharmacist working as a PIP and a nurse working as a NIP	

8.

Primary Care Trust Models	Total number of each model	Total number with NIPs	Total number with PIPs	Total number with both a NIP and a PIP
NHS Walk-In-Centres in the trust				
Family planning clinic in the trust				
Sexual health clinics in the trust				

Community Pharmacies in the trust				
Community Midwifery				
Other (please specify)				

9.

Primary Care Trust Models	Total Number in the trust	Total number that prescribe independently (NIP)
Community nurses (adult) e.g. home visits or care homes		
Specialist community nurse e.g. palliative care, CHD, respiratory management		
Community Children's Nurses		

10. Are there any other models in which non-medical prescribing takes place in your trust

☐ Yes *(please comment below)*

☐ No

Comments: ……

……

……

Acute Trusts

We would like to get an understanding of the types of models/locations in which nurses and pharmacists are prescribing within your trust. We are also interested in the combinations (if any) of NIPs and PIPs working in each location. Please fill out the charts below, depending on what independent prescribing models are in operation.

Acute Trust Models	Number of departments/wards in the trust	Number of department/wards with 1 or more NIP/s	Number of department/wards with 1 or more PIP/s	Number of department/wards with both a NIP and a PIP	Number of PIPs that work across various trust department/wards	Number of NIPs that work across various trust department/wards
NHS inpatients						
NHS outpatients						
Others *(please specify)*						

Acute Trust Models	Number of community midwives in the trust	Number of community midwives independently prescribing in the trust (NIPs)
Community midwifery		
Hospital based midwifery		

Are there any other models in which non-medical prescribing takes place in your trust
☐ Yes *(please comment below)* ☐ No
Comments: …… …… ……

Mental Health Trusts

We would like to get an understanding of the types of models/locations in which nurses and pharmacists are prescribing within your trust. We are also interested in the combinations (if any) of NIPs and PIPs working in each location. Please fill out the chart below, depending on what independent prescribing models are in operation.

Mental Health Trust Models	Number of each model in the trust	Number of models which have 1 or more NIP/s	Number of models which have 1 or more PIP/s	Number of models which have both a NIP and a PIP
NHS inpatients				
Community Mental Health e.g. substance misuse, memory clinics (elderly), adolescent services				
Prison				
Others *(please specify)*				

Section 2: The Impact of Independent Prescribing on Service Delivery and Patient Care

11. Has independent prescribing had an impact on the cost effectiveness of services?

- ☐ Yes
- ☐ No
- ☐ Don't Know

12. Has independent prescribing had an impact on the clinical effectiveness of services?

- ☐ Yes
- ☐ No
- ☐ Don't Know

13. Thinking about the impact of independent prescribing on the configuration of services, in your Trust, do you think there has been:

	Yes	No
An increase in nurse-led services		
An increase in pharmacist-led services		
An increase in primary care service delivery		
A shift of service delivery from doctors to pharmacists		
A shift of service delivery from doctors to nurses		

14. Has independent prescribing had an impact on the volume of medicines prescribed in the Trust:

- ☐ Increased
- ☐ Decreased
- ☐ No change
- ☐ Don't Know

15. Have prescription patterns changed across professional groups? (e.g. an increase in NIP prescribing and a corresponding decrease in doctor prescribing).

- ☐ Yes
- ☐ No
- ☐ Don't Know

16. Are there any other advantages / disadvantages of NMP on service delivery and patient care in addition to above?

……
……
……
……

Section 3: Prioritizing IP models and Future Workforce Planning on Prescribing

17. Does your trust have a NMP strategy? (what we mean by strategy is: a written plan for the development of NMP in the future)

- ☐ Yes
- ☐ No – Please go to question 15

18. Is there a strategy to guide the year-on-year numbers of new independent prescribers at Trust level?

- ☐ Yes
- ☐ No

19. Is there a strategy to guide the year-on-year types (models) of new independent prescribers at Trust level?

- ☐ Yes - Go to question 14
- ☐ No - Go to question 15

20. Does the strategy link to any of the following:

	Yes	No
The population health needs of the Trust?		
The characteristics of the available workforce?		
Waiting list times?		
Employee requests?		
Quality & Outcomes Framework? **PCT Only**		
EU Working Time directives on Drs' hours? **Acute Trusts only**		

21. Is Non Medical Prescribing identified and recognised within planning and long term objectives?

☐ Yes

☐ No

22. What factors led to prioritization of either IP models or future workforce planning in the Trust?

……

……

……

……

23. Which Trust NIP and PIP models are being prioritised in training places in 2008/9? (e.g. hospital out-patients, general practice clinics, case management)

Relating to NIPs	Relating to PIPs
……	……
……	……
……	……

24. Which Trust NIP and PIP models are being prioritised in non-medical prescribing service delivery? (e.g. an increase or decrease in prescribing within a clinical area)

……

……

……

Section 4: Enhancing and Hindering Factors in Operation

25. Are any of the following factors rate limiting (inhibiting) for increasing independent prescribers operating in the trust?

	Yes	No
Training costs		
Backfill		
Costs of mentorship		
Costs associated with estates e.g. room hire		
Set up costs for new prescribers e.g. computer and computer-generated prescription software, prescription pads, BNF		
Prescribing budgets		
Costs of CPD		

26. Do any of the following factors enhance the operation of independent prescribing in the Trust? Please note: if this is not in operation within the trust please mark as N/A

	Yes	No	N/A
Ring fenced funding for training			
Availability of DMPs			
NMP lead role			
Trust provision for initial training of DMPs to prepare them for this role			
Payment to DMPs			
Backfilled paid for by the trust			
Other (please specify)			

Others: …….

……

……

Section 5: Trust Provisions of CPD opportunities

27. Is Continuing Professional Development (CPD) for independent prescribers provided by the trust ?

☐ Yes – Go to question 22

☐ No - Please specify why CPD is not provided, then continue to question 24.

……
……
……

28. Is the uptake of CPD by independent prescribers monitored?

☐ Yes

☐ No

29. Is the CPD provided by the trust adequate to maintain safety of independent prescribing?

☐ Yes

☐ No

Section 6: Clinical Governance and Risk Management Strategies in Operation

30. Which of the following standards are currently in place in your Trust?

STANDARD	In place	Not in place
1. There is a current database of qualified and registered non medical prescribers (NMPs)		
2. Mechanisms exist that identify and learn from all patient safety incidents and other reportable incidents, and make improvements in practise based on local and national experience and information derived from the analysis of incidents		
3. Mechanisms exist to ensure all NMPs are kept informed of relevant clinical information, e.g. Patient Safety Notices, Drug Alerts and Hazard Warnings		
4. Procedures exist to identify and remedy poor performance		
5. Systems for monitoring prescribing are in place in all sectors of practice (e.g. PACT data)		
6. NMPs are receiving appropriate support or supervision in their prescribing role (e.g. local clinical supervision groups/ learning sets or peer-support groups)		
7. NMPs have an agreed scope of practice or equivalent and a copy of this is retained by the organisation		
8. NMP participate in regular clinical audit and reviews of their clinical services.		
9. There is an up to date non-medical prescribing policy in place		
10. There is a policy covering the use of unlicensed medicines, and medicines used outside the terms of their marketing authorisation?		
11. There is a Controlled Drug Policy that includes prescribing by non-medical prescribers and that reflects the most recent legislation, regulation and guidance		

12. The organisation has a policy for the reporting of adverse events, which is linked into the NPSA national system for reporting and learning and to the MHRA systems		
13. Employed staff have the non-medical prescribing role included in their contract of employment, job description or other relevant document for the purposes of vicarious liability		
14. There are clear lines of responsibility and accountability for overall quality of clinical care		
15. There is a mechanism in place to ensure the selection of suitable candidates for training		
16. Systems are in place to monitor patients' experience of non-medical prescribing		
17. Consideration has been given to cover for absence and succession planning		
18. Non-medical prescribers' access to computer-generated prescriptions and decision making support is supported as required for their role.		
19. Processes exist to support newly qualified prescribers to begin prescribing.		

31. Does your trust have a NMP committee?

- ☐ Yes
- ☐ No – finish questionnaire

32. If yes – who does the group report to? (*tick all that apply*)

- ☐ Directorate Meeting
- ☐ Medicines Management Committee
- ☐ Drugs and Therapeutics
- ☐ Clinical Governance Committee
- ☐ Management Team
- ☐ Pharmacy
- ☐ Trust Board Meeting

☐ Risk Management Committee

☐ None

☐ Other – please specify ……

- Any other comments about your experience as a NMP Lead: ……

……

……

……

……

11.6 HEI focus group interview guide

Welcome and thanks

Confirm agreement for recording – switch on!

Introduction/Ice breaker

Name, institution, role in course

HEI - Features of course – unidisc/joint (if so, who)? IP/SP/combined? Balance of F2F and other methods? Is the course integral in the wider school programmes or more 'stand-alone'?

DMP – first/one-time involvement, or several past trainees? Any involvement in teaching the course as well as being a DMP? How did you become involved?

Experience and evolution in providing NMP courses

How did you develop the course, and engage the staff?

How would you characterise the recruitment and retention of students? Diversity of pre-existing skills, reasons for drop-out; increasing or decreasing provision; increasing or decreasing demand for places?

What is the main positive and negative feedback you get from students? Do your students have a choice of course providers?

The in-practice experience

[To DMPs] The role of the DMP in the in-practice phase is valued highly by NMP students – how would you describe your role in the programme? How/why did you get involved? What is your experience of being involved?

[To DMPs and HEIs] How would you rate your communication with each other? Does the DMP need more information, or information of a different type to that currently offered? Formal enough?

What are the respective roles of HEI provision and learning with the DMP in clinical examination skills? What should learners' expectations be in this regard?

Changes – past and future

What are the main ways in which courses have changed in the light of experience and participant feedback? Impact of taking on more professional groups

What further changes are planned (if any)? F2F/open, pre-requisites

Challenges

What are the challenges in providing this programme to your students?

Diversity of participants –

- Different professional groups on joint courses (including extension to AHP); What are the benefits of joint courses?
- Primary and secondary care backgrounds
- Different specialist areas
- Differing entrance competencies eg in clinical assessment – any assumptions made?
- Capacity of the institution / local workforce

CPD post-qualification

Do you have any ongoing engagement with students completing the programme? [To all, but especially DMP] Do you feel that the majority of successful students go on to use the skills in practice?

What kind of CPD opportunities are available from your HEI to NMPs completing your programme? Is it an integral part of a career path for your students, and where does the path go next? If so, how are they advised to record CPD eg reflective portfolio? Specialist and/or generalist options?

Future of IP (**if time!**)

What challenges will extension of NMP to other professional groups eg AHPs bring for your programmes? (Further exploration)

What issues do you see around the prescribing of controlled drugs?

'Cool-down' - summary

What are you most proud of in your programme?

Any other questions / points we've missed?

Thank you – directions for lunch!

11.7 Case study sites approached

	Number of eligible NIPs/ PIPs identified from questionnaire survey	Number approached and asked to participate	Reason for declining
NIP, diabetes, Trust-wide	4	1	-
NIP, asthma, hospital site	8	5 Attempted to contact 3 NIPs - no response NIP 4 - contact made and agreed to participate but then stopped prescribing so recommended another NIP in the hospital who agreed to participate	Moved wards and was no longer prescribing as an IP
NIP, asthma, GP	9	1	-
NIP, diabetes, GP	25 21 (who had diabetes in their top 2 treatment areas that they prescribe for). But after difficulty recruiting in the geographical locations we wanted, this was extended to NIPs with diabetes as one of their top 4 treatment areas AND who worked in the north of England (4 eligible)	5 NIPs declined (from the original 21) others were not in geographical areas required. The 1st NIP approached in the 2nd round (north of England sites) agreed to participate	Sickness, insufficient time, manager declined participation
NIP, infection OOH	10	1	-
NIP, infection WiC	15	1	-
PIP, asthma, GP	10	5 - first 4 PIPs contacted declined to participate	Insufficient clinical time, swine flu pressures, already participating in another study, manager declined participation
PIP, diabetes, GP	12	6 - first 5 PIPs contacted declined to participate	Swine flu pressures, manager declined participation
PIP, CHD prevention, GP (x2)	22	5 -first 3 PIPs contacted declined to participate	About to change jobs, manager declined participation

11.8 Medication appropriateness index analysis: additional patient details pro forma

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UNIVERSITY OF Southampton

School of Health Sciences

Evaluation of Nurse and Pharmacist Independent

Date/Time	_____/_____/_____ ____:____ am/pm
Gender *(please circle)*	M F
Age	
C/O	
Diagnosis	

Prescribing

Record of Consultation

Prescription Details

Medication	Dose	Directions

Any other relevant information relating to the patient, diagnosis or prescription written (e.g. other conditions and/or medication) :_____

11.9 Medication appropriateness index: rating scale

Medication Appropriateness Index

Transcript number:

To assess the appropriateness of the prescribed medication, please answer the following questions and circle the applicable:

1. Is there an indication for the medication?	Indicated ☐ 1	Not indicated ☐ 2	Don't know ☐ 3	N/A ☐ 4
Comments:				
2. Is the medication effective for the condition?	Effective ☐ 1	Ineffective ☐ 2	Don't know ☐ 3	N/A ☐ 4
Comments:				
3. Is the dosage correct?	Correct ☐ 1	Incorrect ☐ 2	Don't know ☐ 3	N/A ☐ 4
Comments:				
4. Are the directions correct?	Correct ☐ 1	Incorrect ☐ 2	Don't know ☐ 3	N/A ☐ 4
Comments:				
5. Are the directions practical?	Practical ☐ 1	Impractical ☐ 2	Don't know ☐ 3	N/A ☐ 4
Comments:				

6. Are there any clinically significant medication interactions?	None Apparent ☐ 1	Significant & addressed by the prescriber ☐ 2	Significant & NOT addressed by the prescriber ☐ 3	Don't know ☐ 4	N/A ☐ 5
Comments:					
7. Are there clinically significant medication-disease/condition interactions?	None Apparent ☐ 1	Significant & addressed by the prescriber ☐ 2	Significant & NOT addressed by the prescriber ☐ 3	Don't know ☐ 4	N/A ☐ 5
Comments:					

8. Is there unnecessary duplication with other medication(s)?	None apparent ☐ 1	Unnecessary duplication ☐ 2	Don't know ☐ 3	N/A ☐ 4
Comments:				
9.Is the duration of therapy acceptable?	Acceptable ☐ 1	Unacceptable ☐ 2	Don't know ☐ 3	N/A ☐ 4
Comments:				
10. Is this drug the least expensive alternative compared to others of equal utility?	Least expensive ☐ 1	Not least expensive ☐ 2	Don't know ☐ 3	N/A ☐ 4
Comments:				

Overall comments on safety and effectiveness of the prescribing episode:

Adapted from Hanlon et al (1992)

Expert ID	

11.10 Medication appropriateness index: raters

Jennifer Aston	RCN Advanced Nurse Practitioner Forum
Tony Avery	University of Nottingham
Anne Baileff	Southampton City PCT
John Blenkinsopp	Keele University
Colin Bradley	University College Cork
Martin Duerden	Conwy Local Health Board
Tony Fielding	NHS Bristol
Lyn Hanning	NHS South West and University of Bath
Beth Hird	NHS Nottinghamshire County
Magnus Hir	Bloomfield Medical Centre, Blackpool
Martin Kendall	University of Birmingham
Neal Maskrey	National Prescribing Centre
David Millson	Royal College of General Practitioners
Bharat Patel	Walsall Community Health
Duncan Petty	University of Leeds
Fiona Reid	NHS Borders, NHS Fife, and NHS Lothian
Philip Routledge	University of Wales
Barry Strickland-Hodge	University of Leeds
Ross Taylor	GP
Janet Woods	GP Nurse Prescriber and National Prescribing Centre Plus

11.11 Clinical criteria: lower urinary tract infection

APPENDIX 1

Clinical condition: Lower urinary tract infection in non-pregnant women under 65

Clinical criteria[1]

Diagnosis (SIGN Section 2.1)	
Criterion 1	In women with vaginal itch or discharge, explore alternative diagnoses and consider pelvic examination. (SIGN 2.1)
Exceptions	None
Settings	All
Standard	100%
Definitions	None
Criterion 2	In patients presenting with symptoms of UTI who have a history of fever or flank/back pain the possibility of upper urinary tract infection should be considered. Empirical treatment with an antibiotic should be started and urine culture performed to guide the choice of antibiotic (SIGN 2.1)
Exceptions	Urine culture in services delivering emergency intervention (such as Out-of Hours)
Settings	All
Standard	100%
Definitions	Symptoms of UTI: • Dysuria • Urgency • Frequency • Polyuria • Suprapubic tenderness • Fever • Flank or back pain
Near patient testing (SIGN Section 2.2.3)	
Criterion 3	Dipstick tests should only be used to diagnose bacteriuria in women with no more than two symptoms.
Exceptions	None
Settings	All
Standard	100%
Definitions	None

[1] The clinical criteria were developed and adapted from the recommendations of the Scottish Intercollegiate Guidelines Network (SIGN) guideline 88 – *Management of suspected bacterial urinary tract infection in adults. A national clinical guideline*.

APPENDIX 1

Antibiotic treatment (SIGN Section 2.4 and 2.4.1)	
Criterion 4	Non-pregnant women with symptoms and signs of acute LUTI should be treated with trimethoprim or nitrofurantoin for 3 days. Quinolones should not be used for empirical treatment of LUTI.
Exceptions	Nitrofurantion – women with renal impairment
Settings	All
Standard	100%
Definitions	None
Criterion 5	Patients who do not respond to empirical antibiotic therapy should have urine sample taken for culture to guide change of antibiotic.
Exceptions	None
Settings	All
Standard	100%
Definitions	None

APPENDIX 2

Evaluation of nurse and pharmacist independent prescribing: Phase 2

Draft patient data collection tool for suspected bacterial LUTI in non-pregnant women between 16 years and 65 years

Adapted from SIGN Guideline 88: Management of suspected bacterial urinary tract infection in adults. July 2006

Complete one form per patient.

Site code:	Case number (1 to 40):

Criterion no.	Criterion	Yes	No	Not identified	SIGN guideline ref.
Filter questions					
1	Was the patient female? If 'No' or 'Not identified' - filter out. If 'Yes' – go to 2				
2	Was the patient pregnant? If 'Yes' or 'Not identified' - filter out. If 'No' - go to 3				
3	Was the patient under 65? If 'No' or 'Not identified' – filter out If 'Yes' - go to 4				2.2.3
4	Did the patient have vaginal itch or discharge? If 'Yes' or 'Not identified'– filter out If 'No'– go to 5				2.1
Assessment and diagnosis					
5	Were any of the following symptoms and signs identified? ○ dysuria ○ urgency ○ frequency ○ polyuria ○ suprapubic tenderness ○ fever ○ flank or back pain				2.1
6	Did the patient have fever and back pain?				2.1
7	Was a dipstick test carried out? If yes, was the result: ○ positive ○ negative or equivocal				2.2.3

APPENDIX 2

Management					
8	Where the patient had symptoms of UTI and a positive dipstick test: 8.1 Did the patient have a recent history of suspected bacterial LUTI? If Yes On that occasion, was the patient prescribed: ○ trimethoprim for three days ○ trimethoprim for less/more than three days ○ nitrofurantoin for three days ○ nitrofurantoin for less/more than three days ○ other: Please state Did the symptoms persist? If Yes: Was a urine sample taken for culture during this current consultation? Go to 8.2 If 'No' or 'Not stated': Go to 8.2 8.2 During this current consultation, was the patient prescribed: ○ trimethoprim for three days ○ trimethoprim for less/more than three days ○ nitrofurantoin for three days ○ nitrofurantoin for less/more than three days ○ other: Please state 8.3 Was the patient told what to do if the symptoms persisted?				2.2.3 2.4 2.2.3 2.4
9	Where the dipstick test was negative or equivocal: 9.1 Did the patient have a recent history of suspected bacterial LUTI? If Yes: On that occasion, was the patient prescribed: ○ trimethoprim for three days ○ trimethoprim for less/more than three days ○ nitrofurantoin for three days ○ nitrofurantoin for less/more than three days ○ other: Please state 9.2 Did the symptoms persist? If yes, was the need for further				2.4

	investigation indicated during this current consultation? 9.3 Was the patient offered empirical antibiotic treatment during this current consultation? If Yes: 9.4 Were the risks of treatment discussed with the patient and managed accordingly? 9.5 Was the patient prescribed: o trimethoprim for three days o trimethoprim for less/more than three days o nitrofurantoin for three days o nitrofurantoin for less/more than three days o Other: Please state				
10	Where nitrofurantoin was prescribed: 10.1 Was the patient asked about possible renal impairment 10.2 Was the patient advised against taking alkanalising agents (potassium citrate).				2.4

ENPIP

User Guide

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Please take time to read this user guide prior to using the data collection tool.
Version 1.2—July 2009

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CONTENTS

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1 INTRODUCTION

This user guide has been produced to assist you in using the ENPIP data collection tool. It is recommended that you read this guide fully before starting the data collection process.

You need to have a Microsoft excel installed on your computer to operate the data collection tool.

IMPORTANT – PLEASE UNDERTAKE STEP 2A BEFORE OPENING THE DATA COLLECTION TOOL FOR THE FIRST TIME

2 BEFORE USING THE AUDIT TOOL FOR THE FIRST TIME

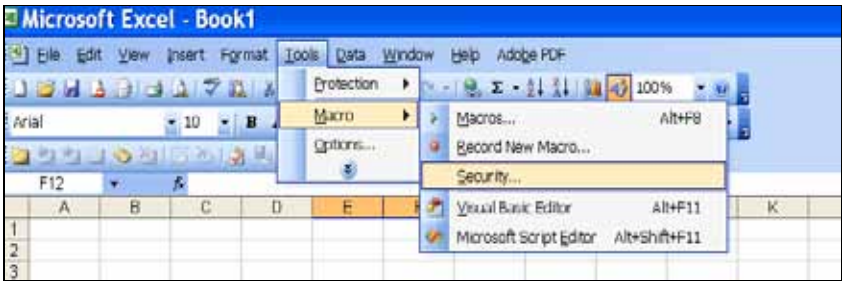
YOU NEED MAKE CERTAIN THAT 'MACROS' ARE ENABLED IN EXCEL

The data collection tool requires your excel macro security settings to be medium in order operate. Please undertake steps 2a and 2b in order to check this is in place prior to using the data collection tool.

2a) Open a new (BLANK) excel spreadsheet

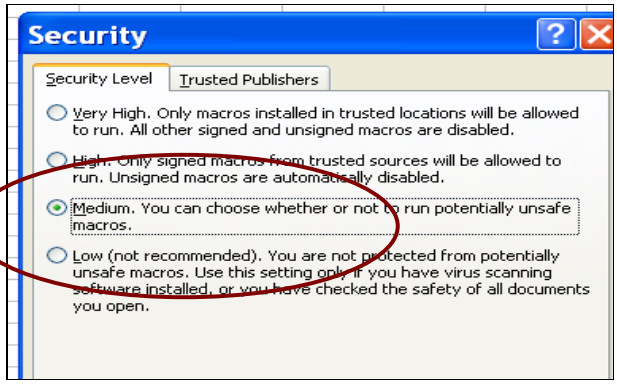
Select as per the diagram below.

– tools – macro – security



2b) Check security setting is 'medium'
You will need the security settings to be 'medium' in order to run macros. If this is not the case, you will need to select the 'medium' option and then click OK.

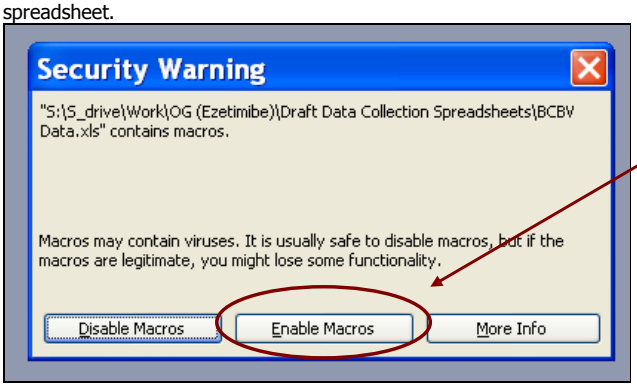
Please note: you should check with your IT administrator prior to changing any spreadsheet security settings.



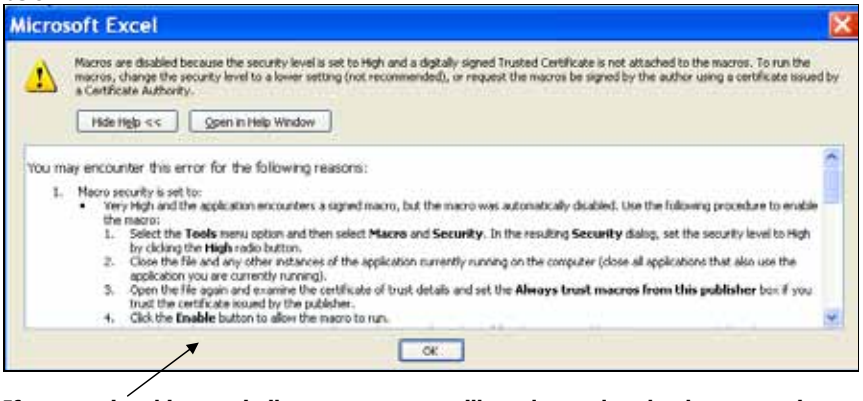
3 OPENING THE DATA COLLECTION TOOL

a. Enabling macros

When you attempt to open the spreadsheet, you may receive a security warning. If you receive the message below, you need to select the 'enable macros' button in order to operate the spreadsheet.



If your computer is set up with macros disabled, you will receive the message below.



If you receive this or a similar message, you will need to undertake the process in steps 2a and 2b.

b. Password to open

The spreadsheet is password protected to safeguard against unauthorised use.

Enter the password provided to you, and click 'OK'. **Please enter the password in lower case (not capital letters)**

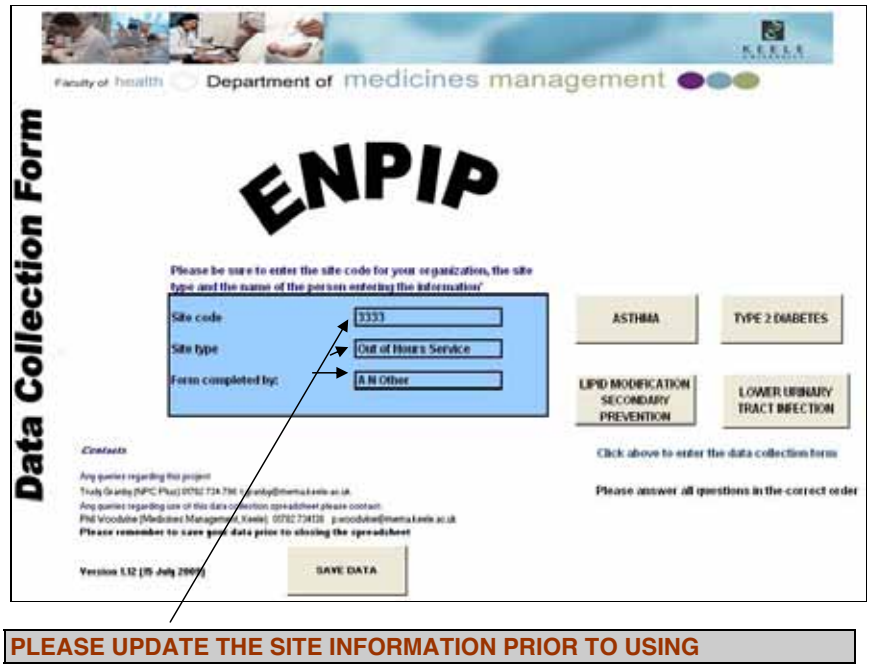
Password to open is: enpip09

4 THE MENU PAGE

When the user has entered the password, the spreadsheet opens as below. **The user then undertakes the following tasks (prior to data entry)**

- **A.** Double click your mouse in the **site code box** (where 3333 is displayed below) to allow you to clear the current data and enter your new site code.
- **B.** Double click your mouse in the **site type box** (where out of hours service is displayed below) to view a list of all sites. Click the site you want to select.
- **C.** Double click the **form completed by box**, clear the data and enter the name of the reviewer.
- **D.** Click the mouse **anywhere in the white, non-text area** to save the above.

Once you have completed these steps, select the clinical area that you are auditing (that is: asthma, type 2 diabetes, lipid modification – secondary prevention, lower urinary tract infection).



PLEASE UPDATE THE SITE INFORMATION PRIOR TO USING

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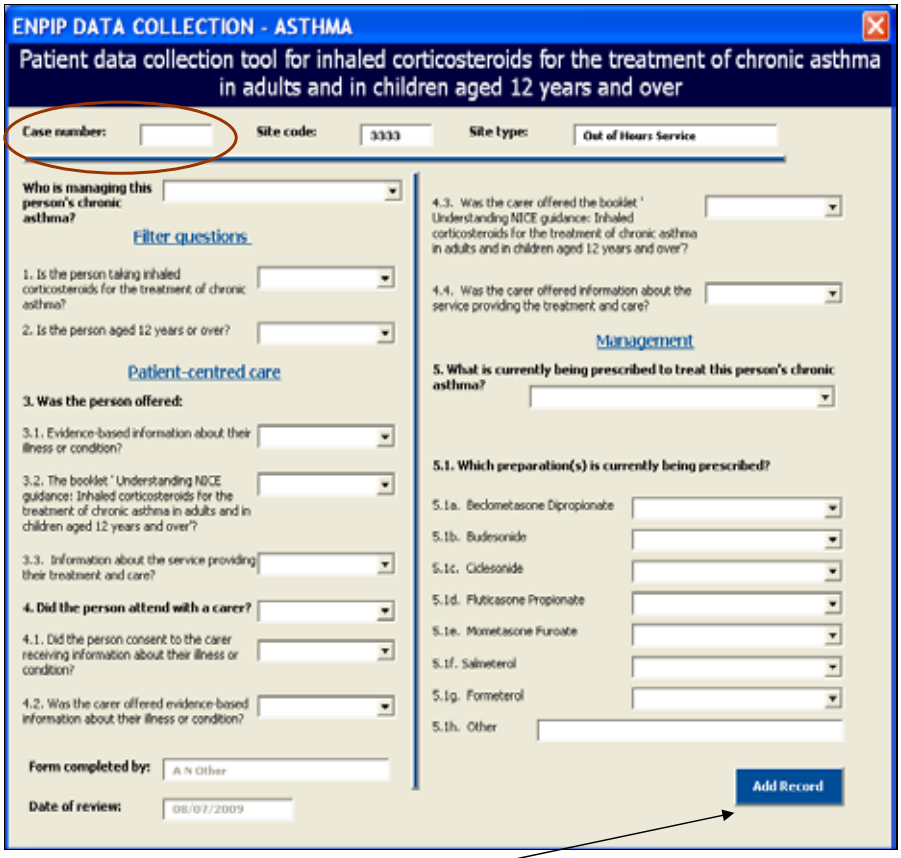
5 FOR THOSE SITES AUDITING INHALED CORTICOSTEROIDS FOR THE TREATMENT OF CHRONIC ASTHMA IN ADULTS AND CHILDREN AGED 12 YEARS AND OVER

Enter a case number 

. The 'site code' and 'site type' information are populated from the menu page.

Where you see an arrow  , click on this and select response from the list displayed. Where there is no arrow, type in your own response (where required).



Click to add record to the spreadsheet

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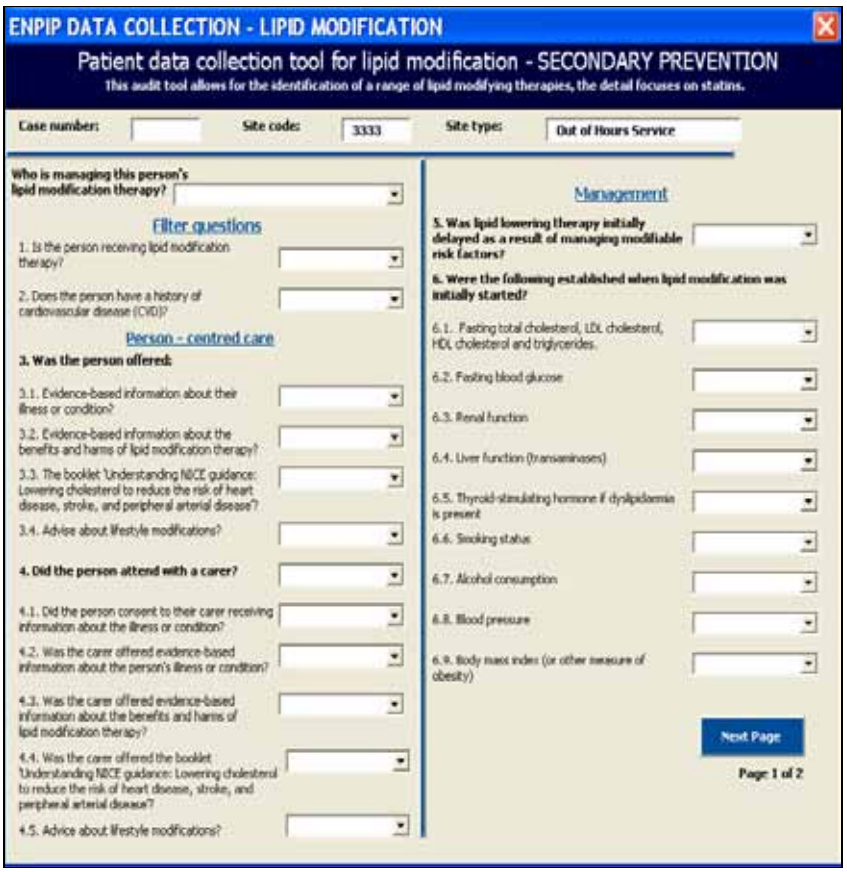
6 FOR THOSE SITES AUDITING LIPID MODIFICATION (SECONDARY PREVENTION)

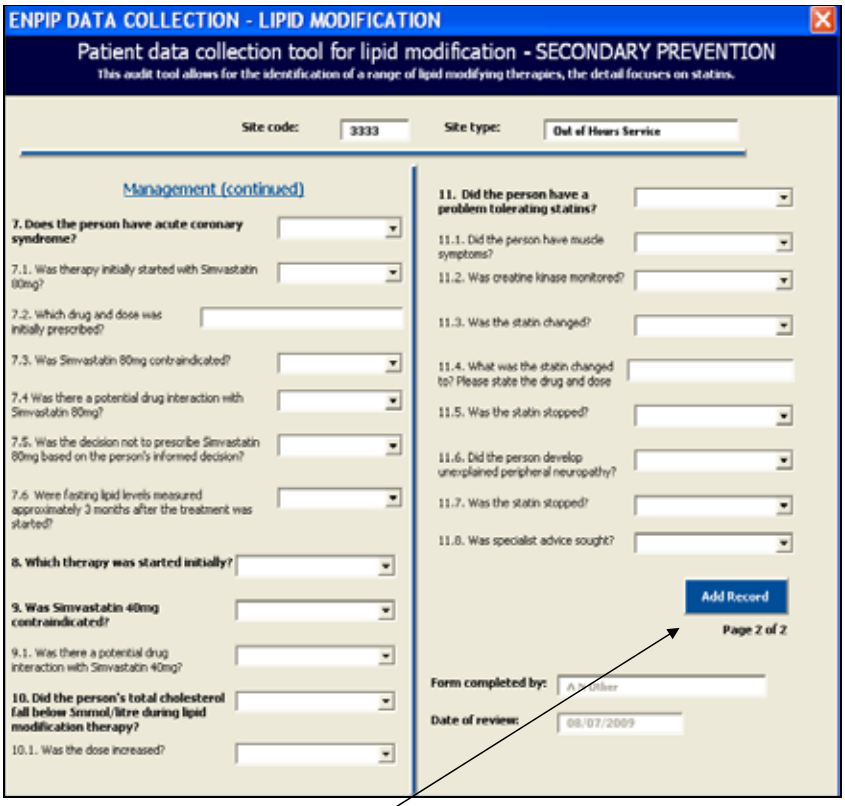
Enter a case number 

. The 'site code' and 'site type' information are populated from the menu page.

Where you see an arrow  , click on this and select response from the list displayed. Where there is no arrow, type in your own response (where required).



Click the 'next page' button to move to the second page



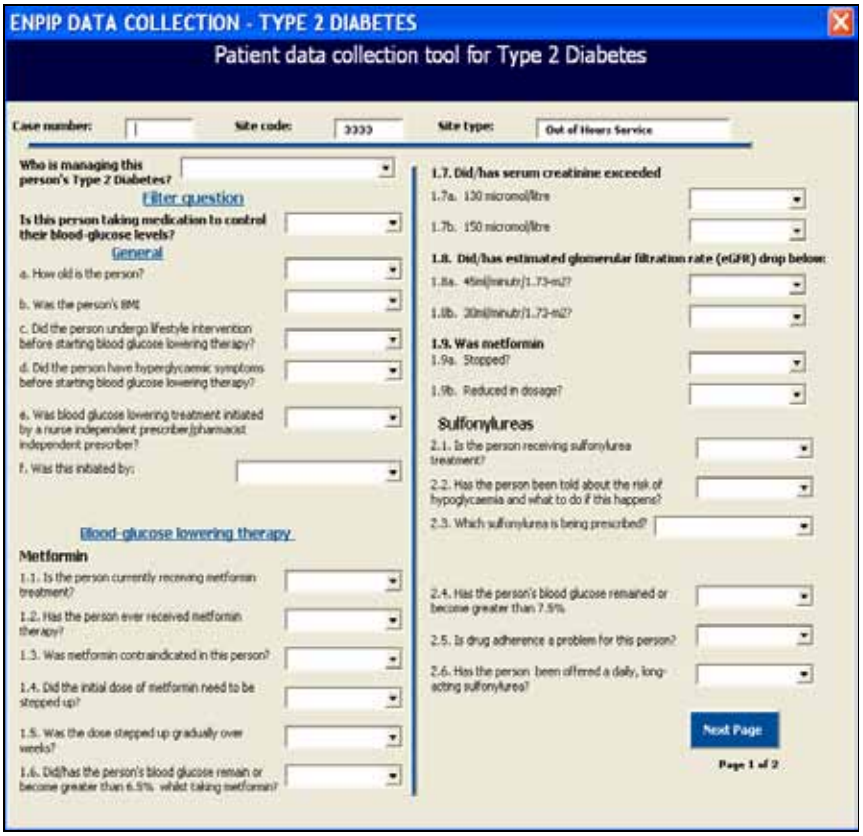
Click to add record to the spreadsheet

7 FOR THOSE SITES AUDITING TYPE 2 DIABETES

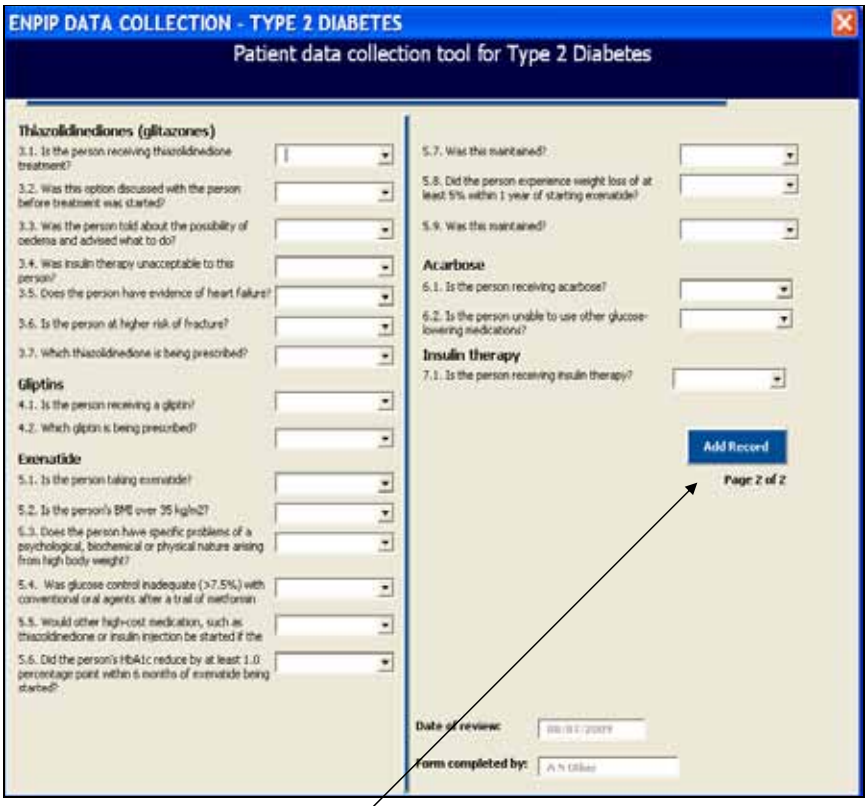
Enter a case number 

. The 'site code' and 'site type' information are populated from the menu page.

Where you see an arrow  , click on this and select response from the list displayed. Where there is no arrow, type in your own response (where required).



Click the 'next page' button to move to the second page



Click to add record to the spreadsheet

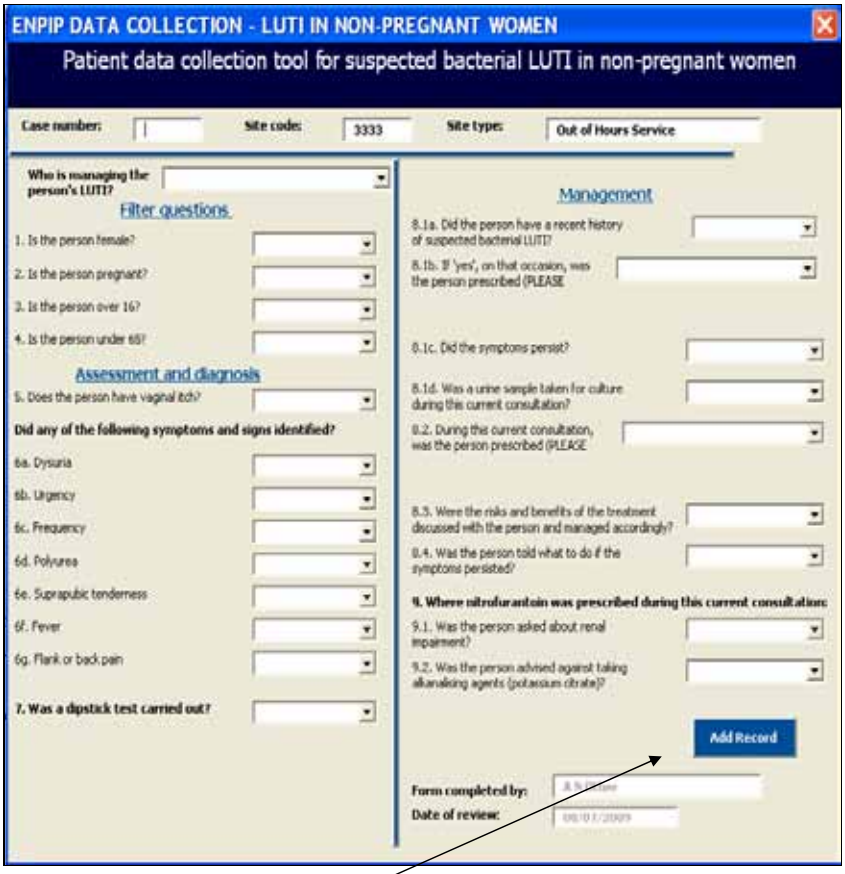
KEELE UNIVERSITY

8 FOR THOSE SITES AUDITING LOWER URINARY TRACT INFECTION (LUTI) IN NON – PREGNANT WOMEN

Enter a case number 

. The 'site code' and 'site type' information are populated from the menu page.

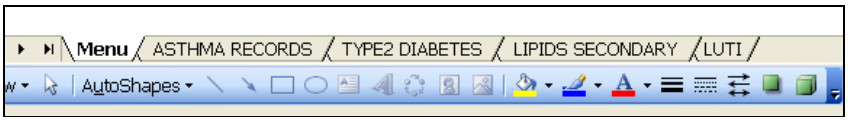
Where you see an arrow  , click on this and select response from the list displayed. Where there is no arrow, type in your own response (where required).



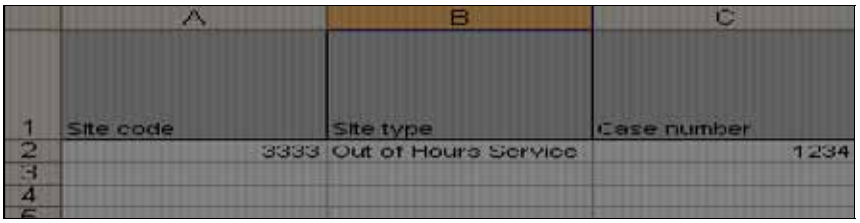
Click to add record to the spreadsheet

9 CHECKING AND/OR CHANGING DATA ENTERED

At the foot of the data collection tool, you will see a number of tabs. Select and click the required tab.



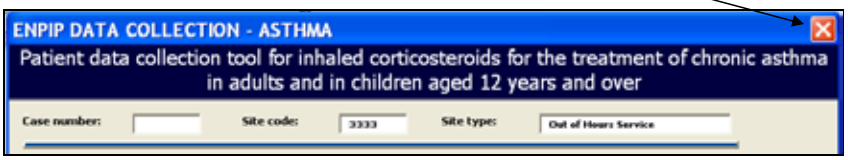
You can now view the data collected for this condition. If you need to amend any of the data, you can do this here.

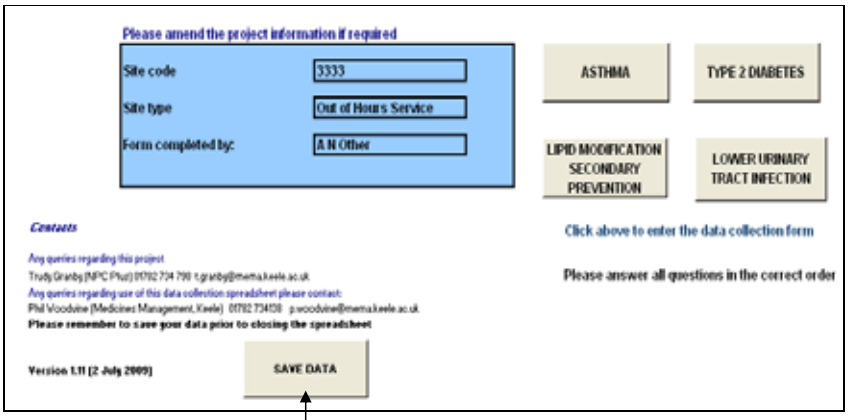


10 CLOSING

CLOSING THE DATA COLLECTION FORM

Click the cross at the top right hand side of the form. This will close the data collection form and return you to the main menu page.





From the menu page, click the 'save data' button. This will save the records entered into the spreadsheet prior to closing. You can now close down the spreadsheet as normal.

11 COMPLETION OF THE PROJECT

Once you have completed the project, please email the data collection spreadsheet back to Phil Woodvine at Keele University on the following email address:

p.wooodvine@mema.keele.ac.uk

You will be sent an email (within 2 working days) to confirm receipt of the spreadsheet. Please contact Keele should you not receive this confirmation.

12 CONTACTS

Please contact Trudy Granby or Phil Woodvine at Keele University, should you have any problems using the data collection tool, or have any queries on its use.

Trudy Granby:

Phone: 01782 734 798 **Email: t.granby@mema.keele.ac.uk**

Phil Woodvine

Phone: 01782 734138 **Email: p.woodvine@mema.keele.ac.uk**

11.14 Case record audit: pilot sites

Pilot site	Site code	Type of independent prescriber	Practice setting	Clinical condition	Patient inclusion criteria	
Dudley PCT	1	Pharmacist	GP practice	Lipid modification. Secondary prevention	Adults Prescribed lipid modification treatment for secondary prevention of cardiovascular disease	
		Nurse Pharmacist	Community	Asthma	Adults and children over 12 Chronic asthma Prescribed an inhaled corticosteroid	
University Hospitals Birmingham NHS Foundation Trust	2	Nurse	Hospital out-patient clinic	Type 2 diabetes	Adults Prescribed medication to control their blood glucose levels	
Birmingham and District General Practitioner Emergency Rooms Group	3	Nurse	Out of Hours	Lower urinary tract infection	Adult female Non-pregnant Prescribed medication for the treatment of LUTI	
North Staffordshire NHS Trust	4	Nurse	Community	Asthma	Adults and children over 12 Chronic asthma Prescribed an inhaled corticosteroid	
Ashton, Leigh and Wigan PCT	5	Nurse	Walk-in Centre	Lower urinary tract infection	Adult female Non-pregnant Prescribed medication for the treatment of LUTI	

11.15 Case record audit: pilot sites cover letter

APPENDIX 5

Evaluation of nurse and pharmacist independent prescribing: Phase 2

Piloting of the audit methodology

Background information
The Universities of Southampton and Keele are working in partnership to carry out an evaluation of nurse and pharmacist independent prescribing, commissioned by the Department of Health. The overall aim of this study is to evaluate the quality, safety and costs of nurse and pharmacist prescribing to inform planning for current and future prescribers.

The investigation consists of 3 phases. Phase 2 involves using multiple methods to provide data on quality and safety of nurse independent prescribing and pharmacist independent prescribing, its clinical effectiveness and its impact on patient experience, outcomes and preferences.

Audit of adherence to recognised prescribing standards for 4 pre-identified clinical conditions for which nurse and pharmacist independent prescribers frequently prescribe, will be one of the methods used to achieve the objectives of this phase of the study. The audit work will be carried out by NPC Plus, a department of the School of Pharmacy at Keele University.

This activity will be preceded by a pilot study to test reliability of the planned audit methodology. You have kindly agreed to help with piloting.

The 'Pilot'

The pilot is being carried out in a number of clinical settings and involves:
- extracting information from between three and six patient records, which will be anonymised, relating to one of the pre-identified conditions
- entering data into a specifically designed electronic audit tool, which utilises Microsoft Office Excel.
- returning the completed electronic file to the investigator at Keele University.

The data extraction:
- will be carried out by staff that you identify within your organisation
- is supported by a 'User Guide' (attached) and telephone/email access to the investigating body, should a query occur.
- should be completed by the date agreed between you and Keele.

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11.16 Case record audit: pilot sites feedback form

APPENDIX 6

Evaluation of nurse and pharmacist independent prescribing: Phase 2

Piloting of the audit methodology

Feedback Form

Dear Colleague, many thanks for helping with this work and for completing the data collection stage. I look forward to receiving your feedback. This form has been developed to guide this process.

However, as well as receiving your opinion and experiences on the following areas we are very interested in anything else you would like to tell us about this pilot.

Site code:		
Extracting information		
Was the patient information easy to extract from your systems?	Yes	No
If '**No**' - please outline the problem		
Please outline any other comments/suggestions about extracting information?		
The user guide		
Did the document download easily?	Yes	No
If '**No**' - please outline the problem		
Was the content clear, easy to understand and fit for purpose?	Yes	No
If '**No**' – how can we improve this?		
Please outline any other comments/suggestions about the 'User Guide'		

APPENDIX 6

The electronic data collection tool		
Did it download easily?	Yes	No
If '**No**' - please outline the problem		
Did it open easily?	Yes	No
If '**No**' - please outline the problem		
Was it easy use?	Yes	No
If '**No**' - please outline the problem		
Were the questions clear?	Yes	No
If '**No**' – how can we improve this?		
Please outline any other comments/suggestions about the electronic data collection tool		
Please outline anything else you want us to know about this pilot		
Please email to Trudy Granby (t.granby@mema.keele.ac.uk) by Friday 20th March2009 ***Many thanks for your feedback.***		

11.17 Discrete Choice Experiment: pilot evaluation form

KEELE UNIVERSITY
UNIVERSITY OF Southampton
School of Health Sciences

Survey of patients' experience of nurse prescribing
Evaluation Form

1. **Ease of completion. Was the survey:**

Easy to complete Difficult to complete Neither easy nor difficult

Comments:……

……

……

……

……

……

2. **Ease of comprehension. Was the survey:**

Easy to understand Neither easy nor difficult Difficult to understand

Comments: Please tell us about any questions that (if any) were particularly difficult to understand:

……

……

……

……

……

Please Turn Over

3. **Length of survey. Was the survey:**

Too short About right Too long

Comments: If 'too short' please suggest topics that we need to include and if 'too long' please suggest question which in your opinion could be omitted:

……

……

……

4. **Confidentiality. Did you feel able to answer the survey honestly:**

Yes, fully Yes, mostly No, mostly not No, not at all

Comments: Please tell us about specific questions (if any) where you had difficulty in being honest about your response:

.. ……

……

……

5. **Survey Design**

Please comment on any other aspects of the survey design that in your opinion could be improved (e.g. layout, content, etc):

……

……

……

11.18 Discrete Choice Experiment: questionnaires

UNIVERSITY OF Southampton
School of Health Sciences

Evaluation of Nurse and Pharmacist Independent Prescribing

Questionnaire on Patient Preferences

We are carrying out this survey at different GP surgeries and some other health services and would like your views on some aspects of prescribing medicines.

Please complete this questionnaire as you wait for your appointment and then return it to the researcher present or to reception.

Participation is voluntary. If you decide not to take part, it would be appreciated if you would return the blank questionnaire to reception.

Thank you for your time and co-operation.

For office use only

Site ID			Patient ID				

PART 1: MAKING CHOICES FOR MANAGING HIGH BLOOD PRESSURE

How to fill in questions on making choices in Parts 1 & 2

We ask you to IMAGINE you have a particular health problem and to look at some choices for getting help. We ask that you choose which alternative you MOST PREFER, *even if none seem ideal*. There is no right or wrong answer, only your personal opinion. We realise you might make different choices in real life but what you choose is important to us.

We begin by giving an example.

HEALTH PROBLEM
Imagine you have had high blood pressure (hypertension) for some time and it is now time for your regular review at your general practice surgery. This will involve your blood pressure being measured and may involve some changes to your medication.

At the time when you make your appointment you are offered different options. These vary according to:

- Who you see
- Length of consultation
- Understanding the professional's words & explanations about your medicines
- Attention the professional pays to your views on medicines (that you take now or might be considering)
- What your health review covers

Here is an example of a choice with 3 appointment options.

Example choice	**Prescribing pharmacist**	**Your own doctor**	**Available doctor**
Length of consultation	***20** min*	***10** min*	***10 min***
Professional's words & explanations about your medicines	***easy*** to understand	***difficult*** to understand	***difficult*** to understand
Attention paid by professional to your views about medicines	appears ***to listen***	appears ***not to listen***	appears ***not to listen***
Health review covers	both ***high blood pressure*** and ***overall health*** condition	both ***high blood pressure*** and ***overall health*** condition	only ***high blood pressure***
Which would you choose? Tick one box only	☑	☐	☐

In the example the individual ticked the first box to show they most preferred to see a prescribing pharmacist for 20 minutes in a consultation where the professional's words and explanations were easy to understand, the patient's views appeared to be listened to and the review covered both their blood pressure and general health.

Now you are ready to answer the next 5 choices. Remember there is no right or wrong answer. It is only your personal opinion that matters. Assume any other factors about the options offered are the same.

HEALTH PROBLEM
Imagine you have had high blood pressure (hypertension) for some time and it is now time for your regular review at your general practice surgery. This will involve your blood pressure being measured and may involve some changes to your medication.

You make an appointment for your review.
Answer the 5 choices below by ticking the option you most prefer; the third option in each case is the same.

Choice 1	**Prescribing pharmacist**	**Your own doctor**	**Available doctor**
Length of consultation	***5 min***	***10 min***	***10 min***
Professional's words & explanations about your medicines	***difficult*** to understand	***easy*** to understand	***easy*** to understand
Attention paid by professional to your views about medicines	appears ***not to listen***	appears ***to listen***	appears ***to listen***
Health review covers	only ***high blood pressure***	both ***high blood pressure*** and ***overall health*** condition	both ***high blood pressure*** and ***overall health*** condition
Which would you choose? Tick one box only	☐	☐	☐

Choice 2	**Prescribing pharmacist**	**Your own doctor**	**Available doctor**
Length of consultation	***10 min***	***15 min***	***10 min***
Professional's words & explanations about your medicines	***easy*** to understand	***difficult*** to understand	***easy*** to understand
Attention paid by professional to your views about medicines	appears ***not to listen***	appears ***to listen***	appears ***to listen***
Health review covers	both ***high blood pressure*** and ***overall health*** condition	only ***high blood pressure***	both ***high blood pressure*** and ***overall health*** condition
Which would you choose? Tick one box only	☐	☐	☐

Choice 3	Prescribing pharmacist	Your own doctor	Available doctor
Length of consultation	***15 min***	***20 min***	***10 min***
Professional's words & explanations about your medicines	***easy*** to understand	**difficult** to understand	***easy*** to understand
Attention paid by professional to your views about medicines	appears ***to listen***	appears ***not to listen***	appears ***to listen***
Health review covers	only ***high blood pressure***	both ***high blood pressure*** and ***overall health*** condition	both ***high blood pressure*** and ***overall health*** condition
Which would you choose? Tick one box only	☐	☐	☐

Choice 4	Prescribing pharmacist	Your own doctor	Available doctor
Length of consultation	***20 min***	***20 min***	***10 min***
Professional's words & explanations about your medicines	***easy*** to understand	***difficult*** to understand	***easy*** to understand
Attention paid by professional to your views about medicines	appears **not *to listen***	appears ***not to listen***	appears ***to listen***
Health review covers	only ***high blood pressure***	only ***high blood pressure***	both ***high blood pressure*** and ***overall health*** condition
Which would you choose? Tick one box only	☐	☐	☐

Choice 5	Prescribing pharmacist	Your own doctor	Available doctor
Length of consultation	***20 min***	***5 min***	***10 min***
Professional's words & explanations about your medicines	***difficult*** to understand	***easy*** to understand	***easy*** to understand
Attention paid by professional to your views about medicines	appears ***to listen***	appears ***not to listen***	appears ***to listen***
Health review covers	both ***high blood pressure*** and ***overall health*** condition	only ***high blood pressure***	both ***high blood pressure*** and ***overall health*** condition
Which would you choose? Tick one box only	☐	☐	☐

PART 2: MAKING CHOICES FOR MANAGING HEADACHE AND FEVER

Now we want to ask you another set of 5 choices but this time thinking about a different health problem.

HEALTH PROBLEM
Imagine you have a headache and fever, your bones are aching and your throat is sore. You are still able to do all the things you usually do but are more tired than usual. The symptoms started to appear about 3 days ago and were slightly worse when you woke up this morning. Your symptoms won't get better quickly without help from a professional about your diagnosis and their advice including any prescription medicine to treat the condition. PLEASE NOTE THIS IS NOT A CASE OF SWINE FLU.

In this situation you have different options for getting help. They vary according to:

- Who you see (your own family doctor, a prescribing nurse at the surgery or prescribing nurse at a nearby Walk-in-Centre - this offers immediate access to a nurse for advice/treatment of minor illness/injury and is has extended opening hours 7 days a week
- How accessible the professional is; whether you need to pre-book an appointment or not
- Length of consultation
- Professional's attention paid to your views on problem and possible use of prescription medicines
- What the professional does to help you

In this situation you may also choose not to do anything and wait to see if the symptoms eventually get better.

Please tick the option you most prefer in each set of choices below.

Choice 6	**Prescribing nurse**	**Your own doctor**	
Accessibility	see ***same day*** at WIC	see ***2 days later*** at surgery	
Length of consultation	***10 min***	***10 min***	
Professional's attention to your views on problem/medicines	appears ***not to listen***	appears to ***listen***	
Help offered by professional	only ***diagnosis***	***diagnosis*** and ***medicines advice***	
Which would you choose? Tick one box only	**Prescribing nurse** ☐	**Your own doctor** ☐	**Do nothing** ☐

Choice 7	**Prescribing nurse**	**Your own doctor**	
Accessibility	see ***next day*** at surgery	see ***next day*** at surgery	
Length of consultation	***20 min***	***15 min***	
Professional's attention to your views on problem/medicines	appears to ***listen***	appears ***not to listen***	
Help offered by professional	only ***diagnosis***	***diagnosis*** and ***medicines advice***	
Which would you choose? Tick one box only	**Prescribing nurse** ☐	**Your own doctor** ☐	**Do nothing** ☐

Choice 8	**Prescribing nurse**	**Your own doctor**	
Accessibility	see ***same day*** at WIC	see ***2 days later*** at surgery	
Length of consultation	***30 min***	***20 min***	
Professional's attention to your views on problem/medicines	appears to ***listen***	appears ***not to listen***	
Help offered by professional	***diagnosis*** and ***medicines advice***	only ***diagnosis***	
Which would you choose? Tick one box only	**Prescribing nurse** ☐	**Your own doctor** ☐	**Do nothing** ☐

Choice 9	**Prescribing nurse**	**Your own doctor**	
Accessibility	see ***same day*** at WIC	see ***2 days later*** at surgery	
Length of consultation	***10 min***	***20 min***	
Professional's attention to your views on problem/medicines	appears to **listen**	appears ***not to listen***	
Help offered by professional	***diagnosis*** and ***medicines advice***	only ***diagnosis***	
Which would you choose? Tick one box only	**Prescribing nurse** ☐	**Your own doctor** ☐	**Do nothing** ☐

Choice 10	**Prescribing nurse**	**Your own doctor**	
Accessibility	see ***next day*** at surgery	see ***next day*** at surgery	
Length of consultation	***40 min***	***5 min***	
Professional's attention to your views on problem/medicines	appears ***not to listen***	appears to ***listen***	
Help offered by professional	***diagnosis*** and ***medicines advice***	only ***diagnosis***	
Which would you choose? Tick one box only	**Prescribing nurse** ☐	**Your own doctor** ☐	**Do nothing** ☐

PART 3: ABOUT YOU

As different people have different priorities we need to know a bit about you.
Answer all questions about you by ticking the appropriate boxes or writing in the space provided.

3.1 Are you Female ☐ [1] Male ☐ [2]

3.2 What is your age _____years

3.3 Have you got a chronic disease? Yes ☐ [1] No ☐ [2]

("Chronic disease" means a disease of long duration involving slow change, for which you receive a repeat prescription, i.e. diabetes)

3.4 Have you attended today expecting to get a prescription written? Yes ☐ [1] No ☐ [2]

3.5 If yes, who are you seeing to get the prescription from? GP ☐ [1] Nurse ☐ [2] Pharmacist ☐ [3]

3.6 In the past have you ever had your medicines prescribed by

Nurse ☐ [1] Pharmacist ☐ [2] Both ☐ [3] Don't know ☐ [4]

3.7 Do you normally pay for your NHS prescription? Yes ☐ [1] No ☐ [2]

3.8 How do you rate your health state today?

Very good ☐ [1] Good ☐ [2] Neither good nor poor ☐ [3] Poor ☐ [4] Very poor ☐ [5]

3.9 Estimate your annual household income from all sources
(income is before deducting tax and national insurance and includes any benefits and pensions)

Up to £20,000 ☐ [1] £21,000 - £40,000 ☐ [2] More than £40,000 ☐ [3]

3.10 On the following scale indicate how you found this questionnaire to complete

Very easy ☐ [1] Easy ☐ [2] Neither easy nor difficult ☐ [3] Difficult ☐ [4]
Very difficult ☐ [5]

3.11 Are there any comments you would like to make either about the questionnaire or your experience of prescription medicines?

THANK YOU FOR COMPLETING THE QUESTIONNAIRE
NOW HAND QUESTIONNAIRE BACK TO RESEARCHER OR TO RECEPTION

11.19 Discrete Choice Experiment: designs statistical properties

Table 11.19.1: Choice set of 16 profiles from *www.research.att.com/~njas/oadir/* and second set using foldover technique – attribute levels as design codes

choice	alternative	attr1	attr2	attr3	attr4
1	1	0	0	0	0
1	2	1	1	1	1
2	1	0	1	1	1
2	2	1	0	0	2
3	1	0	0	0	2
3	2	1	1	1	3
4	1	0	1	1	3
4	2	1	0	0	0
5	1	1	0	1	2
5	2	0	1	0	3
6	1	1	1	0	3
6	2	0	0	1	0
7	1	1	0	1	0
7	2	0	1	0	1
8	1	1	1	0	1
8	2	0	0	1	2
9	1	0	0	0	3
9	2	1	1	1	0
10	1	0	1	1	2
10	2	1	0	0	3
11	1	0	0	0	1
11	2	1	1	1	2
12	1	0	1	1	0
12	2	1	0	0	1
13	1	1	0	1	1
13	2	0	1	0	2
14	1	1	1	0	0
14	2	0	0	1	1
15	1	1	0	1	3
15	2	0	1	0	0
16	1	1	1	0	2
16	2	0	0	1	3

Table 11.19.2: Choice sets according to blocks (or questionnaire versions)

BLOCK1					
choice	**alternative**	**attr1**	**attr2**	**attr3**	**attr4**
1	1	0	0	0	0
1	2	1	1	1	1
2	1	1	1	0	1
2	2	0	0	1	2
3	1	0	1	1	2
3	2	1	0	0	3
4	1	1	0	1	3
4	2	0	1	0	0
BLOCK2					
choice	**alternative**	**attr1**	**attr2**	**attr3**	**attr4**
1	1	0	1	1	1
1	2	1	0	0	2
2	1	1	0	1	0
2	2	0	1	0	1
3	1	0	0	0	3
3	2	1	1	1	0
4	1	1	1	0	2
4	2	0	0	1	3
BLOCK3					
choice	**alternative**	**attr1**	**attr2**	**attr3**	**attr4**
1	1	0	0	0	2
1	2	1	1	1	3
2	1	1	1	0	3
2	2	0	0	1	0
3	1	0	1	1	0
3	2	1	0	0	1
4	1	1	0	1	1
4	2	0	1	0	2
BLOCK4					
choice	**alternative**	**attr1**	**attr2**	**attr3**	**attr4**
1	1	0	1	1	3
1	2	1	0	0	0
2	1	1	0	1	2
2	2	0	1	0	3
3	1	0	0	0	1
3	2	1	1	1	2
4	1	1	1	0	0
4	2	0	0	1	1

Table 11.19.3: Correlation matrix

Correlations					
		Attribute1	**Attribute2**	**Attribute3**	**Attribute4**
attribute1	Pearson Correlation	1.000	.000	.000	.000
	Sig. (2-tailed)		1.000	1.000	1.000
	N	32.000	32	32	32
attribute2	Pearson Correlation	.000	1.000	.000	.000
	Sig. (2-tailed)	1.000		1.000	1.000
	N	32	32.000	32	32
attribute3	Pearson Correlation	.000	.000	1.000	.000
	Sig. (2-tailed)	1.000	1.000		1.000
	N	32	32	32.000	32
attribute4	Pearson Correlation	.000	.000	.000	1.000
	Sig. (2-tailed)	1.000	1.000	1.000	
	N	32	32	32	32.000

Table 11.19.4: Level balance

Attribute 1 - levels					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	16	50	50	50
	1	16	50	50	100
	Total	32	100	100	
Attribute 2 - levels					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	16	50	50	50
	1	16	50	50	100
	Total	32	100	100	
Attribute 3 - levels					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	16	50	50	50
	1	16	50	50	100
	Total	32	100	100	
Attribute 4 - levels					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	8	25	25	25
	1	8	25	25	50
	2	8	25	25	75
	3	8	25	25	100
	Total	32	100	100	

Table 11.19.5: D error

	Design A
DERR	0.385896
Defficiency	2.591369

11.20 Discrete Choice Experiment: models tests and further analyses

11.20.1. Alternative models and how to choose the preferred model for analysis

Alternative econometric models for analysing multiple-choice data have been applied in health care to include conditional logit, nested and mixed logit models (Louviere *et al.*, 2000; Hensher *et al.*, 2005). At first the conditional model was applied (i) and then the IIA assumption validity was tested with Hausman test (ii). Nested (iii) and mixed logit (iv) models were then applied and the best model for the data was chosen.

(i) Conditional logit model (CL)

The CLM assumes that: the alternatives available are perfect substitutes; there is no hereogeneity across individuals and unobserved factors are independent over time for each respondent. Utility equations and results are reported in the main text for both hypertension and infection vignettes. Alternative CLMs, including the model without socioeconomic covariates (basic model) and the others including additional covariates, were compared looking at adjusted rho-squared. It measures the proportion of the variation in the dependent variable accounted for by the explanatory variables (Group for the users of the Biogeme software package *http://biogeme.epfl.ch* - Discrete choice models). The higher the adjusted rho-squared was the better goodness of fit was reported by that particular model.

Hypertension and headache and fever vignettes

The added covariates did not have any impact on the magnitude, direction or significance of the parameters estimates for the basic model. When moving to alternative CL modellings the increased in goodness of fit was minimal or null. Results were comparable across groups (see Tables A3.1 and A3.2).

Table 11.20.1: Comparative models (managing hypertension)

	All respondents passing consistency test	Sub-group with past experience	Sub-group without past experience
MNL basic			
No. estimated parameters	6	6	6
Final log-likelihood	-856.736	-331.711	-400.472
Adjusted rho-square	0.441	0.414	0.449
MNL including health covariates			
No. estimated parameters	14		
Final log-likelihood	-844.082		
Adjusted rho-square	0.444		
MNL including past experience covariate			
No. estimated parameters	8		
Final log-likelihood	-855.227		
Adjusted rho-square	0.441		
MNL including health and past experience covariates			
No. estimated parameters	16		
Final log-likelihood	-842.38		
Adjusted rho-square	0.444		
MNL including health and chronic covariates			
No. estimated parameters	16		
Final log-likelihood	-838.939		
Adjusted rho-square	0.446		
MNL including health, age, pay and chronic covariates			
No. estimated parameters	20		
Final log-likelihood	-829		
Adjusted rho-square	0.45		

Table 11.20.2: Comparative models (managing headache and fever)

	All respondents passing consistency test	Sub-group with past experience	Sub-group without past experience
MNL basic			
No. estimated parameters	10	10	10
Final log-likelihood	-1079.919	-184.3	-688.701
Adjusted rho-square	0.289	0.388	0.295
MNL including health covariates			
No. estimated parameters	18		
Final log-likelihood	-1073.103		
Adjusted rho-square	0.288		
MNL including past experience covariate			
No. estimated parameters	12		
Final log-likelihood	-1075.661		
Adjusted rho-square	0.290		
MNL including past experience, health, chronic and female covariates			
No. estimated parameters	18		
Final log-likelihood	-1068.999		
Adjusted rho-square	0.291		
MNL including past experience, pay and health covariates			
No. estimated parameters	22		
Final log-likelihood	-1067.905		
Adjusted rho-square	0.289		

(ii) Hausman test

The CLM assumes that all alternatives are equal substitutes (Louviere *et al.*, 2000; Hensher *et al.*, 2005). If the IIA assumption is not true, experimental findings may be biased and lead to incorrect predictions. Therefore, it is important to examine whether some alternatives compete with each other more than with other alternatives, thereby violating the IIA assumption. The Hausman test was used to check the existence of IIA (Hensher *et al.*, 2005). Since the IIA was rejected (i.e. Hausmann test significant at 95%) less restrictive models were also considered (e.g. NLM or MLM).

(iii) Relaxing IIA with Nested logit model (NL)

A partial solution to the IIA assumption is to use the nested logit model (NLM; Louviere *et al.*, 2000; and Hensher *et al.*, 2005). Here alternatives are grouped such that the assumption of perfect substitution is valid within nests but not between nests. For both vignettes three alternative modellings were compared as reported below.

Managing hypertension

The new proposals are closer substitutes than the 'any doctor at the surgery' (nested model 1); 'your own doctor' and 'any doctor at the surgery' alternatives are closer substitutes than 'prescribing pharmacist' (nested model 2); 'prescribing pharmacist' and 'any doctor at the surgery' are closer substitutes than 'your own doctor' (nested model 3).

Managing headache and fever

The new proposals are closer substitutes than the 'do nothing' one (nested model 1); 'your own doctor' and 'do nothing' alternatives are closer substitutes than 'prescribing nurse'(nested model 2); 'prescribing nurse' and 'do nothing' are closer substitutes than 'your own doctor' (nested model 3).

Each pattern implies a different econometric method of analysis. The most appropriate model can be selected by considering the inclusive value parameter (IVP) value. The "inclusive value parameter (IVP)" measures the degree of independence in unobserved utility among the alternatives within the nest, N. To be consistent with maximisation utility theory it has to lie between 0 and 1, with 0 approaching two separate choice models and 1 a MNL model (Greene, 2003). Testing for ĐN = 1 is equivalent to testing whether the CLM is a better model specification than the more general NLM (see Hausman test). The utility functions to model the choice across alternatives within each nest are the same as presented for the conditional logit model. More details on nested logit models are presented elsewhere (Hensher *et al.*, 2005).

Results from both hypertension and headache and fever vignettes showed that the nesting structures were not suitable for analysis (see Tables 11.20.3 and 11.20.4). None of the three nested logit models presented a positive IVP statistically different both from 0 and from 1 at 95% level.

Table 11.20.3: Further comparative models (managing hypertension)

	All respondents passing consistency test	**Sub-group with past experience**	**Sub-group without past experience**
Nested model 1			
Number of estimated parameters	7	7	7
Final log-likelihood	-856.681	-331.705	-400.392
Adjusted rho-square	0.44	0.413	0.448
IVP (t test 0, p value)	0.6 (0.61)	0.8 (0.66)	0.3 (0.86)
IVP (t test 1, p value)	0.6 (0.84)	0.8 (0.93)	0.3 (0.90)
Nested model 2			
Number of estimated parameters	7	7	7
Final log-likelihood	-856.69	-331.66	-400.47
Adjusted rho-square	0.44	0.413	0.448
IVP (t test 0, p value)	0.9 (<0.01)	0.8 (0.03)	1 (<0.01)
IVP (t test 1, p value)	0.9 (0.77)	0.8 (0.75)	1 (1)
Nested model 3			
Number of estimated parameters	7	7	7
Final log-likelihood	-856.74	-331.71	-400.45
Adjusted rho-square	0.44	0.413	0.448
IVP (t test 0, p value)	1 (1)	1 (<0.01)	0.9 (0.06)
IVP (t test 1, p value)	1 (1)	1 (1)	0.9 (0.84)
Mixed logit model			
Number of estimated parameters	10	10	10
Final log-likelihood	-855.805	-330.227	-400.064
Adjusted rho-square	0.439	0.410	0.445

Table 11.20.4: Further comparative model (managing headache and fever)

	All respondents passing consistency test	Sub-group with past experience	Sub-group without past experience
Nested model 1			
Number of estimated parameters	11	11	11
Final log-likelihood	-1077.79	-184.3	-687.766
Adjusted rho-square	0.29	0.385	0.295
IVP (t test 0, p value)	0.19 (0.61)	1 (<0.01)	0.1 (1)
IVP (t test 1, p value)	0.19 (0.68)	1 (0.54)	0.1 (<0.01)
Nested model 2			
Number of estimated parameters	11	11	
Final log-likelihood	-1079.789	-184.3	-687.873
Adjusted rho-square	0.288	0.385	0.295
IVP (t test 0, p value)	0.9 (<0.01)	1 (<0.01)	0.8 (<0.01)
IVP (t test 1, p value)	0.9 (0.62)	1 (1)	0.8 (0.22)
Nested model 3			
Number of estimated parameters	11	11	
Final log-likelihood	-1079.919	-184.255	-688.701
Adjusted rho-square	0.288	0.385	0.294
IVP (t test 0, p value)	1 (<0.01)	0.9 (0.04)	1 (<0.01)
IVP (t test 1, p value)	1 (1)	0.9 (0.77)	1 (1)
Mixed logit model			
Number of estimated parameters	18		
Final log-likelihood	-1075.005		
Adjusted rho-square	0.287		

(iv) Relaxing IIA with Mixed logit model (MXL)

Another type of logit model applied is the Mixed Logit (ML; Louviere *et al.*, 2000; and Hensher *et al.*, 2005). It relaxes the IIA assumption introducing hetereogeneity across individuals and allowing for multiple observations for each respondent.

Managing hypertension

The utility function can be reorganised as follow:

$V_{ni} = ASC_{ni} + b\square_{ni}$

where

V_{ni}= utility for person n and alternative i, where i can be PH = 'prescribing pharmacist' or yourGP ='Your own family doctor' (compared with 'any family doctor');

ASC_{ni} is the constant term for person n and a particular alternative (ASC_{PH} or ASCyourGP; compared with 'any family doctor');

b =□ (fixed attributes) + □ (random attributes).

The model tested assumed all attributes as random (LENGHT, WORDS, ATTENTION, and REVIEW). A normal distribution was applied to all variables. The simulation process was conducted considering 150 draws.

Managing headache and fever

In this case the utility function V_{ni} described the following NURSE = 'prescribing nurse' or yourGP ='Your own family doctor' alternatives (compared with 'do nothing'). All the regression coefficients were considered as random (ACCESSnurse; LENGHTnurse; ATTENTION; HELP; ACCESSyourgp; LENGHTyourgp). A normal distribution was applied to all variables. The simulation process was conducted considering 150 draws.

Hypertension and headache and fever vignettes

When comparing MLM with CLMs or NLM, the adjusted rho-squared statistics informed the choice of the most appropriate model. The mixed logit model investigated did not present better goodness of fit compared with conditional or nested models (see Tables 11.20.1–11.20.4). Results were consistent across groups.

Overall, the CLM was the preferred modelling to fit the hypertension vignette data when compared to alternative NLMs or MLM, regardless of respondent experience of a prescribing pharmacist service.

11.21 Patient experience survey questionnaire

Survey of patients' experience of nurse prescribing

Dear Service User

As a patient who has had consultations with a nurse or pharmacist prescriber we would like you to take part in this survey exploring patients' views and experiences. You have been given a Patient Information Leaflet about the survey. Please be assured that we will keep any response you give to this survey secure and confidential. No findings that could identify you will be reported or published.

Your information will not be shared with any health care professional

If you wish to take part, please allow 15 minutes to complete this brief questionnaire and put it into the locked box at the reception desk.

Or you can post it back to us using the FREEPOST envelope.
No stamp needed.

If this is your FIRST EVER consultation with a nurse prescriber please complete the questionnaire after your consultation.

If you do not wish to take part, please hand this questionnaire back at the reception desk – you do not need to explain your decision not to take part.

The research team thanks you for your time

Prof Sue Latter[1] **Prof Alison Blenkinsopp**[2]
Prof Steve Chapman[2] **Dr Alesha Smith**[1]

University of Southampton[1]
Keele University[2]

For further information on this study or to request a summary of the findings when available, please contact:

Dr Alesha Smith on 02380 597589 or email: alesha.smith@soton.ac.uk

Part A. You and your health - *Please complete the following*

1 I am… ☐ Male ☐ Female

I am in the age range…

2 ☐ 24 years & under ☐ 25 to 34 years ☐ 35 to 44 years ☐ 45 to 54 years

☐ 55 to 64 years ☐ 65 to 74 years ☐ 75 to 84 years ☐ 85 years & over

I would describe my ethnic background as…

3 ☐ White ☐ Black ☐ Asian ☐ Mixed ☐ Other

I have consulted this nurse prescriber…

4 ☐ Only Once ☐ Twice ☐ 3 or 4 times ☐ 5 or more times

I most recently consulted this nurse prescriber about…

5 *For example, asthma and eczema*

Part B. Your views and experiences based on your most recent consultation with your nurse prescriber

	Please tick a box to indicate the extent to which you agree with each of the following statements	**Strongly Agree**	**Agree**	**Unsure**	**Disagree**	**Strongly Disagree**
1	I was very satisfied with my visit to this nurse prescriber	☐	☐	☐	☐	☐
2	This nurse prescriber told me as much as I wanted to know about my medicines	☐	☐	☐	☐	☐
3	Some things about my consultation with the nurse prescriber could have been better	☐	☐	☐	☐	☐
4	I felt the nurse prescriber really understood my point of view	☐	☐	☐	☐	☐
5	I wish it had been possible to spend a little more time with the nurse prescriber	☐	☐	☐	☐	☐
6	The nurse prescriber asked me what I thought about my prescribed medicines	☐	☐	☐	☐	☐

Part C. You and your nurse prescriber

	Please tick a box to indicate the extent to which you agree with each of the following statements	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree	
1	I get longer appointments with my nurse prescriber than my doctor	☐	☐	☐	☐	☐	
2	My condition is controlled better since being treated by my nurse prescriber	☐	☐	☐	☐	☐	
3	I am happier with my medicines since being treated by my nurse prescriber	☐	☐	☐	☐	☐	
4	Being treated by my nurse prescriber has had no effect on my condition	☐	☐	☐	☐	☐	
5	I am more likely to take my medicines when they are prescribed by a nurse prescriber	☐	☐	☐	☐	☐	
6	Since being treated by my nurse prescriber I have the same number of appointments for my condition	☐	☐	☐	☐	☐	
7	I am involved in decisions about the medicines prescribed for me by my nurse prescriber	☐	☐	☐	☐	☐	
8	I have a good relationship with my nurse prescriber	☐	☐	☐	☐	☐	
9	I have confidence in my nurse prescriber	☐	☐	☐	☐	☐	

Part D. About my healthcare team

	Please tick a box to indicate the extent to which you agree with each of the following statements comparing your nurse prescriber to the doctor who would usually prescribe your medicines	Nurse	Doctor	No difference	
1	I receive better quality care from the	☐	☐	☐	
2	If I have a concern about a new medicine I find it easier to raise it with	☐	☐	☐	
3	I receive safer care from the	☐	☐	☐	
4	My condition / health is monitored better by the	☐	☐	☐	
5	I am better informed about my treatment by the	☐	☐	☐	
6	I am more likely to be asked about how I can fit medicines into my routine by the	☐	☐	☐	
7	I feel more able to ask questions about my medicines with the	☐	☐	☐	
8	I am more likely to be advised about non-drug treatments for my condition/s by the	☐	☐	☐	
9	I am more likely to be told how a new medicine will help me by the	☐	☐	☐	
10	I am more likely to be told about the possible side effects of a new medicine by the	☐	☐	☐	
11	I can get my prescription more quickly from the	☐	☐	☐	
12	Generally, getting my medicines is easier from the	☐	☐	☐	

Thank you for taking part.
Please return your survey in the reply paid envelope supplied to:

Dr Alesha Smith, School of Health Sciences, Building 67,
University of Southampton, Southampton SO17 1BJ

For office use only

Site ID			Patient ID				

11.22 Case site interview pro forma

UNIVERSITY OF Southampton
School of Health Sciences

KEELE UNIVERSITY

Evaluation of Nurse and Pharmacist Independent Prescribing

Interview / field notes:

Date and Site ID	Site:	
Type of IP *(please circle)*	NIP PIP	
Length of time as IP and at this site	IP:	Site:
Other previous or current work settings *(please circle)*	Yes No *Please give details*:	
If yes – has this influenced your IP e.g. training/knowledge/safety		
Does the IP work full time or part time as an IP at this site e.g weekly clinic *(please circle)*	Full-time *Details:*	Part time *Details:*
How well does the IP fit into the team	.	
Is the IP well supported by the GPs, nurses, pharmacists		
Are there any restrictions placed on the IPs prescribing from the trust/practice? e.g. types of patients they can consult or medicines they can prescribe, budgets	Yes No *Details*:	

(please circle)	
What type of clinics/areas of prescribing does the IP mainly consult on?	
What factors determine who prescribes for which groups of patients	
Are the consultations that we have recorded typical consultations? *(Please circle)*	Yes No If no- what is unusual about them?
What are the strengths/limitations on the clinical governance arrangements in place for all prescribers at this site	
What factors influence the safety and quality of IP at the site	
Any other comments	

11.23 Patient experience survey sub-group analyses

Table 11.23.1: Your views and experiences based on your most recent consultation with your independent prescriber (prescribing nurse survey; sub-group analysis by gender)

		Male		Female		Total	P value
		n	%	n	%		
I was very satisfied with my visit to this independent prescriber	Strongly disagree/ disagree/not sure	2	4.3	4	4.6	8	0.93*
	Strongly Agree/Agree	45	95.7	83	95.4	133	
	Total	47	100.0	87	100.0	141	
This independent prescriber told me as much as I wanted to know about my medicines	Strongly disagree/ disagree/not sure	1	2.3	10	11.6	13	0.07*
	Strongly Agree/Agree	43	97.7	76	88.4	124	
	Total	44	100.0	86	100.0	137	
Some things about my consultation with the independent prescriber could have been better	Strongly disagree/ disagree/not sure	37	82.2	78	90.7	120	0.16
	Strongly Agree/Agree	8	17.8	8	9.3	18	
	Total	45	100.0	86	100.0	138	
I felt the independent prescriber really understood my point of view	Strongly disagree/ disagree/not sure	5	10.6	9	10.6	16	0.99
	Strongly Agree/Agree	42	89.4	76	89.4	123	
	Total	47	100.0	85	100.0	139	
I wish it had been possible to spend a little more time with the independent prescriber	Strongly disagree/ disagree/not sure	32	69.6	67	77.9	105	0.29
	Strongly Agree/Agree	14	30.4	19	22.1	34	
	Total	46	100.0	86	100.0	139	
The independent prescriber asked me what I thought about my prescribed medicines	Strongly disagree/ disagree/not sure	18	40.0	48	55.8	69	0.09
	Strongly Agree/Agree	27	60.0	38	44.2	69	
	Total	45	100.0	86	100.0	138	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23 2: You and your independent prescriber (prescribing nurse survey; sub-group analysis by gender)

		Male		Female		Total	P value
		n	%	n	%		
I get longer appointments with my independent prescriber than my doctor	Strongly disagree/ disagree/not sure	23	50.0	56	65.1	85	0.09
	Strongly Agree/Agree	23	50.0	30	34.9	54	
	Total	46	100.0	86	100.0	139	
My condition is controlled better since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	18	39.1	56	64.4	79	<0.01
	Strongly Agree/Agree	28	60.9	31	35.6	61	
	Total	46	100.0	87	100.0	140	
I am happier with my medicines since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	16	35.6	56	64.4	78	<0.01
	Strongly Agree/Agree	29	64.4	31	35.6	61	
	Total	45	100.0	87	100.0	139	
Being treated by my independent prescriber has had no effect on my condition	Strongly disagree/ disagree/not sure	34	72.3	54	62.8	94	0.27
	Strongly Agree/Agree	13	27.7	32	37.2	46	
	Total	47	100.0	86	100.0	140	
I am more likely to take my medicines when they are prescribed by a independent prescriber	Strongly disagree/ disagree/not sure	31	67.4	77	89.5	113	<0.01
	Strongly Agree/Agree	15	32.6	9	10.5	26	
	Total	46	100.0	86	100.0	139	
Since being treated by my independent prescriber I have the same number of appointments for my condition	Strongly disagree/ disagree/not sure	13	28.9	54	62.1	72	<0.01
	Strongly Agree/Agree	32	71.1	33	37.9	67	
	Total	45	100.0	87	100.0	139	
I am involved in decisions about the medicines prescribed for me by my independent prescriber	Strongly disagree/ disagree/not sure	18	38.3	38	43.7	60	0.55
	Strongly Agree/Agree	29	61.7	49	56.3	81	
	Total	47	100.0	87	100.0	141	
I have a good relationship with my independent prescriber	Strongly disagree/ disagree/not sure	2	4.3	12	13.8	16	0.08*
	Strongly Agree/Agree	45	95.7	75	86.2	125	
	Total	47	100.0	87	100.0	141	
I have confidence in my independent prescriber	Strongly disagree/ disagree/not sure	4	8.5	15	17.2	22	0.17*
	Strongly Agree/Agree	43	91.5	72	82.8	119	
	Total	47	100.0	87	100.0	141	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.3: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing nurse survey; sub-group analysis by gender)

		Male		Female		Total	P value
		n	%	n	%		
I receive better quality care from the:	Independent prescriber	7	14.9	8	9.9	17	0.53
	Doctor	5	10.6	13	16.0	18	
	No difference	35	74.5	60	74.1	99	
	Total	47	100.0	81	100.0	134	
If I have a concern about a new medicine I find it easier to raise it with:	Independent prescriber	13	27.7	18	22.0	33	0.36
	Doctor	11	23.4	29	35.4	41	
	No difference	23	48.9	35	42.7	61	
	Total	47	100.0	82	100.0	135	
I receive safer care from the:	Independent prescriber	8	17.4	3	3.7	11	0.03*
	Doctor	8	17.4	18	22.0	28	
	No difference	30	65.2	61	74.4	95	
	Total	46	100.0	82	100.0	134	
My condition/health is monitored better by the:	Independent prescriber	14	30.4	20	25.0	37	0.76
	Doctor	9	19.6	19	23.8	29	
	No difference	23	50.0	41	51.3	66	
	Total	46	100.0	80	100.0	132	
I am better informed about my treatment by the:	Independent prescriber	16	35.6	16	19.5	34	0.10
	Doctor	8	17.8	24	29.3	34	
	No difference	21	46.7	42	51.2	65	
	Total	45	100.0	82	100.0	133	
I am more likely to be asked about how I can fit medicines into my routine by the:	Independent prescriber	15	32.6	18	21.7	33	0.39*
	Doctor	4	8.7	9	10.8	15	
	No difference	27	58.7	56	67.5	87	
	Total	46	100.0	83	100.0	135	
I feel more able to ask questions about my medicines with the:	Independent prescriber	14	30.4	21	25.6	37	0.39
	Doctor	7	15.2	21	25.6	29	
	No difference	25	54.3	40	48.8	68	
	Total	46	100.0	82	100.0	134	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.4: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing nurse survey; sub-group analysis by gender)

		Male		Female		Total	P value
		n	%	n	%		
I am more likely to be advised about non-drug treatments for my condition/s by the:	Independent prescriber	10	21.7	16	20.0	28	0.43
	Doctor	6	13.0	18	22.5	25	
	No difference	30	65.2	46	57.5	79	
	Total	46	100.0	80	100.0	132	
I am more likely to be told how a new medicine will help me by the:	Independent prescriber	12	26.1	9	10.7	23	0.06
	Doctor	11	23.9	29	34.5	42	
	No difference	23	50.0	46	54.8	71	
	Total	46	100.0	84	100.0	136	
I am more likely to be told about the possible side effects of a new medicine by the:	Independent prescriber	10	21.7	11	13.3	22	0.36
	Doctor	11	23.9	27	32.5	40	
	No difference	25	54.3	45	54.2	73	
	Total	46	100.0	83	100.0	135	
I can get my prescription more quickly from the:	Independent prescriber	13	28.3	14	16.9	29	0.19
	Doctor	8	17.4	11	13.3	19	
	No difference	25	54.3	58	69.9	86	
	Total	46	100.0	83	100.0	134	
Generally, getting my medicines is easier from the:	Independent prescriber	14	30.4	11	13.3	27	0.06
	Doctor	7	15.2	14	16.9	21	
	No difference	25	54.3	58	69.9	86	
	Total	46	100.0	83	100.0	134	

Table 11.23.5: Your views and experiences based on your most recent consultation with your independent prescriber (prescribing nurse survey; sub-group analysis by age)

		<55 yrs old		> 55yrs old		Total	P value
		n	%	n	%		
I was very satisfied with my visit to this independent prescriber	Strongly disagree/ disagree/not sure	4	6.1	4	5.3	8	0.85*
	Strongly Agree/Agree	62	93.9	71	94.7	133	
	Total	66	100.0	75	100.0	141	
This independent prescriber told me as much as I wanted to know about my medicines	Strongly disagree/ disagree/not sure	6	9.5	7	9.5	13	0.99
	Strongly Agree/Agree	57	90.5	67	90.5	124	
	Total	63	100.0	74	100.0	137	
Some things about my consultation with the independent prescriber could have been better	Strongly disagree/ disagree/not sure	54	84.4	66	89.2	120	0.40
	Strongly Agree/Agree	10	15.6	8	10.8	18	
	Total	64	100.0	74	100.0	138	
I felt the independent prescriber really understood my point of view	Strongly disagree/ disagree/not sure	6	9.2	10	13.5	16	0.43
	Strongly Agree/Agree	59	90.8	64	86.5	123	
	Total	65	100.0	74	100.0	139	
I wish it had been possible to spend a little more time with the independent prescriber	Strongly disagree/ disagree/not sure	46	70.8	59	79.7	105	0.22
	Strongly Agree/Agree	19	29.2	15	20.3	34	
	Total	65	100.0	74	100.0	139	
The independent prescriber asked me what I thought about my prescribed medicines	Strongly disagree/ disagree/not sure	33	51.6	36	48.6	69	0.73
	Strongly Agree/Agree	31	48.4	38	51.4	69	
	Total	64	100.0	74	100.0	138	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.6: You and your independent prescriber (prescribing nurse survey; sub-group analysis by age)

		<55 yrs old		> 55yrs old		Total	P value
		n	%	n	%		
I get longer appointments with my independent prescriber than my doctor	Strongly disagree/ disagree/not sure	39	60.0	46	62.2	85	0.79
	Strongly Agree/Agree	26	40.0	28	37.8	54	
	Total	65	100.0	74	100.0	139	
My condition is controlled better since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	33	50.8	46	61.3	79	0.21
	Strongly Agree/Agree	32	49.2	29	38.7	61	
	Total	65	100.0	75	100.0	140	
I am happier with my medicines since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	35	54.7	43	57.3	78	0.75
	Strongly Agree/Agree	29	45.3	32	42.7	61	
	Total	64	100.0	75	100.0	139	
Being treated by my independent prescriber has had no effect on my condition	Strongly disagree/ disagree/not sure	45	69.2	49	65.3	94	0.62
	Strongly Agree/Agree	20	30.8	26	34.7	46	
	Total	65	100.0	75	100.0	140	
I am more likely to take my medicines when they are prescribed by a independent prescriber	Strongly disagree/ disagree/not sure	49	75.4	64	86.5	113	0.09
	Strongly Agree/Agree	16	24.6	10	13.5	26	
	Total	65	100.0	74	100.0	139	
Since being treated by my independent prescriber I have the same number of appointments for my condition	Strongly disagree/ disagree/not sure	27	42.2	45	60.0	72	0.04
	Strongly Agree/Agree	37	57.8	30	40.0	67	
	Total	64	100.0	75	100.0	139	
I am involved in decisions about the medicines prescribed for me by my independent prescriber	Strongly disagree/ disagree/not sure	35	53.0	25	33.3	60	0.02
	Strongly Agree/Agree	31	47.0	50	66.7	81	
	Total	66	100.0	75	100.0	141	
I have a good relationship with my independent prescriber	Strongly disagree/ disagree/not sure	8	12.1	8	10.7	16	0.79
	Strongly Agree/Agree	58	87.9	67	89.3	125	
	Total	66	100.0	75	100.0	141	
I have confidence in my independent prescriber	Strongly disagree/ disagree/not sure	11	16.7	11	14.7	22	0.74
	Strongly Agree/Agree	55	83.3	64	85.3	119	
	Total	66	100.0	75	100.0	141	

Table 11.23.7: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing nurse survey; sub-group analysis by age)

		<55 yrs old		> 55yrs old		Total	P value
		n	%	n	%		
I receive better quality care from the:	Independent prescriber	5	8.2	12	16.4	17	0.35
	Doctor	9	14.8	9	12.3	18	
	No difference	47	77.0	52	71.2	99	
	Total	61	100.0	73	100.0	134	
If I have a concern about a new medicine I find it easier to raise it with:	Independent prescriber	14	22.6	19	26.0	33	0.15
	Doctor	24	38.7	17	23.3	41	
	No difference	24	38.7	37	50.7	61	
	Total	62	100.0	73	100.0	135	
I receive safer care from the:	Independent prescriber	7	11.5	4	5.5	11	0.13*
	Doctor	16	26.2	12	16.4	28	
	No difference	38	62.3	57	78.1	95	
	Total	61	100.0	73	100.0	134	
My condition/health is monitored better by the:	Independent prescriber	12	20.3	25	34.2	37	0.05
	Doctor	18	30.5	11	15.1	29	
	No difference	29	49.2	37	50.7	66	
	Total	59	100.0	73	100.0	132	
I am better informed about my treatment by the:	Independent prescriber	16	26.7	18	24.7	34	0.70
	Doctor	17	28.3	17	23.3	34	
	No difference	27	45.0	38	52.1	65	
	Total	60	100.0	73	100.0	133	
I am more likely to be asked about how I can fit medicines into my routine by the:	Independent prescriber	14	22.6	19	26.0	33	0.50
	Doctor	9	14.5	6	8.2	15	
	No difference	39	62.9	48	65.8	87	
	Total	62	100.0	73	100.0	135	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.8: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing nurse survey; sub-group analysis by age)

		<55 yrs old		> 55yrs old		Total	P value
		n	%	n	%		
I feel more able to ask questions about my medicines with the:	Independent prescriber	15	24.2	22	30.6	37	0.30
	Doctor	17	27.4	12	16.7	29	
	No difference	30	48.4	38	52.8	68	
	Total	62	100.0	72	100.0	134	
I am more likely to be advised about non-drug treatments for my condition/s by the:	Independent prescriber	11	18.0	17	23.9	28	0.28
	Doctor	15	24.6	10	14.1	25	
	No difference	35	57.4	44	62.0	79	
	Total	61	100.0	71	100.0	132	
I am more likely to be told how a new medicine will help me by the:	Independent prescriber	15	23.8	8	11.0	23	0.12
	Doctor	19	30.2	23	31.5	42	
	No difference	29	46.0	42	57.5	71	
	Total	63	100.0	73	100.0	136	
I am more likely to be told about the possible side effects of a new medicine by the:	Independent prescriber	9	14.5	13	17.8	22	0.84
	Doctor	18	29.0	22	30.1	40	
	No difference	35	56.5	38	52.1	73	
	Total	62	100.0	73	100.0	135	
I can get my prescription more quickly from the:	Independent prescriber	12	19.7	17	23.3	29	0.03
	Doctor	14	23.0	5	6.8	19	
	No difference	35	57.4	51	69.9	86	
	Total	61	100.0	73	100.0	134	
Generally, getting my medicines is easier from the:	Independent prescriber	11	18.0	16	21.9	27	<0.01
	Doctor	16	26.2	5	6.8	21	
	No difference	34	55.7	52	71.2	86	
	Total	61	100.0	73	100.0	134	

Table 11.23.9: Your views and experiences based on your most recent consultation with your independent prescriber (prescribing nurse survey; sub-group analysis by experience of independent prescriber)

		frequency >2		frequency <2		Total	P value
		n	%	n	%		
I was very satisfied with my visit to this independent prescriber	Strongly disagree/ disagree/not sure	7	5.4	1	9.1	8	0.61*
	Strongly Agree/Agree	123	94.6	10	90.9	133	
	Total	130	100.0	11	100.0	141	
This independent prescriber told me as much as I wanted to know about my medicines	Strongly disagree/ disagree/not sure	12	9.5	1	9.1	13	0.96*
	Strongly Agree/Agree	114	90.5	10	90.9	124	
	Total	126	100.0	11	100.0	137	
Some things about my consultation with the independent prescriber could have been better	Strongly disagree/ disagree/not sure	111	87.4	9	81.8	120	0.60*
	Strongly Agree/Agree	16	12.6	2	18.2	18	
	Total	127	100.0	11	100.0	138	
I felt the independent prescriber really understood my point of view	Strongly disagree/ disagree/not sure	16	12.5	0	0.0	16	0.21*
	Strongly Agree/Agree	112	87.5	11	100.0	123	
	Total	128	100.0	11	100.0	139	
I wish it had been possible to spend a little more time with the independent prescriber	Strongly disagree/ disagree/not sure	95	74.2	10	90.9	105	0.22*
	Strongly Agree/Agree	33	25.8	1	9.1	34	
	Total	128	100.0	11	100.0	139	
The independent prescriber asked me what I thought about my prescribed medicines	Strongly disagree/ disagree/not sure	62	48.8	7	63.6	69	0.35*
	Strongly Agree/Agree	65	51.2	4	36.4	69	
	Total	127	100.0	11	100.0	138	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.10: You and your independent prescriber (prescribing nurse survey; sub-group analysis by experience of independent prescriber)

		frequency >2		frequency <2		Total	P value
		n	%	n	%		
I get longer appointments with my independent prescriber than my doctor	Strongly disagree/ disagree/not sure	75	58.6	10	90.9	85	0.03*
	Strongly Agree/Agree	53	41.4	1	9.1	54	
	Total	128	100.0	11	100.0	139	
My condition is controlled better since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	70	54.3	9	81.8	79	0.08*
	Strongly Agree/Agree	59	45.7	2	18.2	61	
	Total	129	100.0	11	100.0	140	
I am happier with my medicines since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	71	55.5	7	63.6	78	0.60*
	Strongly Agree/Agree	57	44.5	4	36.4	61	
	Total	128	100.0	11	100.0	139	
Being treated by my independent prescriber has had no effect on my condition	Strongly disagree/ disagree/not sure	86	66.7	8	72.7	94	0.68*
	Strongly Agree/Agree	43	33.3	3	27.3	46	
	Total	129	100.0	11	100.0	140	
I am more likely to take my medicines when they are prescribed by a independent prescriber	Strongly disagree/ disagree/not sure	103	80.5	10	90.9	113	0.39*
	Strongly Agree/Agree	25	19.5	1	9.1	26	
	Total	128	100.0	11	100.0	139	
Since being treated by my independent prescriber I have the same number of appointments for my condition	Strongly disagree/ disagree/not sure	63	49.2	9	81.8	72	0.04*
	Strongly Agree/Agree	65	50.8	2	18.2	67	
	Total	128	100.0	11	100.0	139	
I am involved in decisions about the medicines prescribed for me by my independent prescriber	Strongly disagree/ disagree/not sure	50	38.5	10	90.9	60	<0.01*
	Strongly Agree/Agree	80	61.5	1	9.1	81	
	Total	130	100.0	11	100.0	141	
I have a good relationship with my independent prescriber	Strongly disagree/ disagree/not sure	12	9.2	4	36.4	16	<0.01*
	Strongly Agree/Agree	118	90.8	7	63.6	125	
	Total	130	100.0	11	100.0	141	
I have confidence in my independent prescriber	Strongly disagree/ disagree/not sure	18	13.8	4	36.4	22	0.05*
	Strongly Agree/Agree	112	86.2	7	63.6	119	
	Total	130	100.0	11	100.0	141	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.11: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing nurse survey; sub-group analysis by experience of independent prescriber)

		frequency >2		frequency <2		Total	P value
		n	%	n	%		
I receive better quality care from the:	Independent prescriber	16	12.9	1	10.0	17	0.81*
	Doctor	16	12.9	2	20.0	18	
	No difference	92	74.2	7	70.0	99	
	Total	124	100.0	10	100.0	134	
If I have a concern about a new medicine I find it easier to raise it with:	Independent prescriber	33	26.4	0	0.0	33	0.17*
	Doctor	37	29.6	4	40.0	41	
	No difference	55	44.0	6	60.0	61	
	Total	125	100.0	10	100.0	135	
I receive safer care from the:	Independent prescriber	11	8.9	0	0.0	11	0.60*
	Doctor	26	21.0	2	20.0	28	
	No difference	87	70.2	8	80.0	95	
	Total	124	100.0	10	100.0	134	
My condition/health is monitored better by the:	Independent prescriber	37	30.3	0	0.0	37	0.09*
	Doctor	25	20.5	4	40.0	29	
	No difference	60	49.2	6	60.0	66	
	Total	122	100.0	10	100.0	132	
I am better informed about my treatment by the:	Independent prescriber	33	26.8	1	10.0	34	<0.01*
	Doctor	27	22.0	7	70.0	34	
	No difference	63	51.2	2	20.0	65	
	Total	123	100.0	10	100.0	133	
I am more likely to be asked about how I can fit medicines into my routine by the:	Independent prescriber	31	24.8	2	20.0	33	0.93*
	Doctor	14	11.2	1	10.0	15	
	No difference	80	64.0	7	70.0	87	
	Total	125	100.0	10	100.0	135	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.12: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing nurse survey; sub-group analysis by experience of independent prescriber)

		frequency >2		frequency <2		Total	P value
		n	%	n	%		
I feel more able to ask questions about my medicines with the:	Independent prescriber	36	29.0	1	10.0	37	0.42*
	Doctor	26	21.0	3	30.0	29	
	No difference	62	50.0	6	60.0	68	
	Total	124	100.0	10	100.0	134	
I am more likely to be advised about non-drug treatments for my condition/s by the:	Independent prescriber	26	21.3	2	20.0	28	0.64*
	Doctor	22	18.0	3	30.0	25	
	No difference	74	60.7	5	50.0	79	
	Total	122	100.0	10	100.0	132	
I am more likely to be told how a new medicine will help me by the	Independent prescriber	22	17.5	1	10.0	23	0.81*
	Doctor	39	31.0	3	30.0	42	
	No difference	65	51.6	6	60.0	71	
	Total	126	100.0	10	100.0	136	
I am more likely to be told about the possible side effects of a new medicine by the:	Independent prescriber	22	17.6	0	0.0	22	0.32*
	Doctor	37	29.6	3	30.0	40	
	No difference	66	52.8	7	70.0	73	
	Total	125	100.0	10	100.0	135	
I can get my prescription more quickly from the:	Independent prescriber	26	21.0	3	30.0	29	0.77*
	Doctor	18	14.5	1	10.0	19	
	No difference	80	64.5	6	60.0	86	
	Total	124	100.0	10	100.0	134	
Generally, getting my medicines is easier from the:	Independent prescriber	26	21.0	1	10.0	27	0.69*
	Doctor	19	15.3	2	20.0	21	
	No difference	79	63.7	7	70.0	86	
	Total	124	100.0	10	100.0	134	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.13: Your views and experiences based on your most recent consultation with your independent prescriber (prescribing nurse survey; sub-group analysis by ethnic group)

		White		others		Total	p value
		n	%	n	%		
I was very satisfied with my visit to this independent prescriber	Strongly disagree/ disagree/not sure	4	3.6	4	13.3	8	0.04*
	Strongly Agree/Agree	107	96.4	26	86.7	133	
	Total	111	100.0	30	100.0	141	
This independent prescriber told me as much as I wanted to know about my medicines	Strongly disagree/ disagree/not sure	7	6.3	6	23.1	13	<0.01
	Strongly Agree/Agree	104	93.7	20	76.9	124	
	Total	111	100.0	26	100.0	137	
Some things about my consultation with the independent prescriber could have been better	Strongly disagree/ disagree/not sure	96	86.5	24	88.9	120	0.74*
	Strongly Agree/Agree	15	13.5	3	11.1	18	
	Total	111	100.0	27	100.0	138	
I felt the independent prescriber really understood my point of view	Strongly disagree/ disagree/not sure	7	6.3	9	32.1	16	<0.01
	Strongly Agree/Agree	104	93.7	19	67.9	123	
	Total	111	100.0	28	100.0	139	
I wish it had been possible to spend a little more time with the independent prescriber	Strongly disagree/ disagree/not sure	85	76.6	20	71.4	105	0.57*
	Strongly Agree/Agree	26	23.4	8	28.6	34	
	Total	111	100.0	28	100.0	139	
The independent prescriber asked me what I thought about my prescribed medicines	Strongly disagree/ disagree/not sure	59	53.2	10	37.0	69	0.13*
	Strongly Agree/Agree	52	46.8	17	63.0	69	
	Total	111	100.0	27	100.0	138	

Table 11.23.14: You and your independent prescriber (prescribing nurse survey; sub-group analysis by ethnic group)

		White		others		Total	p value
		n	%	n	%		
I get longer appointments with my independent prescriber than my doctor	Strongly disagree/ disagree/not sure	69	62.2	16	57.1	85	0.63
	Strongly Agree/Agree	42	37.8	12	42.9	54	
	Total	111	100.0	28	100.0	139	
My condition is controlled better since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	61	55.0	18	62.1	79	0.49
	Strongly Agree/Agree	50	45.0	11	37.9	61	
	Total	111	100.0	29	100.0	140	
I am happier with my medicines since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	61	55.0	17	60.7	78	0.58
	Strongly Agree/Agree	50	45.0	11	39.3	61	
	Total	111	100.0	28	100.0	139	
Being treated by my independent prescriber has had no effect on my condition	Strongly disagree/ disagree/not sure	75	67.6	19	65.5	94	0.83
	Strongly Agree/Agree	36	32.4	10	34.5	46	
	Total	111	100.0	29	100.0	140	
I am more likely to take my medicines when they are prescribed by a independent prescriber	Strongly disagree/ disagree/not sure	92	82.9	21	75.0	113	0.34
	Strongly Agree/Agree	19	17.1	7	25.0	26	
	Total	111	100.0	28	100.0	139	
Since being treated by my independent prescriber I have the same number of appointments for my condition	Strongly disagree/ disagree/not sure	57	51.4	15	53.6	72	0.83
	Strongly Agree/Agree	54	48.6	13	46.4	67	
	Total	111	100.0	28	100.0	139	
I am involved in decisions about the medicines prescribed for me by my independent prescriber	Strongly disagree/ disagree/not sure	48	43.2	12	40.0	60	0.75
	Strongly Agree/Agree	63	56.8	18	60.0	81	
	Total	111	100.0	30	100.0	141	
I have a good relationship with my independent prescriber	Strongly disagree/ disagree/not sure	10	9.0	6	20.0	16	0.09
	Strongly Agree/Agree	101	91.0	24	80.0	125	
	Total	111	100.0	30	100.0	141	
I have confidence in my independent prescriber	Strongly disagree/ disagree/not sure	13	11.7	9	30.0	22	<0.01
	Strongly Agree/Agree	98	88.3	21	70.0	119	
	Total	111	100.0	30	100.0	141	

Table 11.23.15: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing nurse survey; sub-group analysis by ethnic group)

		White		others		Total	p value
		n	%	n	%		
I receive better quality care from the:	Independent prescriber	11	10.2	6	23.1	11	<0.01
	Doctor	10	10.0	8	30.8	10	
	No difference	87	80.6	12	46.2	87	
	Total	108	100.0	26	100.0	108	
If I have a concern about a new medicine I find it easier to raise it with:	Independent prescriber	27	25.0	6	22.2	27	<0.01
	Doctor	26	26.0	15	55.6	26	
	No difference	55	50.9	6	22.2	55	
	Total	108	100.0	27	100.0	108	
I receive safer care from the:	Independent prescriber	8	7.4	3	11.5	8	0.03*
	Doctor	18	18.0	10	38.5	18	
	No difference	82	75.9	13	50.0	82	
	Total	108	100.0	26	100.0	108	
My condition/health is monitored better by the:	Independent prescriber	28	25.9	9	37.5	28	0.07
	Doctor	21	21.0	8	33.3	21	
	No difference	59	54.6	7	29.2	59	
	Total	108	100.0	24	100.0	108	
I am better informed about my treatment by the:	Independent prescriber	26	24.3	8	30.8	26	<0.01
	Doctor	21	21.0	13	50.0	21	
	No difference	60	56.1	5	19.2	60	
	Total	107	100.0	26	100.0	107	
I am more likely to be asked about how I can fit medicines into my routine by the:	Independent prescriber	26	24.3	7	25.0	26	<0.01
	Doctor	6	6.0	9	32.1	6	
	No difference	75	70.1	12	42.9	75	
	Total	107	100.0	28	100.0	107	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.16: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing nurse survey; sub-group analysis by ethnic group)

		White		others		Total	p value
		n	%	n	%		
I feel more able to ask questions about my medicines with the:	Independent prescriber	29	27.1	8	29.6	37	0.18
	Doctor	20	18.7	9	33.3	29	
	No difference	58	54.2	10	37.0	68	
	Total	107	100.0	27	100.0	134	
I am more likely to be advised about non-drug treatments for my condition/s by the:	Independent prescriber	19	17.9	9	34.6	28	<0.01
	Doctor	16	15.1	9	34.6	25	
	No difference	71	67.0	8	30.8	79	
	Total	106	100.0	26	100.0	132	
I am more likely to be told how a new medicine will help me by the:	Independent prescriber	20	18.3	3	11.1	23	0.03*
	Doctor	28	25.7	14	51.9	42	
	No difference	61	56.0	10	37.0	71	
	Total	109	100.0	27	100.0	136	
I am more likely to be told about the possible side effects of a new medicine by the:	Independent prescriber	17	15.6	5	19.2	22	0.07
	Doctor	28	25.7	12	46.2	40	
	No difference	64	58.7	9	34.6	73	
	Total	109	100.0	26	100.0	135	
I can get my prescription more quickly from the:	Independent prescriber	24	22.0	5	20.0	29	<0.01
	Doctor	10	9.2	9	36.0	19	
	No difference	75	68.8	11	44.0	86	
	Total	109	100.0	25	100.0	134	
Generally, getting my medicines is easier from the:	Independent prescriber	23	21.1	4	16.0	27	0.17*
	Doctor	14	12.8	7	28.0	21	
	No difference	72	66.1	14	56.0	86	
	Total	109	100.0	25	100.0	134	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.17: Your views and experiences based on your most recent consultation with your independent prescriber (prescribing pharmacist survey; sub-group analysis by gender)

		Male		Female		Total	P value
		n		n			
I was very satisfied with my visit to this independent prescriber	Strongly disagree/ disagree/not sure	7	11.3	8	12.5	15	0.83
	Strongly Agree/Agree	55	88.7	56	87.5	111	
	Total	62	100.0	64	100.0	126	
This independent prescriber told me as much as I wanted to know about my medicines	Strongly disagree/ disagree/not sure	11	17.7	15	23.1	26	0.46
	Strongly Agree/Agree	51	82.3	50	76.9	101	
	Total	62	100.0	65	100.0	127	
Some things about my consultation with the independent prescriber could have been better	Strongly disagree/ disagree/not sure	45	73.8	54	83.1	99	0.20
	Strongly Agree/Agree	16	26.2	11	16.9	27	
	Total	61	100.0	65	100.0	126	
I felt the independent prescriber really understood my point of view	Strongly disagree/ disagree/not sure	13	21.0	18	27.7	31	0.38
	Strongly Agree/Agree	49	79.0	47	72.3	96	
	Total	62	100.0	65	100.0	127	
I wish it had been possible to spend a little more time with the independent prescriber	Strongly disagree/ disagree/not sure	46	75.4	51	78.5	97	0.68
	Strongly Agree/Agree	15	24.6	14	21.5	29	
	Total	61	100.0	65	100.0	126	
The independent prescriber asked me what I thought about my prescribed medicines	Strongly disagree/ disagree/not sure	26	43.3	28	43.1	54	0.98
	Strongly Agree/Agree	34	56.7	37	56.9	71	
	Total	60	100.0	65	100.0	125	

Table 11.23.18: You and your independent prescriber (prescribing pharmacist survey; sub-group analysis by gender)

		Male		Female		Total	P value
		n		n			
I get longer appointments with my independent prescriber than my doctor	Strongly disagree/ disagree/not sure	38	61.3	39	60.0	77	0.88
	Strongly Agree/Agree	24	38.7	26	40.0	50	
	Total	62	100.0	65	100.0	127	
My condition is controlled better since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	38	61.3	33	50.8	71	0.23
	Strongly Agree/Agree	24	38.7	32	49.2	56	
	Total	62	100.0	65	100.0	127	
I am happier with my medicines since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	38	61.3	31	47.7	69	0.12
	Strongly Agree/Agree	24	38.7	34	52.3	58	
	Total	62	100.0	65	100.0	127	
Being treated by my independent prescriber has had no effect on my condition	Strongly disagree/ disagree/not sure	36	59.0	47	72.3	83	0.12
	Strongly Agree/Agree	25	41.0	18	27.7	43	
	Total	61	100.0	65	100.0	126	
I am more likely to take my medicines when they are prescribed by a independent prescriber	Strongly disagree/ disagree/not sure	47	77.0	52	80.0	99	0.69
	Strongly Agree/Agree	14	23.0	13	20.0	27	
	Total	61	100.0	65	100.0	126	
Since being treated by my independent prescriber I have the same number of appointments for my condition	Strongly disagree/ disagree/not sure	37	59.7	34	52.3	71	0.40
	Strongly Agree/Agree	25	40.3	31	47.7	56	
	Total	62	100.0	65	100.0	127	
I am involved in decisions about the medicines prescribed for me by my independent prescriber	Strongly disagree/ disagree/not sure	26	41.9	24	36.9	50	0.56
	Strongly Agree/Agree	36	58.1	41	63.1	77	
	Total	62	100.0	65	100.0	127	
I have a good relationship with my independent prescriber	Strongly disagree/ disagree/not sure	12	19.4	14	21.5	26	0.76
	Strongly Agree/Agree	50	80.6	51	78.5	101	
	Total	62	100.0	65	100.0	127	
I have confidence in my independent prescriber	Strongly disagree/ disagree/not sure	15	24.2	12	18.5	27	0.43
	Strongly Agree/Agree	47	75.8	53	81.5	100	
	Total	62	100.0	65	100.0	127	

Table 11.23.19: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing pharmacist survey; sub-group analysis by gender)

		Male		Female		Total	P value
		n	%	n	%		
I receive better quality care from the:	Independent prescriber	5	8.1	8	13.1	13	0.63
	Doctor	21	33.9	18	29.5	39	
	No difference	36	58.1	35	57.4	71	
	Total	62	100.0	61	100.0	123	
If I have a concern about a new medicine I find it easier to raise it with:	Independent prescriber	14	23.0	26	43.3	40	0.06
	Doctor	25	41.0	18	30.0	43	
	No difference	22	36.1	16	26.7	38	
	Total	61	100.0	60	100.0	121	
I receive safer care from the:	Independent prescriber	3	4.8	10	16.4	13	0.08*
	Doctor	23	37.1	16	26.2	39	
	No difference	36	58.1	35	57.4	71	
	Total	62	100.0	61	100.0	123	
My condition/health is monitored better by the:	Independent prescriber	15	24.2	19	31.1	34	0.63
	Doctor	29	46.8	24	39.3	53	
	No difference	18	29.0	18	29.5	36	
	Total	62	100.0	61	100.0	123	
I am better informed about my treatment by the:	Independent prescriber	15	24.2	21	33.9	36	0.14
	Doctor	32	51.6	21	33.9	53	
	No difference	15	24.2	20	32.3	35	
	Total	62	100.0	62	100.0	124	
I am more likely to be asked about how I can fit medicines into my routine by the:	Independent prescriber	11	18.6	18	30.0	29	0.35
	Doctor	18	30.5	15	25.0	33	
	No difference	30	50.8	27	45.0	57	
	Total	59	100.0	60	100.0	119	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.20: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing pharmacist survey; sub-group analysis by gender)

		Male		Female		Total	P value
		n	%	n	%		
I feel more able to ask questions about my medicines with the:	Independent prescriber	16	25.8	29	47.5	45	0.04
	Doctor	20	32.3	12	19.7	32	
	No difference	26	41.9	20	32.8	46	
	Total	62	100.0	61	100.0	123	
I am more likely to be advised about non-drug treatments for my condition/s by the:	Independent prescriber	9	15.3	13	22.8	22	0.35
	Doctor	21	35.6	14	24.6	35	
	No difference	29	49.2	30	52.6	59	
	Total	59	100.0	57	100.0	116	
I am more likely to be told how a new medicine will help me by the:	Independent prescriber	10	16.7	25	42.4	35	<0.01
	Doctor	26	43.3	19	32.2	45	
	No difference	24	40.0	15	25.4	39	
	Total	60	100.0	59	100.0	119	
I am more likely to be told about the possible side effects of a new medicine by the:	Independent prescriber	13	21.3	29	46.8	42	<0.01
	Doctor	25	41.0	14	22.6	39	
	No difference	23	37.7	19	30.6	42	
	Total	61	100.0	62	100.0	123	
I can get my prescription more quickly from the:	Independent prescriber	13	21.0	21	33.9	34	0.02
	Doctor	19	30.6	7	11.3	26	
	No difference	30	48.4	34	54.8	64	
	Total	62	100.0	62	100.0	124	
Generally, getting my medicines is easier from the:	Independent prescriber	13	21.3	18	29.0	31	0.14
	Doctor	19	31.1	10	16.1	29	
	No difference	29	47.5	34	54.8	63	
	Total	61	100.0	62	100.0	123	

Table 11.23.21: Your views and experiences based on your most recent consultation with your independent prescriber (prescribing pharmacist survey; sub-group analysis by age)

		<55 yrs old		> 55yrs old		Total	P value
		n		n			
I was very satisfied with my visit to this independent prescriber	Strongly disagree/ disagree/not sure	2	8.3	14	13.1	16	0.52*
	Strongly Agree/Agree	22	91.7	93	86.9	115	
	Total	24	100.0	107	100.0	131	
This independent prescriber told me as much as I wanted to know about my medicines	Strongly disagree/ disagree /not sure	7	29.2	20	18.5	27	0.24
	Strongly Agree/Agree	17	70.8	88	81.5	105	
	Total	24	100.0	108	100.0	132	
Some things about my consultation with the independent prescriber could have been better	Strongly disagree/ disagree/not sure	19	79.2	83	77.6	102	0.86
	Strongly Agree/Agree	5	20.8	24	22.4	29	
	Total	24	100.0	107	100.0	131	
I felt the independent prescriber really understood my point of view	Strongly disagree/ disagree/not sure	5	20.8	28	25.9	33	0.60
	Strongly Agree/Agree	19	79.2	80	74.1	99	
	Total	24	100.0	108	100.0	132	
I wish it had been possible to spend a little more time with the independent prescriber	Strongly disagree/ disagree/not sure	18	75.0	83	77.6	101	0.79
	Strongly Agree/Agree	6	25.0	24	22.4	30	
	Total	24	100.0	107	100.0	131	
The independent prescriber asked me what I thought about my prescribed medicines	Strongly disagree/ disagree/not sure	16	66.7	40	37.7	56	<0.01
	Strongly Agree/Agree	8	33.3	66	62.3	74	
	Total	24	100.0	106	100.0	130	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.22: You and your independent prescriber (prescribing pharmacist survey; sub-group analysis by age)

		<55 yrs old		> 55yrs old		Total	P value
		n		n			
I get longer appointments with my independent prescriber than my doctor	Strongly disagree/ disagree/not sure	13	54.2	67	62.0	80	0.48
	Strongly Agree/Agree	11	45.8	41	38.0	52	
	Total	24	100.0	108	100.0	132	
My condition is controlled better since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	12	50.0	63	58.3	75	0.46
	Strongly Agree/Agree	12	50.0	45	41.7	57	
	Total	24	100.0	108	100.0	132	
I am happier with my medicines since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	10	41.7	63	58.3	73	0.14
	Strongly Agree/Agree	14	58.3	45	41.7	59	
	Total	24	100.0	108	100.0	132	
Being treated by my independent prescriber has had no effect on my condition	Strongly disagree/ disagree/not sure	18	75.0	69	64.5	87	0.32
	Strongly Agree/Agree	6	25.0	38	35.5	44	
	Total	24	100.0	107	100.0	131	
I am more likely to take my medicines when they are prescribed by a independent prescriber	Strongly disagree/ disagree/not sure	13	54.2	90	84.1	103	<0.01
	Strongly Agree/Agree	11	45.8	17	15.9	28	
	Total	24	100.0	107	100.0	131	
Since being treated by my independent prescriber I have the same number of appointments for my condition	Strongly disagree/ disagree/not sure	14	58.3	62	57.4	76	0.93
	Strongly Agree/Agree	10	41.7	46	42.6	56	
	Total	24	100.0	108	100.0	132	
I am involved in decisions about the medicines prescribed for me by my independent prescriber	Strongly disagree/ disagree/not sure	10	41.7	43	39.8	53	0.87
	Strongly Agree/Agree	14	58.3	65	60.2	79	
	Total	24	100.0	108	100.0	132	
I have a good relationship with my independent prescriber	Strongly disagree/ disagree/not sure	7	29.2	21	19.4	28	0.29
	Strongly Agree/Agree	17	70.8	87	80.6	104	
	Total	24	100.0	108	100.0	132	
I have confidence in my independent prescriber	Strongly disagree/ disagree/not sure	6	25.0	24	22.2	30	0.77
	Strongly Agree/Agree	18	75.0	84	77.8	102	
	Total	24	100.0	108	100.0	132	

Table 11.23.23: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing pharmacist survey; sub-group analysis by age)

		<55 yrs old		> 55yrs old		Total	P value
		n	%	n	%		
I receive better quality care from the:	Independent prescriber	5	22.7	9	8.5	14	0.10
	Doctor	8	36.4	34	32.1	42	
	No difference	9	40.9	63	59.4	72	
	Total	22	100.0	106	100.0	128	
If I have a concern about a new medicine I find it easier to raise it with:	Independent prescriber	9	39.1	33	32.0	42	0.79
	Doctor	8	34.8	38	36.9	46	
	No difference	6	26.1	32	31.1	38	
	Total	23	100.0	103	100.0	126	
I receive safer care from the:	Independent prescriber	5	21.7	8	7.6	13	0.10
	Doctor	8	34.8	35	33.3	43	
	No difference	10	43.5	62	59.0	72	
	Total	23	100.0	105	100.0	128	
My condition/health is monitored better by the:	Independent prescriber	5	21.7	30	28.6	35	0.48
	Doctor	9	39.1	47	44.8	56	
	No difference	9	39.1	28	26.7	37	
	Total	23	100.0	105	100.0	128	
I am better informed about my treatment by the:	Independent prescriber	7	30.4	30	28.3	37	0.97
	Doctor	10	43.5	46	43.4	56	
	No difference	6	26.1	30	28.3	36	
	Total	23	100.0	106	100.0	129	
I am more likely to be asked about how I can fit medicines into my routine by the:	Independent prescriber	7	30.4	23	22.8	30	0.63
	Doctor	7	30.4	28	27.7	35	
	No difference	9	39.1	50	49.5	59	
	Total	23	100.0	101	100.0	124	

Table 11.23.24: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing pharmacist survey; sub-group analysis by age)

		<55 yrs old		> 55yrs old		Total	P value
		n	%	n	%		
I feel more able to ask questions about my medicines with the:	Independent prescriber	10	43.5	37	35.6	47	0.56*
	Doctor	4	17.4	29	27.9	33	
	No difference	9	39.1	38	36.5	47	
	Total	23	100.0	104	100.0	127	
I am more likely to be advised about non-drug treatments for my condition/s by the:	Independent prescriber	4	17.4	20	20.6	24	0.94*
	Doctor	7	30.4	28	28.9	35	
	No difference	12	52.2	49	50.5	61	
	Total	23	100.0	97	100.0	120	
I am more likely to be told how a new medicine will help me by the:	Independent prescriber	11	47.8	26	25.7	37	0.04*
	Doctor	4	17.4	43	42.6	47	
	No difference	8	34.8	32	31.7	40	
	Total	23	100.0	101	100.0	124	
I am more likely to be told about the possible side effects of a new medicine by the:	Independent prescriber	13	56.5	31	29.5	44	0.04*
	Doctor	4	17.4	36	34.3	40	
	No difference	6	26.1	38	36.2	44	
	Total	23	100.0	105	100.0	128	
I can get my prescription more quickly from the:	Independent prescriber	10	43.5	27	25.5	37	0.12*
	Doctor	2	8.7	25	23.6	27	
	No difference	11	47.8	54	50.9	65	
	Total	23	100.0	106	100.0	129	
Generally, getting my medicines is easier from the:	Independent prescriber	10	43.5	23	21.9	33	0.10*
	Doctor	4	17.4	28	26.7	32	
	No difference	9	39.1	54	51.4	63	
	Total	23	100.0	105	100.0	128	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.25: Your views and experiences based on your most recent consultation with your independent prescriber (prescribing pharmacist survey; sub-group analysis by experience of independent prescriber)

		frequency >2		frequency <2		Total	P value
		n		n			
I was very satisfied with my visit to this independent prescriber	Strongly disagree/ disagree/not sure	1	1.4	15	24.2	16	<0.01*
	Strongly Agree/Agree	68	98.6	47	75.8	115	
	Total	69	100.0	62	100.0	131	
This independent prescriber told me as much as I wanted to know about my medicines	Strongly disagree/ disagree/not sure	9	12.9	18	29.0	27	0.02
	Strongly Agree/Agree	61	87.1	44	71.0	105	
	Total	70	100.0	62	100.0	132	
Some things about my consultation with the independent prescriber could have been better	Strongly disagree/ disagree/not sure	56	81.2	46	74.2	102	0.34
	Strongly Agree/Agree	13	18.8	16	25.8	29	
	Total	69	100.0	62	100.0	131	
I felt the independent prescriber really understood my point of view	Strongly disagree/ disagree/not sure	10	14.3	23	37.1	33	<0.01
	Strongly Agree/Agree	60	85.7	39	62.9	99	
	Total	70	100.0	62	100.0	132	
I wish it had been possible to spend a little more time with the independent prescriber	Strongly disagree/ disagree/not sure	52	75.4	49	79.0	101	0.62
	Strongly Agree/Agree	17	24.6	13	21.0	30	
	Total	69	100.0	62	100.0	131	
The independent prescriber asked me what I thought about my prescribed medicines	Strongly disagree/ disagree/not sure	29	42.6	27	43.5	56	0.92
	Strongly Agree/Agree	39	57.4	35	56.5	74	
	Total	68	100.0	62	100.0	130	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.26: You and your independent prescriber (prescribing pharmacist survey; sub-group analysis by experience of independent prescriber)

		frequency >2		frequency <2		Total	P value
		n		n			
I get longer appointments with my independent prescriber than my doctor	Strongly disagree/ disagree/not sure	36	51.4	44	71.0	80	0.02
	Strongly Agree/Agree	34	48.6	18	29.0	52	
	Total	70	100.0	62	100.0	132	
My condition is controlled better since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	31	44.3	44	71.0	75	<0.01
	Strongly Agree/Agree	39	55.7	18	29.0	57	
	Total	70	100.0	62	100.0	132	
I am happier with my medicines since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	33	47.1	40	64.5	73	0.05
	Strongly Agree/Agree	37	52.9	22	35.5	59	
	Total	70	100.0	62	100.0	132	
Being treated by my independent prescriber has had no effect on my condition	Strongly disagree/ disagree/not sure	44	63.8	43	69.4	87	0.50
	Strongly Agree/Agree	25	36.2	19	30.6	44	
	Total	69	100.0	62	100.0	131	
I am more likely to take my medicines when they are prescribed by a independent prescriber	Strongly disagree/ disagree/not sure	50	72.5	53	85.5	103	0.07
	Strongly Agree/Agree	19	27.5	9	14.5	28	
	Total	69	100.0	62	100.0	131	
Since being treated by my independent prescriber I have the same number of appointments for my condition	Strongly disagree/ disagree/not sure	37	52.9	39	62.9	76	0.24
	Strongly Agree/Agree	33	47.1	23	37.1	56	
	Total	70	100.0	62	100.0	132	
I am involved in decisions about the medicines prescribed for me by my independent prescriber	Strongly disagree/ disagree/not sure	24	34.3	29	46.8	53	0.14
	Strongly Agree/Agree	46	65.7	33	53.2	79	
	Total	70	100.0	62	100.0	132	
I have a good relationship with my independent prescriber	Strongly disagree/ disagree/not sure	8	11.4	20	32.3	28	<0.01
	Strongly Agree/Agree	62	88.6	42	67.7	104	
	Total	70	100.0	62	100.0	132	
I have confidence in my independent prescriber	Strongly disagree/ disagree/not sure	9	12.9	21	33.9	30	<0.01
	Strongly Agree/Agree	61	87.1	41	66.1	102	
	Total	70	100.0	62	100.0	132	

Table 11.23.27: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing pharmacist survey; sub-group analysis by experience of independent prescriber)

		frequency >2		frequency <2		Total	P value
		n	%	n	%		
I receive better quality care from the:	Independent prescriber	12	17.4	2	3.4	14	<0.01*
	Doctor	15	21.7	27	45.8	42	
	No difference	42	60.9	30	50.8	72	
	Total	69	100.0	59	100.0	128	
If I have a concern about a new medicine I find it easier to raise it with:	Independent prescriber	28	41.8	14	23.7	42	0.06
	Doctor	19	28.4	27	45.8	46	
	No difference	20	29.9	18	30.5	38	
	Total	67	100.0	59	100.0	126	
I receive safer care from the:	Independent prescriber	11	15.9	2	3.4	13	<0.01*
	Doctor	15	21.7	28	47.5	43	
	No difference	43	62.3	29	49.2	72	
	Total	69	100.0	59	100.0	128	
My condition/health is monitored better by the:	Independent prescriber	29	42.0	6	10.2	35	<0.01
	Doctor	19	27.5	37	62.7	56	
	No difference	21	30.4	16	27.1	37	
	Total	69	100.0	59	100.0	128	
I am better informed about my treatment by the:	Independent prescriber	29	41.4	8	13.6	37	<0.01
	Doctor	22	31.4	34	57.6	56	
	No difference	19	27.1	17	28.8	36	
	Total	70	100.0	59	100.0	129	
I am more likely to be asked about how I can fit medicines into my routine by the:	Independent prescriber	21	31.8	9	15.5	30	0.03
	Doctor	13	19.7	22	37.9	35	
	No difference	32	48.5	27	46.6	59	
	Total	66	100.0	58	100.0	124	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.28: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing pharmacist survey; sub-group analysis by experience of independent prescriber)

		frequency >2		frequency <2		Total	P value
		n	%	n	%		
I feel more able to ask questions about my medicines with the:	Independent prescriber	33	48.5	14	23.7	47	<0.01
	Doctor	10	14.7	23	39.0	33	
	No difference	25	36.8	22	37.3	47	
	Total	68	100.0	59	100.0	127	
I am more likely to be advised about non-drug treatments for my condition/s by the:	Independent prescriber	14	21.9	10	17.9	24	0.07
	Doctor	13	20.3	22	39.3	35	
	No difference	37	57.8	24	42.9	61	
	Total	64	100.0	56	100.0	120	
I am more likely to be told how a new medicine will help me by the:	Independent prescriber	28	41.2	9	16.1	37	<0.01
	Doctor	20	29.4	27	48.2	47	
	No difference	20	29.4	20	35.7	40	
	Total	68	100.0	56	100.0	124	
I am more likely to be told about the possible side effects of a new medicine by the:	Independent prescriber	27	39.1	17	28.8	44	0.04
	Doctor	15	21.7	25	42.4	40	
	No difference	27	39.1	17	28.8	44	
	Total	69	100.0	59	100.0	128	
I can get my prescription more quickly from the:	Independent prescriber	28	40.0	9	15.3	37	<0.01
	Doctor	8	11.4	19	32.2	27	
	No difference	34	48.6	31	52.5	65	
	Total	70	100.0	59	100.0	129	
Generally, getting my medicines is easier from the:	Independent prescriber	22	31.9	11	18.6	33	0.06
	Doctor	12	17.4	20	33.9	32	
	No difference	35	50.7	28	47.5	63	
	Total	69	100.0	59	100.0	128	

Table 11.23.29: Your views and experiences based on your most recent consultation with your independent prescriber (prescribing pharmacist survey; sub-group analysis by ethnic group)

		White		others		Total	p value
		n		n			
I was very satisfied with my visit to this independent prescriber	Strongly disagree/ disagree/not sure	13	11.7	3	15.0	16	0.68*
	Strongly Agree/Agree	98	88.3	17	85.0	115	
	Total	111	100.0	20	100.0	131	
This independent prescriber told me as much as I wanted to know about my medicines	Strongly disagree/ disagree/not sure	19	17.1	8	38.1	27	0.03
	Strongly Agree/Agree	92	82.9	13	61.9	105	
	Total	111	100.0	21	100.0	132	
Some things about my consultation with the independent prescriber could have been better	Strongly disagree/ disagree/not sure	89	80.2	13	65.0	102	0.13
	Strongly Agree/Agree	22	19.8	7	35.0	29	
	Total	111	100.0	20	100.0	131	
I felt the independent prescriber really understood my point of view	Strongly disagree/ disagree/not sure	26	23.4	7	33.3	33	0.34
	Strongly Agree/Agree	85	76.6	14	66.7	99	
	Total	111	100.0	21	100.0	132	
I wish it had been possible to spend a little more time with the independent prescriber	Strongly disagree/ disagree/not sure	91	82.0	10	50.0	101	<0.01
	Strongly Agree/Agree	20	18.0	10	50.0	30	
	Total	111	100.0	20	100.0	131	
The independent prescriber asked me what I thought about my prescribed medicines	Strongly disagree/ disagree/not sure	42	37.8	14	73.7	56	<0.01
	Strongly Agree/Agree	69	62.2	5	26.3	74	
	Total	111	100.0	19	100.0	130	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.30: You and your independent prescriber (prescribing pharmacist survey; sub-group analysis by ethnic group)

		White		others		Total	p value
		n		n			
I get longer appointments with my independent prescriber than my doctor	Strongly disagree/ disagree/not sure	64	57.7	16	76.2	80	0.11
	Strongly Agree/Agree	47	42.3	5	23.8	52	
	Total	111	100.0	21	100.0	132	
My condition is controlled better since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	65	58.6	10	47.6	75	0.35
	Strongly Agree/Agree	46	41.4	11	52.4	57	
	Total	111	100.0	21	100.0	132	
I am happier with my medicines since being treated by my independent prescriber	Strongly disagree/ disagree/not sure	63	56.8	10	47.6	73	0.44
	Strongly Agree/Agree	48	43.2	11	52.4	59	
	Total	111	100.0	21	100.0	132	
Being treated by my independent prescriber has had no effect on my condition	Strongly disagree/ disagree/not sure	73	65.8	14	70.0	87	0.71
	Strongly Agree/Agree	38	34.2	6	30.0	44	
	Total	111	100.0	20	100.0	131	
I am more likely to take my medicines when they are prescribed by a independent prescriber	Strongly disagree/ disagree/not sure	90	81.1	13	65.0	103	0.11
	Strongly Agree/Agree	21	18.9	7	35.0	28	
	Total	111	100.0	20	100.0	131	
Since being treated by my independent prescriber I have the same number of appointments for my condition	Strongly disagree/ disagree/not sure	60	54.1	16	76.2	76	0.06
	Strongly Agree/Agree	51	45.9	5	23.8	56	
	Total	111	100.0	21	100.0	132	
I am involved in decisions about the medicines prescribed for me by my independent prescriber	Strongly disagree/ disagree/not sure	41	36.9	12	57.1	53	0.08
	Strongly Agree/Agree	70	63.1	9	42.9	79	
	Total	111	100.0	21	100.0	132	
I have a good relationship with my independent prescriber	Strongly disagree/ disagree/not sure	18	16.2	10	47.6	28	<0.01
	Strongly Agree/Agree	93	83.8	11	52.4	104	
	Total	111	100.0	21	100.0	132	
I have confidence in my independent prescriber	Strongly disagree/ disagree/not sure	21	18.9	9	42.9	30	0.02
	Strongly Agree/Agree	90	81.1	12	57.1	102	
	Total	111	100.0	21	100.0	132	

Table 11.23.31: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing pharmacist survey; sub-group analysis by ethnic group)

		White		others		Total	P value
		n	%	n	%		
I receive better quality care from the:	Independent prescriber	11	10.2	3	15.0	14	0.03*
	Doctor	31	28.7	11	55.0	42	
	No difference	66	61.1	6	30.0	72	
	Total	108	100.0	20	100.0	128	
If I have a concern about a new medicine I find it easier to raise it with:	Independent prescriber	35	33.0	7	35.0	42	0.22*
	Doctor	36	34.0	10	50.0	46	
	No difference	35	33.0	3	15.0	38	
	Total	106	100.0	20	100.0	126	
I receive safer care from the:	Independent prescriber	11	10.3	2	9.5	13	0.04*
	Doctor	31	29.0	12	57.1	43	
	No difference	65	60.7	7	33.3	72	
	Total	107	100.0	21	100.0	128	
My condition/health is monitored better by the:	Independent prescriber	32	29.9	3	14.3	35	0.07*
	Doctor	42	39.3	14	66.7	56	
	No difference	33	30.8	4	19.0	37	
	Total	107	100.0	21	100.0	128	
I am better informed about my treatment by the:	Independent prescriber	32	29.6	5	23.8	37	<0.01*
	Doctor	41	38.0	15	71.4	56	
	No difference	35	32.4	1	4.8	36	
	Total	108	100.0	21	100.0	129	
I am more likely to be asked about how I can fit medicines into my routine by the:	Independent prescriber	27	25.7	3	15.8	30	<0.01*
	Doctor	24	22.9	11	57.9	35	
	No difference	54	51.4	5	26.3	59	
	Total	105	100.0	19	100.0	124	

*Test performed is not valid because cell(s) presented expected frequency less than 5

Table 11.23.32: Comparing your independent prescriber to the doctor who would usually prescribe your medicines (prescribing pharmacist survey; sub-group analysis by ethnic group)

		White		others		Total	P value
		n	%	n	%		
I feel more able to ask questions about my medicines with the:	Independent prescriber	42	39.6	5	23.8	47	<0.01*
	Doctor	21	19.8	12	57.1	33	
	No difference	43	40.6	4	19.0	47	
	Total	106	100.0	21	100.0	127	
I am more likely to be advised about non-drug treatments for my condition/s by the:	Independent prescriber	17	16.8	7	36.8	24	<0.01*
	Doctor	27	26.7	8	42.1	35	
	No difference	57	56.4	4	21.1	61	
	Total	101	100.0	19	100.0	120	
I am more likely to be told how a new medicine will help me by the:	Independent prescriber	31	29.8	6	30.0	37	0.36*
	Doctor	37	35.6	10	50.0	47	
	No difference	36	34.6	4	20.0	40	
	Total	104	100.0	20	100.0	124	
I am more likely to be told about the possible side effects of a new medicine by the:	Independent prescriber	37	34.6	7	33.3	44	0.39
	Doctor	31	29.0	9	42.9	40	
	No difference	39	36.4	5	23.8	44	
	Total	107	100.0	21	100.0	128	
I can get my prescription more quickly from the:	Independent prescriber	28	25.9	9	42.9	37	<0.01*
	Doctor	18	16.7	9	42.9	27	
	No difference	62	57.4	3	14.3	65	
	Total	108	100.0	21	100.0	129	
Generally, getting my medicines is easier from the:	Independent prescriber	23	21.3	10	50.0	33	<0.01*
	Doctor	24	22.2	8	40.0	32	
	No difference	61	56.5	2	10.0	63	
	Total	108	100.0	20	100.0	128	

*Test performed is not valid because cell(s) presented expected frequency less than 5