

ORIGINAL RESEARCH

Safety and quality of nurse independent prescribing: a national study of experiences of education, continuing professional development clinical governance

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Abstract

Aim. To determine the adequacy of initial nurse independent prescribing education and identify continuing professional development and clinical governance strategies in place for non-medical prescribing.

Background. In 2006, new legislation in England enabled nurses with an independent prescribing qualification to prescribe, within their competence. In 2006, non-medical prescribing policies released by the Department of Health outlined the recommendations for education, continuing professional development and governance of non-medical prescribing; however, there was no evidence on a national scale about the extent of implementation and effectiveness of these strategies.

Design. National surveys of: (i) nurse independent prescribers; and (ii) non-medical prescribing leaders in England.

Methods. Questionnaire surveys (August 2008–February 2009) covering educational preparation, prescribing practice (nurse independent prescribers) and structures/processes for support and governance (non-medical prescribing leaders).

Results. Response rates were 65% (976 prescribers) and 52% (87 leaders). Most nurses felt their prescribing course met their learning needs and stated course outcomes and that they had adequate development and support for prescribing to maintain patient safety. Some types of community nurse prescribers had less access to support and development. The prescribing leaders reported lacking systems to ensure continuity of non-medical prescribing and monitoring patient experience.

Conclusion. Educational programmes of preparation for nurse prescribing were reported to be operating satisfactorily and providing fit-for-purpose preparation for the expansion to the scope of nurse independent prescribing. Most clinical governance and risk management strategies for prescribing were in place in primary and secondary care.

Keywords: clinical governance, continuing professional development, non-medical prescribing, nurse education

Introduction

Non-medical prescribing is now well incorporated into the English health service; this study reports findings around policy implementation and the education of nurses as this initiative has developed. As international healthcare systems look to set up or modify existing frameworks for non-medical prescribing it is logical to critique the UK model of training, competency standards and continuing professional development (CPD) (Weeks *et al.* 2010, Wilkinson 2011) as it has been described as ‘the most radical, unrestricted model of non-medical prescribing (NMP) anywhere in the world’ (Kroezen *et al.* 2011). Educational preparation has been the subject of particular debate since the UK programme is shorter than other countries such as America or New Zealand which require an advanced nursing practice course to prescribe (Kroezen *et al.* 2011). Nurse prescribing has been well integrated in America for decades, however, it is in its infancy in countries such as New Zealand and Australia (Elsom *et al.* 2008, New Zealand Ministry of Health 2013). Therefore, various lessons can be learnt from the UK model around education and implantation. For example, would a short prescribing course suffice in America? Or how have rural community nurses integrated into the health care team – can this assist New Zealand and Australia where NMP is on the threshold of rapid expansion?

Background

NMP was introduced to give patients quicker access to medicines, improve access to services and make better use of health professionals skills (Department of Health 2011). Nurses in the UK have had various forms of prescribing rights since 1994, when a district nurse/health visitor prescribing formulary was introduced. In 2002, an extended formulary was created, followed by supplementary prescribing in 2003, which allowed nurses to prescribe in partnership with a medical prescriber. In 2006, these forms of prescribing were superseded. Nurse independent/supplementary prescribing permitted nurses to prescribe across the formulary (a list of available medicines in England) with the exception of some controlled drugs (at the time of the study). This enables nurses to complete a whole episode of care for any patient from diagnosis, to treatment and follow-up either independently or in conjunction with a medical prescriber (Department of Health 2011). Since 2006, many Universities across the UK have set up courses to train nurses for independent prescribing roles; Table 1 below outlines the characteristics of these courses. All

courses have to be accredited by the nursing regulator, the Nursing & Midwifery Council (NMC).

Safe and effective prescribing is taught in all courses and is an expected core competency of any new prescriber; however, health professional graduates of all disciplines often lack confidence in this (Maxwell & Walley 2003, Heaton *et al.* 2008). For example, concerns have previously been expressed about the adequacy of nurses’ pharmacology and clinical skills training and hence their confidence and readiness to practice (Bradley *et al.* 2006, Bewley 2007). Little is known around educational preparedness of nurse independent prescribers (NIP) since the changes in 2006 (Department of Health 2011). Earlier nurse independent prescribing studies have indicated the importance of prescriber support and CPD after qualifying as a prescriber and have reported inconsistencies across healthcare employer organizations (Maxwell & Walley 2003, Latter *et al.* 2005, Stewart *et al.* 2012).

National Health Service (NHS) Trusts are organizations that provide services on behalf of the English NHS. They are responsible for the clinical governance, a systematic approach to maintaining and improving the quality of patient care (Department of Health 1998). Each NHS Trust is expected to have a ‘non-medical prescribing (NMP) lead’, a leader who is responsible for the safe implementation of NMP through organizational arrangements and national and local policies. Policy underpinning NMP outlines strategies for the development and implementation of NMP including the need for: stakeholder and patient/public awareness initiatives, internal arrangements for monitoring NMP prescribing, mechanisms/criteria for applications for training to be a NMP and placement of nurses for training, processes for obtaining prescription pads, distributing any relevant policies, procedures and any other relevant local information (Department of Health 2006). However, at the time of this study there was no published research or national data on these arrangements or the extent to which this guidance was being followed in practice.

The study

Aims

The aims of this research, which formed part of a larger evaluation of non-medical prescribing in England commissioned by the Department of Health (Latter *et al.* 2010) were to:

- determine the adequacy of educational preparation for nurse independent prescribers

Table 1 Characteristics of nurse independent prescribing courses in the UK (Department of Health 2006).

Independent nurse prescribing learning outcomes	Course requirements
Pre-requisite training/skills to undertake the course	Nurses must: <ul style="list-style-type: none"> -be a registered nurse/midwife/specialist community public health nurse -have a minimum of 3 years practice experience -be deemed competent by an employer to undertake a patient history, clinical assessment and diagnosis and sufficient knowledge to apply prescribing principles to their clinical area -identify; a clinical need for the prescribing role, access to a budget to meet the costs of their prescriptions on completion of the course (primary healthcare nurses only), access to continuing professional development (CPD) opportunities (determined by employer) -be able to demonstrate appropriate numeracy skills -be able to prove they have the ability to study at Bachelor's degree level or equivalent -have the support of employer and lead nurse -have an eligible medical supervisor
Course academic standard	Represents a qualification level that shares similar expectations of attainment to a Bachelor's degree*
Type of learning	Taught or distance learning (must have at least 8 face to face taught days and 10 days of protected learning)
Length of course	-26 days minimum + 12 days supervised learning in practice -Must complete within 1 year
Type of course	-Can be stand-alone or run alongside a clinical course (e.g. nurse practitioner) -Can be nurse only or mixed courses (e.g. complete the course with pharmacists and allied health professional students)
Supervised practice	Minimum 12 days. All students must have a Designated Medical Practitioner (DMP) to supervise, guide and assess learning in practice
Course Components	-Consultation, decision-making and therapy including referral -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
Theory based assessment	-A portfolio that demonstrates application of theory to practice -Assessment of observed practice: a systematic and detailed examination of practice within a simulated learning environment (e.g. Objective Structured Clinical Examination, OSCE) or a relevant live practice setting (including a video) -A final written exam of 20 short answer and multiple choice pharmacological questions (must achieve 80% to pass) -Numerical assessment (must achieve 100% to pass) -Successfully write out a prescription that requires a drug calculation
Practice based assessment	Complete 12 days of supervised practice and obtain sign off from the DMP and employer that the student is competent to prescribe medicines in their area of practice

*Office of Qualifications and Examinations Regulation (2013).

UK, United Kingdom, DMP, designated medical practitioner, CPD, continuing professional development.

- identify continuing professional development, clinical governance and professional regulation strategies in place in NHS Trust in England

While non-medical prescribing takes place across the UK, this paper only focuses on results from nurse independent prescribers in England. Results for pharmacist independent

prescribers in England can be found elsewhere (Latter *et al.* 2010).

Design

This was a cross-sectional national survey of NMP using questionnaires distributed to two groups: (a) nurse independent prescribers; and (b) NMP leads across nine of the 10 Strategic Health Authority areas in England (SHAs managed the NHS locally and were responsible for delivering high quality health care, developing plans for improving and increasing the capacity of health services in their local area).

Sample

A random sample of approximately 10% ($N = 1492$) of all NIPs registered for 6 months or more as a prescriber and residing in England were invited to participate in the NIP questionnaire. Participants were selected from the NMC register.

One hundred and sixty-eight NMP leads across the nine SHAs in England were invited to participate. Trust NMP leads were identified by SHA leaders and publically available records. The sample was stratified according to SHA and type of Trust to ensure a national representation of all Trust types. A 50% sample of Trust leads from acute foundation/acute NHS (hospital) and primary care Trusts was randomly selected. The total number was lower than the number of Trusts in England (225 acute care + 153 primary care Trusts) for three reasons: one of the 10 SHAs in England did not participate; some NMP leads covered more than one Trust; and some Trusts did not have an NMP lead (either permanently or temporarily).

A decision was made by the research team to invite all NMP leads for mental health Trusts and care Trusts (who, at the time, were organizations providing integrated health and social care) to take part due to the smaller numbers of these Trusts – a 50% sample would not have provided sufficient response for meaningful analysis.

Ethical considerations

The Southampton and SW Hants Research Ethics Committee classified the surveys as service evaluation and hence the Research Ethics Committee approval was not required. However, all participation was voluntary and consent was implied by the completion of the questionnaires. All participants were informed that their responses were anonymous and confidential. All study data have been kept in accordance with the Data Protection Act (1998).

Data collection

The NIP questionnaire gathered information on demographics, NIP educational preparation, prescribing experience, clinical governance, risk management, opinion of NMP and views on support and CPD (please see final report by Latter *et al.* 2010 for a copy of the questionnaire). The questionnaire and study information was sent by mail by the NMC on behalf of the research team during November 2008. Two follow-up reminders were sent to non-responders in December 2008–January 2009.

The NMP leads questionnaire collected regional data on clinical governance and risk management strategies in operation and provision of CPD opportunities (please see final report by Latter *et al.* 2010, for a copy of the questionnaire). NMP leads were sent an email invitation to participate in the questionnaire by either using a web-link to an online questionnaire or via a telephone interview with a researcher (who contemporaneously entered the data into the online questionnaire).

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 online questionnaire. Up to four follow ups were conducted at 2-week intervals.

Data analysis

All data were entered into Survey Monkey (SurveyMonkey 2008), downloaded into Excel then imported to the Statistical Package for the Social Sciences (SPSS) Version 18 (Chicago, IL, USA). The data were cleaned and checked by the study researcher (AS). Frequencies and cross-tabulations were completed on the data.

Validity

Both questionnaires were developed using previously validated data collection tools; the NIP questionnaire was from a previous national questionnaire of nurse prescribers (Latter *et al.* 2007) and selected items from the Bissell *et al.* (2008) national questionnaire of supplementary prescribers. Input from the study's advisory group also informed the design of the NIP questionnaire. The NMP leads questionnaire drew on issues identified from policy on NMP, the research literature and used existing tools for assessment of NMP (Royal Pharmaceutical Society of Great Britain 2007, NHS London 2008). Piloting was undertaken by 30 NIPs and 10 NMP leads in August 2008 to ensure the face validity of the information collected and readability. The NMP leads questionnaire was modified in response to issues raised and some questions were re-worded where clarification was required.

Results

Demographics

The demographics of the NIP questionnaire cohort have been reported elsewhere (Latter *et al.* 2010). Nine hundred and seventy-six responses were received (65% response rate), of these 840 were currently prescribing as a NIP and were eligible to complete the full questionnaire. Nurses were prescribing in a variety of settings across primary and secondary care and for a wide range of health conditions.

Eighty seven NMP Trust leads completed the questionnaire (52% response rate) with all Trust types represented, including 33% of acute care and 30% of primary care sampled Trusts. Ninety nine per cent of Trust leads were responsible for nurse prescribing, 71% for pharmacist prescribing and 53% were responsible for allied health professional prescribing in their Trust.

Preparatory education for prescribing

Forty nine per cent of NIPs had completed their independent prescribing course prior to the policy changes in 2006 and with the exception of community matrons ($N = 38$, 67%), health visitors ($N = 13$, 59%) and district nurses ($N = 12$, 71%), over 80% of all NIPs reported that they were able to demonstrate their pre-requisite assessment and diagnosis skills before the prescribing training course. Approximately half of the NIPs ($N = 386$, 56%) did this using continued assessment in the work place and 273 (40%) via formal training as part of a previous or concurrent award.

Five hundred and twenty (62%) NIPs completed a uni-professional course which was set at a Bachelor's degree level (75%) (Office of Qualifications & Examinations Regulation 2013). NIPs generally viewed their initial prescribing courses as fit-for-purpose; the majority of NIPs (87%) reported that their training course 'completely' or 'largely met' both their learning needs ($N = 730$) and the stated learning outcomes ($N = 730$). Over two-thirds of NIPs reported they were adequately prepared by their course for all key prescribing competencies (Table 2).

The period of supervised learning in practice with designated medical practitioners (DMP: a medical doctor who provides training, support and supervision to the trainee NMP and who signs off on competencies) was a positive experience for most NIPs and the majority ($N = 730$, 87%) reported receiving at least the 12 days required. With the exception of some community matrons ($N = 13$, 23%) and

Table 2 Reported adequacy of the course in preparing NIPs in specific competencies ($N = 840$).

Competencies (Nursing & Midwifery Council 2006)	% Adequate
Consultation, decision-making and therapy including referral	83
Influences on and psychology of, prescribing	88.7
Prescribing in a team context	76.5
Clinical pharmacology, including the effects of co-morbidity	81
Evidence based practice and clinical governance in relation to nurse prescribing	91.3
Legal, policy and ethical aspects	95.4
Professional accountability and responsibility	97.6
Prescribing in the public health context	73.8

NIP, nurse independent prescriber.

district nurses ($N = 5$, 29%), most NIPs ($N = 757$, 90%) reported that it was easy to identify a DMP, facilitated by the large majority of NIPs ($N = 753$, 90%) who already knew and were working with their DMP before their course.

Clinical governance

A majority of NMP leads reported having most key quality assurance and risk management strategies in place for NMP (Table 3) in their Trust/s. On average, 62% of Trust leads reported having an NMP committee, mental health/foundation Trust leads were the least likely to report having one. Systems for dealing with poor performance of NMPs were more frequently reported for secondary than primary care Trusts. Most Trust leads did not have a system to ensure continuity of NMP services by covering annual leave, sickness or other absences. Supported access to electronic prescribing and computer decision support was reported by less than a quarter of NMP leads in acute/foundation and mental health/foundation Trusts. This reflects the lack of electronic prescribing systems in hospitals generally. Systems for monitoring prescribing were reported by less than two-thirds of acute/foundation and mental health/foundation Trusts and were less prevalent than in primary care. In contrast, participation in clinical audit was reported by a lower percentage of NMPs leads in primary care. Leads from all Trust types reported relatively low rates of monitoring patient experience as a quality assurance method. When asked whether the quality assurance methods were different than those used to monitor the practice of doctors with whom they worked, 50.6% of NIPs reported that they did not know, 38.5% said 'no' and 11% stated that they were different. Com-

Table 3 Trust clinical governance systems, policies and support structures in place for NMP ($N = 86$)**.

	PCT ($N = 26$)	Acute/foundation ($N = 37$)	Mental health/foundation ($N = 23$)
Organizational systems for NMP			
Current database of NMPs	100%	100%	100%
NMP Committee	63%	74%	50%
Clear lines of responsibility and accountability	96%*	97%*	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% [†]	95%
NMP is included in job description/contract	75% [‡]	80% [†]	75%
System for dealing with poor performance	67% [†]	86% [†]	90%
Consideration has been given to cover for absence, etc.	38% [‡]	37% [§]	10% [†]
Policies and systems for safety information			
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%*	94%	100%
NMP policies by Trust			
Up-to-date NMP policy	96%	97%	95%
Up-to-date controlled drug policy	83% [†]	94%*	80%
Policy on unlicensed & off-label prescribing	83%	100%	90%
Supervision and support for NMPs			
Support for newly qualified prescribers	88%	83%	80%
NMPs receive appropriate support or supervision	75% [†]	80%*	95%
NMPs are supported for access to computer & decision support	71%*	23% [¶]	35% [†]
Systems for assuring quality of NMP			
Systems for monitoring prescribing	79% [†]	60% [†]	65% [†]
Participation in clinical audit	50% [‡]	66% [†]	60% [†]
Monitoring of patient experience	21%*	14%*	30%*

*One respondent didn't know.

[†]Two respondents didn't know.[‡]Three respondents didn't know.[§]Four respondents didn't know.[¶]Five respondents didn't know.

**Data from one care trust participant not included.

PCT, primary care trust, NMP, non-medical prescribing, NPSA, national patient safety agency.

ments on the difference mainly referred to more auditing of the NIP's practice and the lack of monitoring of doctors' practice in many instances.

Support and appraisal

The majority of NMP leads reported support mechanisms being in place for prescribers, with the exception of access to computer & decision support, as noted above (Table 3). Figure 1 shows that this experience of support was reflected by most ($N = 650$, 77%) NIPs, who reported having support/supervision from an experienced prescriber or access to a network of non-medical prescribers ($N = 643$, 76%). Almost three-quarters ($N = 609$, 73%) of NIPs said they

had a regular appraisal which included their prescribing role.

Some NIPs may have lacked some important strategies for formally reviewing their prescribing-related needs. Of the 28% ($N = 231$) of those who stated that they did not have an appraisal that included their prescribing role, 74% ($N = 171$) did not have a personal development plan that included prescribing and 74% ($N = 171$) reported never having a session to review their independent prescribing practice with a medical prescriber. However, 62% ($N = 143$) of this group did report having access to ongoing support from an experienced prescriber.

As a collective group ($N = 96$), those nurses who worked across several different GP practice teams – district nurses, community matrons and health visitors, were less likely to

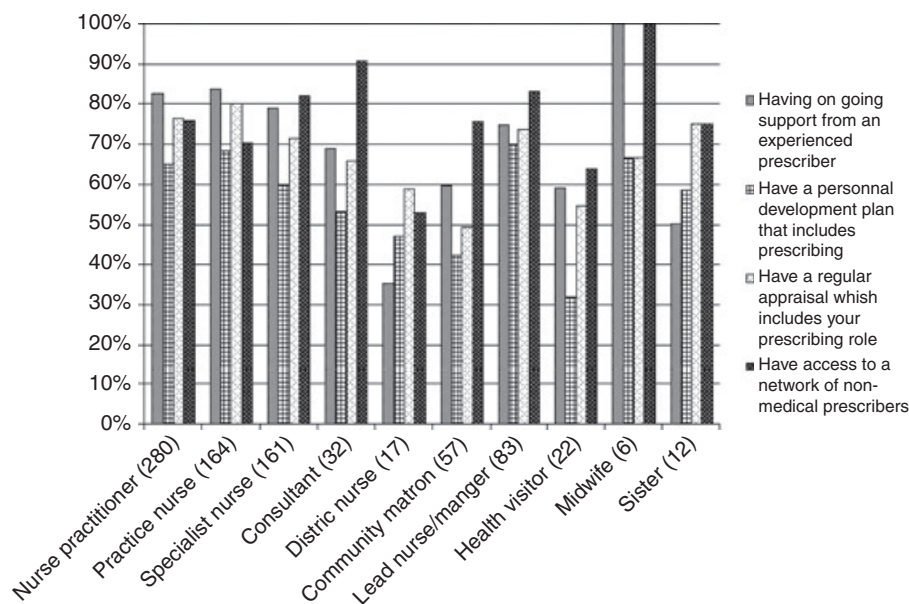


Figure 1 Percentage of NIPs who have access to prescriber support, appraisal and development.

report access to support and supervision than the NIP cohort as a whole. Only 52% ($N = 50$) of these nurses reported having a regular appraisal, 41% ($N = 39$) a personal development plan, 55% ($N = 53$) access to an experienced prescriber and 69% ($N = 66$) access to a network of non-medical prescribers (Figure 1).

All NIPs reported using a range of quality assurance tools and methods in their practice, including; monitoring of their prescribing data ($N = 568$, 68%), peer review ($N = 438$, 52%), use of personal records ($N = 438$, 52%), case audit in a specific clinical area ($N = 334$, 40%) and significant event analysis ($N = 326$, 39%) with less using patient/service user questionnaires ($N = 251$, 30%).

Continuing professional development and decision support

All NIPs reported using several strategies to ‘keep up-to-date’ with their prescribing, with the most common being use of the *British National Formulary* (a reference which provides up-to-date guidance on prescribing, dispensing and administering medicines) and internet (Table 4). The majority of NIPs reported having support from their practice/directorate/department for continuing professional development in the form of study leave ($N = 658$, 78%), in-house training courses ($N = 599$, 71%) and just over half of nurses reported access to a budget for external training courses ($N = 492$, 58%). Approximately one-third, 30.5% ($N = 18$) of NMP leads reported that the CPD provided by the Trust was not adequate to maintain patient safety. Eighteen per cent ($N = 152$) of NIPs, reported that their CPD activities were

Table 4 NIPs’ sources for keeping up-to-date.

Source	NIPs (n)
<i>British National Formulary</i>	95.2% (800)
Using the internet	78.6% (660)
Peer network	77.3% (649)
Reading peer-reviewed journals	63.2% (531)
Access to Trust and other local newsletters	52.6% (442)
National Prescribing Centre’s Electronic Information Resource (NPCi)	44.9% (377)
National Prescribing Centre NMP sessions	44.3% (372)
Pharmaceutical industry representatives	37.9% (318)
National Electronic Library for Health	35.2% (296)
National Electronic Library for Medicines	31.7% (266)
Other	15.5% (130)

NIP, nurse independent prescriber; NMP, non-medical prescribing.

not adequate to maintain patient safety. There was no statistically significant relationship between NIP job title and the reporting of inadequate CPD, however, this was reported by a higher number ($N = 25$) of the collective group ($N = 96$) of district nurses, health visitors and community matrons.

In all, 588 NIPs (70%) reported how they prepared themselves for prescribing competence in a new area. Twenty eight per cent said they had not prescribed in a new area since completing the independent prescribing course. Of those NIPs who had moved into a new clinical area, the majority ($N = 482$) reported using multiple methods to prepare themselves. The most frequently reported method was undertaking courses/training ($N = 159$, 25%). Eighteen per cent ($N = 113$) undertook self-directed study or research

using various resources, including: internet, professional magazines, journals and text books. Of the 17% ($N = 106$) who reported using guidelines, these included National Institute for Health and Clinical Excellence (NICE), NHS clinical knowledge summaries (CKS) and Trust protocols/guidelines. Approximately a third ($N = 227$) of NIPs reported the use of more experiential methods of achieving competence – discussion/meetings/forums with colleagues, clinical supervision and observing/shadowing colleagues.

Discussion

Education

It appears that, since the opening up of the formulary to enable a potentially much greater scope of medicines to be prescribed for a wider range of conditions, NIPs have remained largely satisfied with their initial education and felt well prepared to prescribe in their clinical area. This is consistent with previous research into earlier cohorts of nurses prescribing from a less extensive formulary (Latter *et al.* 2007) and pharmacist independent prescribers (Cooper *et al.* 2008). This finding suggests that the UK model of nurse prescriber training, although comparatively short compared with other countries where NMP is aligned to nurse practitioner or other advanced practice education, was considered adequate by nurse prescribers to prepare them. This finding is pertinent to ensure that those who train begin and continue to prescribe and that the resources allocated to this education have the potential to impact on patient care (Stewart *et al.* 2012).

Bradley *et al.* (2006) identified previous concern around nurses' inadequate pharmacological knowledge; this does not appear to be reflected by the views of NIPs in this study, most of whom reported adequate preparation in this area. This may reflect a real change in nurse prescribers' pharmacological knowledge due to changes made by Higher Education Institutions in response to increased awareness of this issue and use of innovative methods of teaching to overcome these barriers (Lynn & Mostyn 2010). Alternatively, this positive finding may be a limitation of the self-report nature of the data.

Clinical governance

This finding that there are mechanisms in place by which the quality and safety of NMP is being monitored and managed at Trust level is reassuring. Some trust did lack some policies and clinical governance strategies, these Trusts may have had fewer non-medical prescribers in place and demand may help

to drive improvements in this area as the numbers of all NMPs, including allied health professionals, continues to increase across the UK (Courtenay *et al.* 2011b).

Turnover of NMP leads may be an explanatory factor; Courtenay *et al.* (2011a) reported 21% of those interviewed in 2009 had been in their position for less than 6 months-1 year. High turnover rates or vacancies could hinder local policy and governance development, leading to some of the inconsistencies seen across Trusts both in our study and a single region study conducted a year later (Lim *et al.* 2012).

Systems for monitoring prescribing were reported by a higher percentage of NMP leads in primary care, where there is routine access to electronic prescribing analysis and cost data (ePACT). The reverse was the case for participation in clinical audit which was more widely reported in acute (secondary) care. Lack of access to electronic prescribing data in secondary care was suggested as the reason for uncertainty among NMP leads about whether audit and review of NMP services was taking place (Lim *et al.* 2012). Lim and colleagues suggested that NMP leads could work more closely with the experienced clinical governance teams in secondary care Trusts to improve oversight of NMP. The importance of this was highlighted by Courtenay *et al.* (2011a) who found that non-medical prescribers have overcome difficulties with support for prescribing in Trusts that have NMP strategies in place and where NMP is more entrenched in the organization.

Support and appraisal

Three-quarters of the NMP leads in this study reported that NMPs were receiving appropriate support or supervision – a similar proportion was found in a study conducted 1-year later (Lim *et al.* 2012). There was however, a group of potentially vulnerable NIPs who, less frequently reported having access to sufficient support and supervision than other nurse prescribers: district nurses, community matrons and health visitors. Nurses in this group were also more likely to report an inability to demonstrate the pre-requisite assessment and diagnosis skills before the prescribing course. Previous research in this group has highlighted limited support from general practice and the healthcare environment as a whole (While & Biggs 2004).

This may be due to the nature of these roles, where nurses are working across multiple settings with multiple teams and general practices, dissipating the responsibility for these crucial connections, support and reflection that are needed to maintain the quality and safety of prescribing (Humphries & Green 2000). This finding may also reflect the importance

Why is this research or review needed?

- There has been little published research into the educational preparedness of nurse independent prescribers following the introduction of extended prescribing authority for nurses in 2006.
- Little was known about the extent to which the Department of Health (England) non-medical prescribing policies and guidance on support for and oversight of, non-medical prescribing are being implemented nationally in England.

What are the three key findings?

- Nurse independent prescribers reported that a short educational course provided adequate preparation for prescribing and was fit-for-purpose.
- Most core quality assurance mechanisms and management processes to enable non-medical prescribing were in place, exceptions being monitoring patient experience, quality assuring prescribing and ensuring continuity of non-medical prescribing services.
- Community based nurses (district nurses, community matrons and health visitors) less frequently reported having access to sufficient support and supervision than other nurse prescribers.

How should the findings be used to influence policy/practice/research/education?

- To ensure competence, monitoring of education and continuing professional development is important as non-medical prescribing develops further.
- Prescribing leaders may help to ensure continuity of non-medical prescribing services for patients and to ensure that their views on non-medical prescribing services are taken into account as part of service evaluation and development.
- Community based nurses who are prescribing need new innovative systems to ensure they have appropriate support and education opportunities.

of team support for prescribing after qualifying (Latter *et al.* 2007). These groups of nurses may also have limited access to patient records when assessing, diagnosing and prescribing in the patient's home environment. Combined with the fact that community matrons are responsible for pharmacological management of complex, vulnerable patients with co-morbidities and taking multiple medicines (Department of Health 2005), this finding gives some cause for concern. Further research is required to understand the specific difficulties these prescribers may be experiencing and the impact of this on the safety and quality of their prescribing. From a policy implementation point of view, it has been suggested that the lack of support and difficulties associated with com-

munity nurse prescribers affects clinical practice and may decrease the desire to become and/or continue prescribing in these roles (Hall *et al.* 2006).

Continuing professional development and decision support

The majority of Trusts appear to provide these opportunities and this indicated an improved picture from previous research on NIPs (Latter *et al.* 2007) and reflected similar results to Carey and Courtenay (2010). Results also suggest that the group of NIPs working across teams in primary care may have had less access to the support and CPD reported by the majority in other settings; this is consistent with other NIP CPD research (Green *et al.* 2009, Downer & Shepherd 2010). General barriers to CPD for all types of NIPs have been identified such as lack of staff cover, other work commitments, lack of support from managers and pressure to satisfy mandatory updates (Green *et al.* 2009). It is thought that this lack of support may lead to a lack of confidence in prescribing (Downer & Shepherd 2010), which is of significant concern as there are over 30,000 community nurse practitioners and non-medical prescribers in the UK (Culley 2010). It is unknown why this group in particular had difficulty in assessing CPD and further research across a larger sample is recommended here.

Despite the generally positive finding of having access to CPD and reports of nurses keeping up-to-date, the finding that 18% of NIPs and 31% of NMP leads considered that exposure to CPD was not sufficient to ensure patient safety is of concern. Consistent with findings reported above, greater proportions of community nurses – district nurses, health visitors and community matrons – reported this concern. Given the potential significance of this issue, further research is also required to explore this further.

While international comparisons should be made with caution due to differences in legislative and professional jurisdiction arrangements on NMP, similar themes of satisfactory education for prescribing, confidence to prescribe and the need for further development of continuing education and support for nurses, especially those in rural or community prescribing settings have emerged in Australia, New Zealand, the Netherlands, Ireland and Canada (Spence & Anderson 2007, Elsom *et al.* 2008, Kroezen *et al.* 2011). International comparative studies may provide further insight into this common finding.

Study strengths and limitations

To our knowledge, this was the first and largest national study of the implementation of these important safety and quality mechanisms for NMP in the wake of the 2006 changes, at both organizational and individual practitioner level. The NIP questionnaire sample included approximately 10% of all registered NIPs, selected using random sampling and with its response rate of 65%, can be considered nationally representative for England. The NMP leads questionnaire response rate, 52%, means it may not be possible to generalize to all Trusts in England. Findings may not be generalizable to other parts of the UK. The questionnaires are also subject to the limitations of self-reported data.

Conclusion

This research provides baseline findings around education and governance of nurse prescribing that future research or changes in policies can comparatively measure against. Internationally, it is acknowledged that further research is required to 'confirm that nurse prescribers are well prepared and able to use effective decision-making processes for safe prescribing', the methods and procedures presented here provide validated tools that can be used to implement such studies (Lim *et al.* 2007). It also suggests that short stand-alone courses are sufficient to prepare nurse independent prescribers.

The impact on policy and practice is of considerable significance. As of April 2013, the NHS in England restructured primary care trusts into clinical commissioning groups (CCGs), these structures will collaboratively manage primary care contracting with the local community (Department of Health 2013). As a result of this change, many CCGs will review or establish policies including that of NMP. This research provides evidence that educational preparation was considered by nurse prescribers to be fit-for-purpose and that most NHS trusts (primary and secondary) had established core clinical governance and management strategies for non-medical prescribing and, therefore, may not need extensive change or review. The findings also highlight examples that may enhance practice, for example, providing support mechanisms for community nurses or apportioning funds to increase CPD opportunities. Alternatively, it may be that as NMP becomes more established, specific governance, separate from that of medical prescribing, may be seen as less necessary. Indeed, there have been moves to combine competencies required for prescribing across medical and non-medical prescribers (National Prescribing Centre 2013).

Lessons taken from this research could be drawn on by countries currently developing NMP to establish policies from the outset that enhance practice, such as improved

incorporation of community/rural nurses into the healthcare team. Further research in England is needed to examine the disparities observed in support experienced by community nurses. Attention is also needed to understand how mechanisms for oversight and quality monitoring of prescribing are applied in this group. We suggest that the experiences of this group of nurse prescribers warrant further investigation both in England and internationally.

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Conflict of interest

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Author contributions

All authors have agreed on the final version and meet at least one of the following criteria [recommended by the ICMJE (http://www.icmje.org/ethical_1author.html)]:

- substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
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