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UNIVERSITY OF SOUTHAMPTON

A RANDOMISED CONTROLLED TRIAL OF NURSE TELEPHONE TRIAGE IN
OUT OF HOURS PRIMARY CARE

by

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Doctor of Philosophy

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UNIVERSITY OF SOUTHAMPTON

ABSTRACT

FACULTY OF MEDICINE, HEALTH AND BIOLOGICAL SCIENCES

Doctor of Philosophy

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The context for this study was a primary care centred National Health Service. Increasing demands for out of hours care in the preceding decade had placed the system of 24 hour general practitioner personal care for patients under considerable strain. Whilst a primary health care team approach to care was becoming well established during the daytime, the care of patients after surgery hours remained the responsibility of general practitioners. Alternative, evidenced based approaches to managing care were needed.

A new system of care 'nurse telephone triage' was developed in which patients contacting their general practitioner outside normal surgery hours spoke initially to an experienced and specially trained nurse. The nurse assessed the call, determined the urgency of the call (triage) and made a decision with the caller about how best to manage the situation. The management options included nurse telephone advice, inviting the patient to attend an out of hours surgery, referral to the general practitioner on call, or referral to the accident and emergency department or 999 ambulance service.

The system was established and integrated within a general practice co-operative and its safety and effectiveness were tested in a block randomised controlled trial over a year. Care provided by a general practice co-operative (the active control) was compared with care provided by the same co-operative augmented by a nurse telephone triage system (the intervention). The key outcome measure was equivalence in the incidence of adverse events, defined as deaths within seven days of a contact with the out of hours service, emergency hospital admissions and attendances at an Accident and Emergency Department within three days of a contact with the out of hours service. Process measures were call management, the characteristics of patients consulting the service, caller experience and patient complaints.

The intervention reduced general practitioner workload substantially (telephone advice, home visits and attendances at a primary care emergency centre). Equivalence was observed in the incidence of deaths and emergency hospital admissions. Equivalence in accident and emergency attendance was uncertain. The introduction of a nurse service was an additional cost to a medium sized GP co-operative, but larger co-operatives employing more than one GP one duty could consider reducing the number of general practitioners on duty if a nurse service was introduced. The study has informed the development of other nurse telephone triage systems in the UK including the development of NHS Direct. The trial results do not discourage replication of the tested model.

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CHAPTER 1 INTRODUCTION

1.1 Origin of the project

In 1993, the Department of Nursing Studies of the University of Southampton was awarded a grant from the Nursing Division of the Department of Health to investigate the potential application of nurse telephone triage in the National Health Service. A research partnership was formed between the Nursing Studies Department, the Wessex Institute of Public Health Medicine and the Wessex Primary Care Research Network and I was appointed as the researcher to the project. In 1994 I was awarded a research studentship by South and West Regional Health Authority (based in the Wessex Institute for Health Research and Development) to undertake a randomised controlled trial of nurse telephone triage in primary care. In 1995 the research team, in collaboration with the Royal College of Nursing of the United Kingdom (UK), was awarded funding by BT Community Affairs Division to establish and evaluate a nurse telephone triage service in primary care. The Research and Development Directorate of the National Health Service Executive (NHSE) South and West granted a further award to fund a data manager for the trial in 1997. I was the lead researcher for the trial and chaired the meetings of the research team. I also had responsibility for establishing the nurse telephone triage service with a general practice cooperative. This involved negotiating the scope of the service with the cooperative, working with local consumer groups, recruiting, selecting, training and supervising staff, and integrating decision support software with an existing communications system.

1.2 The context for the study - a primary care centred National Health Service

Primary care comprises the whole network of community health services including general practice services. In April 1996, the National Health Service (NHS) declared itself 'primary care led' in terms of its management and leadership (Meads, 1995). A central feature of NHS reform has been a planned shift of resources away from seemingly

expensive acute hospital care to cheaper care in the community; this being underpinned by a contracting process which has split apart the processes of purchasing and providing and based the commissioning of services on the identification of the health care needs of populations. An internal market was established within the NHS in 1991. Hospitals and community units became self governing provider trusts and District Health Authorities and general practitioner fundholders purchased health care for their populations (Coulter, 1996). As fundholding became more widespread, general practitioners (GPs) had increasing influence in the internal market.

The importance of a primary care led NHS for GPs is that they have become both gate keepers to health care services and coordinators of the work of the primary health care team (Dungworth, 1994; Gregson *et al.* 1992; Poulton, 1993). Fundholding has brought increased investment in equipment and services and increased practice income, especially in deprived areas, but this has been offset by increases in workload and costs (Lee and Bosnquet 1995). General practice may be becoming a forum for experimentation with new approaches to care, but increasing workload may mitigate against their systematic evaluation. A proliferation of different approaches to out of hours primary care (predicted by Hallam, 1994) for example, could lead to the adoption of models of service based on crude workload measures rather than measures of safety and quality. The search for evidence of the effectiveness of treatments has driven the NHS Research and Development strategy. General practice research, a relatively new area of enquiry (O'Dowd, 1995), has been directly stimulated by support from the National Health Service Executive. In the future, the negotiation of a core contract for general practitioner services could leave a non-core element subject to national or local funding arrangements. Out-of-hours care could be defined as a separate service, subject to competitive tendering. Then, not only will the evidence of effectiveness be needed to inform practice but to inform the purchasing of services.

1.3 The perceived crisis in out-of-hours primary care in the United Kingdom

The twenty four hour responsibility for care which GPs in the United Kingdom have for their patients came under increasing strain during the late 1980's and early 1990's. Outside normal surgery hours, GPs either shared an on call rota or, more commonly in urban areas, employed a commercial deputising agency to provide doctor cover (Cragg and Hallam 1994; Kadri, 1996). By 1994 however, a crisis in out-of-hours primary medical care in the UK had been declared in the medical press (Beecham, 1994); a crisis brought about by increasing demand for care from patients and by the decreasing commitment of general practitioners to provide it. A national survey of GPs (Electoral Reform Ballot Services, 1992) revealed that 73% would like to have opted out of their on call commitment completely.

1.3.1 The general health of the population and the increasing demand for out of hours primary care

A fivefold increase in the demand for out of hours primary care (in the evenings, at night and at the weekend) over the last twenty years is now widely accepted (Sheldon, 1984; Hallam, 1994; Majeed *et al.* 1995; Baker *et al.* 1994) although variations between regions and between practices make the national picture difficult to assess. According to Hallam (1994), whilst it has in theory been possible to track the number of night visits nationally since the introduction of night visit payments in 1967; it has never been possible to assess the demand for out of hours primary care nationally.

The key obstacles to undertaking a national assessment include difficulties in extracting data from practice profiles and aggregated financial data held by Family Health Service Authorities (Hallam, 1994) and the absence of a requirement to report out of hours telephone calls. Where studies have been undertaken, they have tended to assess local demand and have highlighted problems with inadequate recording of calls. Hallam (1994) reports a range of out of hours contact rates of between 130 and 176 per 1,000 patients

between 1987-1989 based on the findings of five such studies; and a night visiting rate of between 14 per 1,000 and 35 per 1,000 patients between 1985-1989. By 1993, the mean annual number of night visits made per unrestricted principal per 1,000 patients was 35.3 (range 11.4-58.8 per 1,000) with rates of night visiting being much higher in large urban conurbations (Hallam, 1994). Baker *et al.* (1994) observed an increase in demand for out of hours care of 33% in one Family Health Service Authority in 1989-1990.

Night visits cost the NHS in the region of £70 million for the year 1992-1993 (Beecham, 1994), not including 40% of attendances at Accident and Emergency (A&E) Departments which constitute first contact primary care (Dale, 1992). With only a third of calls thought to constitute urgent or potentially urgent situations requiring the attention of a GP (Beecham, 1994), increasing attention has been paid to managing 'inappropriate' demand (Court *et al.* 1996) or as Lowy *et al.* (1994) prefer from an Accident and Emergency perspective, 'unnecessary' demand.

Increasing demand for health care may suggest that population health is declining yet there is evidence that population health is improving. All cause mortality has declined throughout this century and is "the measure most commonly used to demonstrate the continuing improvement in population health" (Dunnell, 1997 p.174). McKeown and Lowe (1966) explained the decline in mortality after 1870 largely in terms of a decrease in deaths from infectious diseases and Dunnell's (1997) analysis of data sources from the last twenty years is that there are signs of improved health in all cause mortality for all women, and for men under 30 years and over 40 years of age; for some cancers; for life expectancy (all ages); for dental health and for smoking in older adults. Furthermore, progress towards achieving Health of the Nation targets is described as encouraging overall in the recent briefing pack (Health of the Nation, 1997 p5) although targets may not be met by the year 2000. For example, death rate from coronary heart disease for under 65 year olds has fallen by an estimated 19.2% since 1992 and by an estimated 12.5% for those aged 65-74; and in the same age group death from stroke fell by an

estimated 14.3%. There are concerning trends, however, with obesity, skin cancer incidence and teenage smoking all increasing.

In contrast to the target areas for the Health of the Nation initiative (coronary heart disease and stroke, cancers, mental illness, HIV/AIDS and sexual health and accidents); the Office of National Statistics (ONS) identifies a broader range of factors affecting health such as wealth; public health legislation; diet; alcohol and illicit drug use; smoking; housing; family and household structure; air pollution and climate; medical advances and iatrogenesis. The ONS reports on mortality and/or incidence and prevalence for specific diseases including sexually transmitted diseases and AIDS; cancers; cardiovascular disease; neurological disease; respiratory, renal, digestive and musculoskeletal disorders and accidents. Mortality data alone cannot account for the burden of disease in society (Charlton and Murphy, 1997) and even when morbidity data are included in an analysis of population health, the 'iceberg phenomenon' persists (Last, 1995) whereby a portion of disease in a population remains unreported or undetected. The epidemiologist's iceberg is the sociologist's comparative or felt need (Mark and Elliot, 1997) and the social inequalities in health in Britain illuminated by The Black Report (1980) are echoed in the work of Baker and Carter (1994) who identified two major sources of demand for primary health care: the socio-economic circumstances of the population (central in determining levels of morbidity and consequent demand) and age related vulnerability.

Reasons for the rapid and substantial out of hours demand remain poorly understood and require further investigation. The demand does not appear to reflect underlying patterns of morbidity- at least those which are routinely measured. Possible explanations may include changing expectations of health care in line with the availability of other public services such as banking and shopping, the diminishing resource of the extended family and the effects of the media in encouraging people to see sinister consequences in minor symptoms (Hallam, 1996). Assumptions that patients needing out of hours care emerge from a generally asymptomatic population which seeks help as health problems arise were

challenged by Zola (1973) who sought to establish how and why individuals seek medical aid. He argued:

Virtually every day of our lives we are subject to a vast array of bodily discomforts. Only an infinitesimal amount of these get to a physician. Neither the mere presence nor the obviousness of symptoms, neither their medical seriousness nor objective discomfort seems to differentiate those episodes which do and do not get professional treatment (p.678-9).

Twenty five years later, Kind *et al.* (1998) measured the health of a representative sample of the population of the United Kingdom using the EuroQol EQ-5D questionnaire. They found that 42% of 3395 subjects reported a moderate health problem in at least one dimension (mobility, self care, usual activity, pain/discomfort, anxiety/depression) and that over 50% of respondents aged over 70 and 20% of the youngest respondents reported problems with pain or discomfort. Medical concern about patients who delay seeking care for serious illness such as cancer is matched by an exasperation amongst some practitioners endeavouring to respond to a burgeoning in minor illness. Marsh (1977) offered reasons for his observation that minor illness irritated general practitioners. Amongst them,

he is aware that his former teaching about 'leaving it too late', if indeed it ever had much value, has resulted in him being overwhelmed by too many people 'coming too early'. (p.1267).

In Zola's study of some 200 patients interviewed in an out patient setting prior to their first medical consultation, he identified 'non-physiological triggers' to the decision to seek medical aid. These included the occurrence of an interpersonal crisis which caused the patient to dwell on and then do something about the symptoms and the perceived interference the symptoms caused in social and personal relationships, work or physical activity. For the patients in his study it was not generally the worsening of symptoms which prompted the consultation, but 'a situation or a perceived implication of a symptom' (p680).

1.3.2 Need for out of hours care

If the need for out of hours care is a product of the patient's psychosocial circumstances and symptomatology, then looking for explanations for rising demand amongst reports of the incidence and prevalence of disease is unlikely to be fruitful. Several studies have addressed the question 'who calls out of hours?' In a study of private practice, Daugird (1989) discovered that high utilisers of telephone medical care were older, showed more evidence of emotional dysfunction, had more face to face consultations as a matter of course, had more medical problems in general and possibly had less social support. Other studies of out of hours calls suggest that calls concerning older people and children are in the majority (Marklund and Bengtsson, 1989; Hallam, 1994).

Increasing inappropriate demand may signify a lack of coherence in service provision with patients simply unsure about who should meet their needs. Even though integration was one of the aims for primary health care set by the World Health Organisation in 1978 (WHO, 1978), international progress towards this aim has been slow with most countries adopting the division of hospital and community based services (Malcom, 1993). One example of this division is the UK provision of out of hours primary care by both hospital accident and emergency departments and general practitioners.

The connection between accident and emergency and general practice services is highlighted during out-of-hours periods. Patient demand for care is unmediated and studies show that between a quarter and a half of all patients attending accident and emergency departments could have been seen in general practice (Williams, 1985; Cohen, 1987). Some accident departments have responded by providing general practice services themselves on the grounds that services should be provided where patients and purchasers want them (Dale, *et al.* 1995: I). There may be a lack of public awareness, experienced by health professionals as 'unrealistic expectation' about what kinds of calls and attendances each agency aims to deal with.

Hopkins *et al.* (1993) argues that there is greater scope for patients to make appropriate use of health care than has been realised. Patients may be influenced in their use of services by the quality of information which guides their access. For example, a public education campaign (Department of Health, 1994) encouraged patients to 'be nice, think twice' about calling their GP out-of-hours but its effects were not evaluated. If it had an impact on demand this would have been indiscriminate and may have discouraged those who really needed to call. This kind of de-marketing, of dissuading people from using services is difficult to achieve (Mark and Elliot, 1997) and further research is needed to explore how people make the decision to call a doctor and what kind of information could support the decision making. Work in this area is somewhat hampered by the difficulties health professionals have in reaching a consensus about what constitutes an appropriate call and it may be more pragmatic for providers to take responsibility for making appropriate responses to callers.

1.4 Service models proposed as solutions to the crisis

By the time a new development fund of £45 million per annum for out of hours service development was announced (Dorrell, 1995), GPs had already begun to consider making changes to their out of hours arrangements. Primary Care Emergency Centres were being established in some areas to enable patients to attend to see a doctor and at Kings College Hospital, the benefits of locating a primary care service in the Accident and Emergency Department were being reported (Dale *et al.* 1995). The new development funding was made available to general practitioners through a bidding process managed by the Health Authorities. Cooperatives were frequently the model of choice and the number of cooperatives in the United Kingdom grew steadily from 38 in 1994 to 147 in March 1997 (National Association of General Practice Co-operatives, 1997).

Cooperatives are formally constituted groupings of general practitioners varying in size from 15-200 members (Hallam, 1994). Cooperatives reduce the frequency of on call for

individual GPs, giving those who wish it the opportunity to work and be paid for more shifts. Cooperatives can cover large geographical areas, especially in rural areas.

1.5 The potential contribution of nursing and health visiting to out of hours primary care

The development of a primary health care team approach to care delivery (Standing Medical Advisory Committee, 1981), albeit with the general practitioner as leader, has permeated the health care culture. In reality, however, team approaches are more evident during the day than after surgery hours, with most team members (practice nurses, health visitors, link social workers and in some cases district nurses) working broadly office hours. Arguably, the health needs of the population manifested through rising out of hours demand, suggest there is scope for applying primary health care team resources to the after hours periods. Telephone consultation, whilst an established component of the health visitor role, (Angel *et al.* 1990) comprised only a small part of the practice nurse role (Hallam, 1992). Within three years, Wilson and Butterworth (1995) argued that the amount of telephone work undertaken by community nurses had increased greatly.

In the context of the wider NHS, however, plans to extend the work of nurses can become embroiled in a debate about doctor substitution. The question is to what extent would nurses be augmenting current service provision with nursing skills and to what extent would they be taking over work which has traditionally been in the medical domain? The answer to this question may be inconsequential, providing the outcome is either an improvement in service quality or a maintenance of service quality at reduced cost. Yet, since the Nurses Midwives and Health Visitors Act (1979 and 1992) established a new statutory body with responsibility for the professions, the United Kingdom Central Council (UKCC), it has been persistently asked by its members to clarify the scope of professional practice. It recently rejected a proposal to formalise the title of “nurse practitioner” as a recordable qualification even though it was becoming

increasingly used by employers and continuing education providers (Jones, 1996) to describe graduate nurses who had reached a level of mastery in clinical practice.

1.6 The use of the telephone in primary care

The telephone remains an under utilised instrument for communicating with patients and for managing patient care. Whilst up to 59% of incoming calls to general practitioners in Britain are manageable by telephone (Marsh *et al.* 1987; Allen and Marks 1988; McCarthy and Bollam, 1990) telephone consultations are rarely used as an alternative to the face to face consultation. During 1992 only 7% of all general practice consultations were by telephone, that is, consultations replacing contact with the patient in surgery (Office of Population Censuses and Surveys 1994) even though the percentage of households in Britain with a telephone rose from 42% in 1972 to between 89% and 91% in 1992 (OFTEL, 1992). Hallam (1991) notes that is far less common for the telephone to be a vehicle for consultation in primary medical care in Britain than in the United States or Scandinavia, though social and cultural factors may partly account for these differences. Physicians in the United States for example manage between 150 - 300 calls per week by telephone (Hallam, 1989) and receptionist nurses in Swedish Health Centres are reported to manage 20 million calls each year for a population of 8 million people (Timpka and Arborelius, 1994).

Several studies have suggested that patients can benefit from telephone health care. Dewar and Logan (1991) reduced admission delays after allowing patient telephone access to a coronary care unit; Kemenade *et al.* (1994) reported success in using the telephone to follow up cardiac patients, and McGee Brown *et al.* (1982); Erickson *et al.* (1982) and Raynor (1994) presented evidence for the benefits of pharmacists taking medication related calls. Butts *et al.* (1988), Rush and Kitch (1991), and Glasper (1993) claimed benefits for telephone support to parents of newly discharged neonates. Meissner *et al.* (1990) described the establishment of a Cancer Information Service for patients and carers. Maisak *et al.* (1989) evaluated an arthritis information telephone service and

Heller *et al.* (1991) developed a telephone support system for elderly women. More recently, Pal (1997) reported a pilot study of telephone follow up care in rheumatology and Kunkler *et al.* (1997) reported success in using videoconferencing in oncology consultations arguing that telemedicine provided more prompt assessment than could have been provided by a routine clinic appointment.

Two USA studies in the late 1970's (Cunningham, 1978; Glazer *et al.* 1978) experimented with the use of telephone and television/video technology to overcome the difficulty of lack of visual clues during patient assessment. Nurse practitioners in the study preferred the telephone for therapeutic purposes and the television for diagnostic work. However, McLaren and Ball (1995) argued 'there is no evidence that tv/video is better (than the telephone) in terms of diagnostic accuracy, time for diagnostic interview, tests required or referral rates' (p.1390).

Instead, they urged the health care professions to work harder with existing technology and to be sceptical of the communications technology industry, in their view looking for health applications. They saw the telephone medicine as a relatively stable technology for which there needed to be a clear research agenda:

Research is now needed on how existing technology can be integrated into health care delivery systems in a way that improves the effectiveness and efficiency of those systems, and methods are needed to evaluate the impact of communications media on those systems that have been developed (p.1391).

One of the central aims of the Patient's Charter (Department of Health, 1991) was to improve the quality and quantity of health information available to the public. The establishment of Regional Health Information Services in 1992 contributed to the achievement of this aim by providing direct, free daytime telephone access to the public on health matters. Improved access to the general practitioner by telephone has been reported as being the most important improvement to general practice services patients would like to see (Allen *et al.* 1988).

1.7 The concept of triage in health care

The word 'triage' is derived from the French 'trier', to choose or sort (Churchill's Medical Dictionary, 1989). It entered medical usage during the First World War where it was used to describe the method by which military surgeons separated those who would benefit most from treatment from those who would not. It has remained a core concept within military medical science and has been adopted by emergency and ambulance services as a way of describing the process of determining urgency.

Nurse triage is a well understood concept in UK accident and emergency care and is defined by George *et al.* (1992) as

the formal process of assessment of accident and emergency patients on arrival by a trained nurse, to ensure that they receive appropriate attention with the requisite degree of urgency (p. 876).

The concept of *telephone* triage was developed in the United States and Canada. The Medical Information Centre based at the Hospital for Sick Children, Toronto was established in 1977 (Shah *et al.* 1980) and now serves a population of approximately three million people in Ontario, dealing with a wide range of child health concerns (Wilkins, 1993). For many parents who have access to this service, an initial telephone call could save a lengthy journey to the emergency room. The Medical Information Centre is staffed by experienced paediatric nurses and advises approximately 170 callers per day. It is considered to reduce the work of the hospital emergency department and to provide a much needed service to parents (Shah *et al.* 1977; Wilkins, 1993). Health information and advice is based on previously agreed medical protocols and staff are trained in the skills of telephone assessment and advice.

The first accident and emergency telephone triage service in England was established in 1989 at the Royal Preston Hospital (Buckles, 1990). Its objectives were to enable general practitioners and other primary health carers to discuss their patients with the triage nurse and to enable prospective patients to telephone before attending. Several evaluations of telephone triage in British accident and emergency departments have since been reported

(Singh *et al.* 1991; Kernohan *et al.* 1992; Egleston *et al.* 1994) and suggest that telephone triage can reduce unnecessary attendances.

As far as I am aware, this project was the first to propose a primary care based nurse telephone triage system in the United Kingdom. In the early stages, (1993-1994) we considered establishing a paediatric service, similar to that offered by the Sick Childrens' Hospital, Toronto because we were aware of the potential demand from parents. In practice, however, it became clear that it would be difficult to divert only paediatric calls and it seemed that all callers might benefit from contact with a nurse. Larger out of hours groupings were becoming the norm and we envisaged one nurse service covering several practices. It appeared that telephone triage may have potential benefits both to patients, in improved access to health advice, and to general practitioners, in regulating access to primary care and identifying urgent cases. It had potential to make co-operatives and primary care emergency centres function more efficiently by moderating demand but these potential benefits and the safety and effectiveness of such a service needed to be tested .

1.8 The need for evidence on which to base health policy and practice

Prior to commencing a trial of a nurse telephone triage service, I examined evidence from previous studies in a review of the literature (Chapter 2) and sought the views of general practitioners on a range of issues and alternatives (Chapter 3). I explored the views of patients in a collaborative survey with Salisbury and District Community Health Council (Chapter 4) and piloted the service with two general practices (Chapter 5).

CHAPTER 2 A REVIEW OF THE LITERATURE EVALUATING TELEPHONE TRIAGE IN PRIMARY CARE

2.1 Aim

The central question for the review of the literature was:

What evidence is there in the literature of the safety and effectiveness of telephone triage systems?

For the purposes of the review, telephone triage was defined as

A planned process whereby health professionals receive, assess, refer or manage direct telephone enquiries from patients or their carers on health matters.

2.2 Objectives

The objectives of the review were:

- (a) to critically review research based information which could inform the design of a randomised controlled trial of nurse telephone triage
- (b) to identify areas requiring further research

2.3 Method of investigation

A literature search of published material was undertaken in March 1996 and again in March 1997 using the on-line services MEDLINE and BIDS using key words.¹ Searching was repeated bi-monthly during the year and supplemented by manual searching of the International Nursing Index, current journals and grey literature such as reports to the Department of Health. Conference materials and visits to centres of excellence or innovation enabled the collection of texts to be as comprehensive as possible. All texts identified by on-line search were obtained except where it was clear from the title or abstract that they were unsuitable. These were sorted into study type (randomised controlled trials; surveys; real/simulated case analyses; literature reviews; secondary

¹Key words were: telephone, triage, telephone triage, telephone advice, telephone call, telephone consultation, hotline, helpline, advice line, decision making, algorithm, emergency health care.

analysis of data sets; descriptive accounts; discussion papers and news briefs) and then read, indexed and their reference lists scrutinised for additional works of interest.

Texts were selected for review if they

- (i) were published or completed between 1966 (the year of the inception of Medline) and 1996;
- (ii) were written in English;
- (iii) attempted to evaluate telephone triage in a primary care or A&E setting and
- (iv) included material on telephone interactions with callers.

Texts which were primarily descriptive and anecdotal were excluded from the review.

Some of the UK literature relating to GP out-of-hours calls which explored factors such as the volume of calls, the age and sex of callers and their reasons for calling and papers on the use of the telephone in general practice was excluded under the terms of inclusion for the review, but these papers were used as background material. Ideally the review would have focused on randomised controlled trials, but to date only one such study has been published (Strasser *et al.* 1979). A systematic method of reviewing was adopted (Mulrow, 1987) following appraisal of several approaches (Smith and Stullenbarger, 1991; Dickersin *et al.* 1994; Eysenck, 1994; Clarke and Stewart, 1994; Chalmers and Haynes, 1994; Thompson, 1994; Knipschild, 1994). Outlines of the papers included in the review are tabulated in 2.4 (USA and Canada) and 2.5 (UK and Europe). Additional observations about the papers follow after the tables.

2.4 Analysis of selected studies (USA and Canada)

Author/ date	Method	Were outcomes of telephone triage described, and if so what was the outcome?
Ott <i>et al.</i> 1974	Assessment of the telephone skills of nine allied health professionals, and eight paediatric house officers (purposive sample) in response to four simulated calls from a paediatric nurse practitioner posing as a mother.	Yes: Average scores for all subjects only exceeded 50% in two of the four problems. Inadequate assessment led to errors in the management of problems and several individuals had difficulty communicating with the mother. Changes in medical school curricula were recommended, including telephone skills training.
Bradley Brown, 1974	Assessment of the telephone skills of five interns and five second year paediatric residents (purposive sample) in response to simulated calls from a mother.	Yes: Doctors had difficulty in taking an adequate history when given a complaint of cough, vomiting, diarrhoea or rash. Only half the histories taken were considered adequate for assessing the severity of symptoms. Prior paediatric training did not improve performance. A positive relationship was shown between time spent on the telephone and the adequacy of history taking. Further training in telephone consultation was recommended.
Greitzer <i>et al.</i> 1976	Assessment of the telephone skills of inexperienced (<5 years) and experienced (>5 years) practising paediatricians in Seattle in response to simulated calls from a mother. Based on the work of Bradley Brown (1974).	Yes: Paediatricians with < 5 years experience answered the telephone more promptly (12 versus 19 rings), asked more questions, were more likely to ask questions relevant to life threatening disease and spent longer on the telephone (3.75 minutes versus 2.5 mins) than their more experienced colleagues. Histories obtained were reported as unexpectedly deficient with important questions useful in diagnosis, prognosis and initiating therapy omitted.

Perrin and Goodman 1978	Experimental simulated assessment of the telephone management skills of paediatric nurse practitioners, house officers and paediatricians.	Yes: Nurses obtained more historical information, were judged to be warmer, more open for questions, to terminate calls more appropriately and to leave the caller feeling more satisfied. Nurse practitioners performed at least as well as, or better than, paediatricians in all measured aspects of telephone care.
Strasser <i>et al.</i> 1979	Randomised clinical trial of paediatric protocols used by non-professional health assistants to handle telephone enquiries to a large hospital emergency department and in two primary care settings.	Yes: In the emergency setting, health assistants referred patients to health providers more frequently than the control system (60%/44%) and parents were less likely to comply with the suggestions of health assistants (79%/89%) but callers in the treatment group were told this was an experiment using less highly trained personnel. In the primary care settings, advice for home treatment was similar for both groups with high patient satisfaction reported in both. Use of the protocols resulted in slightly longer conversations (3.6 versus 2.2 minutes) but this had no impact on satisfaction.
Shah <i>et al.</i> 1980	Before and after descriptive study of the establishment of a medical information and poisons centre staffed by specially trained nurses. Records of patients triaged and telephone calls were studied to determine the effectiveness of the programme.	Yes: Outcomes were an increase in medical advice calls leading to quantifiable reductions in emergency department attendance (70% callers would have attended had the telephone service not been available). Telephone triage relieved congestion and reduced the waiting period for treatment of emergency and non-emergency cases. Caller satisfaction was high.

Munroe and Natale, 1982	Audit of 18 months data on after hours calls to a University based primary care nursing service serving the University and its surrounding urban area (patient population 1,500 and mainly female aged 14-90).	Yes: Of the 455 calls recorded, most occurred before 10 pm and were considered requests for intervention by the nurse. Common problems were pain, vaginal bleeding, upper respiratory infections and urinary symptoms.
Soman, 1984	Retrospective review of the records of 182 paediatric telephone encounters over 2 years by physicians.	Yes: there was no relationship between the age or degree of fever and the likelihood of a child being seen.
Radecki <i>et al.</i> 1989	Secondary analysis of data from a series of national surveys of primary care medical practices conducted between 1976-1978 in which 7,500 physicians recorded calls in a log diary over three days.	Yes: patient advice featured in the majority of calls. Average call length was 4-6 minutes and 51% of calls were managed over the telephone, the remainder resulting in direct contact. Making the right decision appeared to be more about the physicians interpretation of the information gathered than the number or type of questions asked.

Isaacman <i>et al.</i> 1992	Descriptive study of telephone triage in general and paediatric emergency departments. A mock scenario simulating neonatal meningitis was used to call 61 departments in order to assess the quality of telephone advice.	Yes: 87% departments gave telephone advice and this was often given by a nurse (79%) but no significant differences were found between the responses of nurses and physicians. A third of respondents gave advice without asking the age of the child or the height of the fever and vital questions about irritability, fluid intake, urine output and breathing were infrequently asked. Same day medical attention was strongly indicated by the scenario but only advised by 60% respondents. The number of historical questions asked did not positively affect the triage decision. Conversely, paediatric departments, more likely to recommend same day medical care asked fewer questions. The asking of a few, critical questions was associated with the triage decision. Departments failing to ask the patients age and temperature 'were significantly less likely to recommend any kind of evaluation by a physician'.
Yanowski <i>et al.</i> 1992	Trainee, experienced and University paediatricians took part in three planned, simulated case scenarios. The study purpose was to examine management decisions (the primary outcome measure) as a function of experience.	Yes: There were no significant differences between the groups in terms of number of questions asked, correct decisions made or number/type of critical areas addressed in questioning. University paediatricians were more likely to make correct decisions to see children without also seeing those for whom contact was not indicated. More than a third of physicians made inappropriate management decisions despite having obtained information which should have affected their decision making.

Leprohon and Patel 1995	34 nurses working in the Canadian Emergency Medical Services system (911 service) produced 50 transcripts of telephone consultations and accompanying explanations of the decision making process which were analysed to identify the decision making strategies used.	Yes: 54% of nurse triage decisions were accurate, 38% resulted in false positives (calling an ambulance when one was not required) and 8% in false negatives though 3 of 4 false negatives were described as debatable. This study is said by the authors to have shown excellent performance in triage decision making.
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2.4.1 Ott *et al.* 1974

The authors claim to have undertaken the first systematic comparison of the ability of different types of health professional to use the telephone effectively in paediatric care. It was followed by several other studies which also appeared to show that qualifications and experience in paediatrics were inversely correlated with telephone skills and that in general, assessment and management by telephone is generally poor when reviewed by other professionals acting as experts. This was a small study based around 68 recorded calls and the authors argued that improvements to medical curricula were necessary, suggesting that specific training would be successful where professional training in paediatrics had seemingly failed.

2.4.2 Bradley Brown, 1974

The authors recognised the increasing importance of the telephone in medical practice. In paediatrics, they note, the telephone was used twice as often as in other specialities but training in telephone skills for medical staff was rare. They described their work as a time and motion study intended to investigate the frequency with which medical staff asked the important questions in obtaining telephone histories based on scenarios, and the effects of length of paediatric training on the adequacy of history taking. The ten subjects in this study were not aware of the research until its completion. Serious omissions were reported in the questioning and potential emergency situations would have been overlooked.

The authors report that in the cough scenario, none of the physicians asked about allergy, even though calls were made at 'the peak of the pollen season' and Greitzer *et al.* (1976) note with some surprise that the overall assessment of diarrhoea was poor even though the calls were made at the height of shigella infections, endemic in New Mexico. In both studies there appeared to be a lack of contextual and environmental awareness, with an inability to see the presenting problem as part of a larger public health picture.

Prior paediatric training had appeared to make no difference to skill level and while Bradley Brown (1974) and subsequent authors call for specific training it would be of particular research interest to provide and evaluate the effects of such training. Of the process measures in the study, the factors which were said to enhance physician mother interaction included asking the sex of the child to establish rapport; giving specific information for example times to increase fluids or changes to look for; repeating advice without condescension; giving an option to bring the child in to be seen if the situation worsened; and building a 'you-me relationship'. For example callers liked physicians to say "I want you to do" more than "You do".

2.4.3 Greitzer *et al.* 1976

This article describes a study based on the work of Bradley Brown (1974) although the rationale for replicating the broad design is not explained beyond the intention of the authors to examine the effects of experience on performance as opposed to earlier work with trainee paediatricians. This study also drew upon a small sample - all five paediatricians in Seattle with less than five years experience and a random sample of five with more than five years experience drawn from a population of twenty. The case histories utilised in simulated calls were similar (cough, diarrhoea, vomiting and rash). Again the authors observed generally poor history taking and assessment, and noted that inexperienced physicians had longer calls. The callers in this study, however, reported that most of the time on the telephone was spent in giving treatment instructions and reassurance rather than in problem identification.

2.4.4 Perrin and Goodman (1978)

The purpose of this study was to determine whether paediatric nurse practitioners could appropriately handle evening and weekend telephone calls and whether the telephone management skills of paediatric house officers improved in during the course of their training. The nurses had not previously received formal training in telephone skills.

All five paediatric nurse practitioners in Rochester taking night calls and a random sample of 28 paediatric house officers and 23 paediatricians were recruited. All staff had current responsibility for telephone management. All received simulated calls based on three case studies of sick children and calls were taped by the caller for subsequent analysis. Tapes were analysed and scored with reference to the adequacy of history taking and disposition, quality of the interview and caller satisfaction.

The study demonstrated that the nurse practitioners scored more highly than physicians on all measures. All nurse practitioners were graduates (some to masters level) and the context for the study was a need to show that nurse practitioners could share in evening and night work. They may have been highly motivated to do well. An interesting aspect was the time taken on calls. Perrin and Goodman note:

Thus paediatric nurse practitioners can gather historical data and suggest therapy with no more unnecessary questioning or discussion than physicians. That they do spend significantly more time per encounter [7.4 versus 3.2 minutes] reflects the additional relevant information that they obtain and appropriate advice that they give, and not their inefficiency (p134).

They conclude that nurses neglected few of the historical items that identify the emergent conditions for which a child should be seen and suggest

the findings demonstrate that nurse practitioners are capable of sharing in the responsibilities for night and weekend coverage of paediatric practices, just as they have shared in many other aspects of primary care practice (p135).

2.4.5 Strasser *et al.* 1979

This study was the first controlled trial of a telephone intervention in a health setting to be published. The trial took place at the Children's Hospital Medical Centre, Boston and in two primary care sites - a health maintenance organisation (Harvard Community Health Plan) and in a primary care clinic (Comprehensive Child Health Program). The research

team had developed protocols and standardised medical advice for 28 common paediatric complaints in an attempt to improve telephone management.

The trial was conducted for 29 weeks between September 1976 and April 1977. Incoming calls to the emergency department during business hours were allocated to the treatment group (health assistants using protocols) or the control group (physicians or nurses) in alternate weeks. Callers were firstly spoken to by a researcher who gained verbal informed consent and determined whether the call was related to one of the 28 protocols. Half the callers in each arm of the study were followed up by telephone within three days of the initial call and emergency room records were reviewed for attendances within two days of the telephone call.

It is not clear from this study whether health assistants had been employed in answering telephone enquiries prior to the trial and the rationale for their employment (as opposed to nurses or physicians) is not explained. Differences in the frequency of advice to parents to treat at home were greater in children less than 3 years of age (39% of the treatment group and 60% of the control group). While the authors concede that the protocols may have achieved their safety at the expense of efficiency, they also note that the control system may overlook cases which should be seen (four were advised to stay home when a visit was considered medically necessary). In the control group, health professionals frequently omitted to ask key questions such as the age of the child and the presence of fever.

The study showed that parents were satisfied with a telephone advice system, although they expressed less confidence in receiving care from a health assistant than from a nurse or physician. The ethical aspects of the study, especially the gaining of informed consent, were well thought through, although this delayed the consultation and the researcher's judgement about whether the problem matched the available protocols was required. Evidence was drawn from 590 calls (338 calls to the emergency room and 252 calls to two primary care facilities).

Differences in context and the age of the study limit its usefulness for the UK today, however its succinct account of the process of the trial and the outcome measures employed mean that some aspects of the study could be replicated.

2.4.6 Shah *et al.* 1980

This study was set in Toronto, Ontario and traced the establishment of a medical information centre (for paediatrics) and a poisons centre (for all ages) providing direct telephone access for the public. Increasing demands on accident and emergency services, together with a need to improve the management of incoming health enquiries had stimulated this development at the Sick Children's Hospital. The telephone services were provided by specially trained paediatric nurses and although the services were not advertised, the call rate increased by 137% in the first three months. Attendances were recommended in only 25% of cases with more than half being advised to give home care. Some 70% of calls concerned fever, diarrhoea, vomiting or upper respiratory tract illness.

This study mirrors some of the current pressures in UK out-of-hours care today, even though the context and health care systems are very different. The need to provide a better service to patients, to reduce costs and to reduce unnecessary attendances at A&E departments are still important influences. Shah *et al.* do not account for and in this sense do not communicate anything extraordinary about the appointment of paediatric nurses to this task. Whilst nurses had a point of reference for advice about poisons advice management, there is no evidence that there was anxiety about nurses making a diagnosis or missing serious cases. Advice protocols had been developed and agreed by the medical director. The authors were confident that the service was cost effective.

2.4.7 Munroe and Natale 1982

The authors claimed that this study demonstrated that clients of the practice used the service. However 455 calls equated to less than one call per day to the service over the

eighteen months of the study even though the nurses advertised the service to their 1500 patients. No data are provided about the characteristics of callers nor about how many patients generated the total number of calls. No patient follow up is recorded. The unique setting for this study and its restricted scope limits its usefulness.

2.4.8 Soman 1984

This study of children registered with the Family Medical Centre at the University of Washington was constructed with the intention of identifying predictors of the likelihood of a telephone call resulting in a visit. No predictors were identified and even those which were thought to be indicators of possible serious illness were not consistently related to decisions to visit (age and temperature). The author reports uneventful recoveries in the sample studied but points to the small sample size and the possibility that in a larger study the findings could have been different. Missing data and variations in recording patterns together with a small, historical sample reduce the usefulness of the study.

2.4.9 Radecki *et al.* 1989

The data analysed in this study were collected more than ten years prior to publication although it was a large national project. Data were drawn from three days of diary logging by physicians from a range of primary care specialities including general practice, paediatrics and obstetrics and gynaecology. The authors did not have access to data about the outcomes of the calls but raise a useful question for future studies: the need to investigate whether telephone consultation accurately identifies the need for follow up or referral. Their concern was that telephone encounters could generate false negative results especially 'when used as a means of reducing the proportion of unnecessary visits'; patients are not seen and then subsequently require more extensive intervention. This observation points to the need to follow up the outcomes of medical care.

2.4.10 Isaacman *et al.* 1992

This paper reports the results of a mock scenario tested on emergency departments. The rationale for the study was that while mock scenarios had been tried in primary care and paediatric settings, the emergency department situation differed in that the caller was likely to be unknown to the person giving advice. The scenario was therefore intended to generate a clear cut response - immediate evaluation by a physician. The authors were particularly interested in the historical information gathered and its impact on the triage decision. The study showed no significant differences between the responses of nurses and physicians (both equally poor at ensuring same day medical attention for a child with the signs and symptoms of meningitis). This study differed from previous mock scenario studies in that the authors were less convinced that the number of questions asked could be compared to some theoretical ideal and could illuminate poor telephone management. They concluded that a concise history can be sufficient and lengthy history taking could be unnecessary or misinterpreted.

2.4.11 Yanowski *et al.* 1992

The authors noted a logical inconsistency in previous studies which appeared to show amount of experience as a practising paediatrician inversely correlated with telephone triage performance. They suggest that this finding could have been an artefact of study design. In particular they doubt the validity of the checklist of questions used in other studies (such as Perrin and Goodman, 1978) even though the questions were weighted. They note that the studies were carried out in the previous decade and involved very small samples. The authors hypothesised that 'experienced physicians would ask fewer, but more appropriate, questions in reaching their decisions. The key finding was that while most physicians asked sufficient questions to gather relevant information, they still failed to make an appropriate decision and to triage appropriately.

Calls were planned, and as the authors noted, knowing the call was being assessed should have produced a best effort. In common with earlier studies, they also demonstrated considerable inadequacies in telephone assessment and management. Some physicians appeared to make a triage decision early in the process and then 'shut off' thereafter ignoring subsequent important information. They also observed a 'wellness bias' in general physicians (a tendency to underestimate the seriousness of situations) which they speculated could be more accentuated in telephone encounters.

2.4.12 Leprohon and Patel, 1995

This Canadian study of the decision analysis strategies used by nurses managing 911 emergency calls reported a high level of safety in telephone triage, especially in high urgency situations. Post qualifying experience of ten years was associated with best accuracy in decision making but when asked to explain the reasons for decisions, nurses were said to sometimes give incomplete or erroneous answers, especially where presenting problems were complex. The authors suggest that obtaining contextual information helped the accuracy of decision making in moderate to low urgency conditions. The approach to decision analysis (through discourse and protocol analysis) may not have been sensitive enough to capture the thought processes of nurses not trained in using differential diagnosis.

2.5 Analysis of selected studies (United Kingdom and Europe)

Author/ date	Method	Were outcomes of telephone triage described, and if so what was the outcome?
Weingarten, 1982	Descriptive study of all telephone calls to a single-handed general practitioner (patient population 311) in Israel over a period of six months (24 hours)	Yes: 80% of calls (350) were received during office hours and none after midnight. Half the calls were made on behalf of the patient by a third party and most callers were women. 80% of calls concerned medical symptoms and half the calls were about new problems.
Cubitt and Tobias, 1983	Comparative study of out-of-hours calls to two London practices in the same health centre in order to describe the pattern of demand, document the number of calls received, compare the response of the two practices, and to investigate factors influencing the doctors' responses and their rating of the necessity of the calls.	Yes: differences in visiting behaviour between practices (76% / 51%) were attributed to doctor attitudes towards minor symptoms.
Marsh <i>et al.</i> 1987	A descriptive study of out-of-hours telephone calls to two doctors in a five-partner urban practice for a year (1984-5) in order to establish the proportion of calls managed by telephone advice, the types of problems for which this advice was appropriate and how often patients given advice consulted again within one week.	Yes: 59% of calls were managed by telephone advice and of these only 12% telephoned again during the same duty period. 22% of those visited at home were admitted to hospital and a quarter were found to have a minor illness, not strictly requiring a visit. 'No evident detriment to patients' health was observed.'

Marklund and Bengtsson, 1989	A descriptive study of 2236 calls to six health centres in western Sweden during five days in December 1995 (mainly staffed by nurse receptionists). Variables under study were characteristics of callers, reasons for calling, problems or symptoms discussed and measures taken by the telephone advisers.	Yes: More women called than men (63% versus 52% women in the study population); 70% of calls were made by the patient themselves although when a carer called it was five times more likely to be a woman. Pain was the most common symptom, followed by the common cold. 40% of calls were managed by the telephone adviser but self care measures were advised in only 10% of these calls.
McCarthy and Bollam, 1990	Comparative study of telephone advice in out-of-hours consultations in 13 general practices in north London during one month.	Yes: there was variation in the frequency of calls being managed by telephone advice (5-57%) and by home visit (20-65%). Practices with high use of telephone advice were less likely to use deputising services.
Singh <i>et al.</i> 1991	Prospective ten day survey of all incoming telephone calls for medical advice received by the A&E Department at Leicester Royal Infirmary.	No
Kernohan <i>et al.</i> 1992	Prospective study of incoming telephone calls for medical advice to the A&E Department at the Royal Aberdeen Children's Hospital. Data on 500 consecutive calls from 1.3.89 were analysed.	No
Evans <i>et al.</i> 1993	A study in which simulated calls were made to all 34 A&E Departments in Wales by a researcher posing as a male patient. The study aim was to assess the standard of advice given by the departments and to ascertain how many had a policy for managing clinical enquiries.	Yes: 97 calls were made and of these 60 were dealt with by nurses who gave correct advice on 41(68%) of occasions. No A&E department had a policy for managing telephone calls.

Timpka and Arborelius, 1994	Quantitative and qualitative analysis of 33 calls taken by 5 Swedish receptionist nurses on one day working at a health centre in a population of 30,000.	Yes. Quantitative analysis was used to describe typical calls, mean length of consultation, main reasons for calling and referral patterns. Qualitative analysis (consultation mapping) was directed at exposing dilemmas encountered by the nurses
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2.5.1 Weingarten, 1982

This study intended to address aspects of telephone consultation which the author considered to have been addressed in an isolated way by previous studies, namely the purpose of calls, the doctor's pattern of response, the distribution of diagnoses and the use of paramedical personnel to handle calls. This study was limited to incoming calls to a single handed practitioner (the author) over a six month period. The small practice population comprised mainly professionals, academics and their families, half of whom were English speaking immigrant families. The sources of bias in this study are hence multiple and the evidence cannot be used to support the authors aspiration that the study would have implications for the training of family physicians, for the evaluation of primary care and for the organisation of general practice.

2.5.2 Cubitt and Tobias, 1983

The authors had noted differences in out-of-hours call rates and associated visiting between two similarly sized practices and with similar demographic features (age, sex and social class of patients). Their four week investigation involved the doctor on call completing a questionnaire for each patient encounter. A third of calls were rated 'absolutely necessary' and a third were rated 'completely unnecessary'. The study confirmed the authors perceptions that differences existed in the number of patients calling each practice and in the way the doctors in each practice responded to calls. The practice with the higher call rate also had a higher visiting rate. The analysis did not

consider decision making in detail and the authors suggest that a dependency relationship between GPs and patients could have accounted for the higher demand.

2.5.3 Marsh *et al.* 1987

This is a key paper in the British out-of-hours literature because it was the first systematic review of out-of-hours telephone calls to general practitioners in the UK and it pointed to the untapped potential of telephone advice in general practice care. Data were collected for a full year and there was some follow up of outcome in terms of reconsultation. Only two general practitioners took part in the study and were on call for 4-8,000 patients during the week and 16,000 patients at the weekend. The practice was located in an urban area with high unemployment but the authors report that self referral to A&E for other than traumatic injury was rare. Whilst the findings of this study cannot be generalised to all primary care settings, the study design is easily replicable. Although no evident detriment to patients health was observed, it would be useful for future studies to attempt to measure health outcome. For example, Spitzer *et al.* (1974) used a range of health outcome measures to test the impact of nurse practitioner versus family doctor care. These included measures of mortality, and physical, emotional and social functioning. The difficulty for a telephone intervention lies in its brevity (contact with a health professional for an average of five minutes) and the range of confounding factors which could have an impact on the outcome (whether the caller follows the advice given, input from other family members). Marsh *et al.* did not ask patients to evaluate the service.

2.5.4 Marklund and Bengtsson, 1989

Data for this small study were collected over a five day period in the winter of 1985. Calls were occasionally taken by a secretary in one centre and it might have been preferable to exclude these from the analysis. A low level of self care advice was reportedly given (only 10% of the nurse managed calls) and the intervention received by those not receiving advice is not described. Health care pocket books on the self

management of minor illness had been distributed in the region and the effects of this were not discussed. The authors question whether the nurse system is 'meaningful', their concerns relating to the system functioning mainly as an appointment system and screen from the general practitioners. They argue for further nurse education to develop the nurses' skills in advising patients and thus educating callers.

2.5.5 McCarthy and Bollam, 1990

This article reports a study of telephone advice management of out-of-hours calls utilising an approach to data collection based on the work of Cubitt *et al.* (1983). In this study, 77 doctors took part and various out of hours arrangements were in place in the practices including deputising services. The authors acknowledge that the study design limited the scope for interpreting the results and point to several possible confounding factors which could account for differences in rates.

2.5.6 Singh *et al.* 1991

The rationale for undertaking this study is not clear. The authors point to previous US studies which have shown inadequacies in telephone assessment and advice and state that there are no UK guidelines for advice giving in A&E Departments. Information on 155 calls was obtained and although calls to the department were normally answered by nurses, all calls during the study were answered by doctors. The findings are unremarkable and the authors suggest that their patient population saw the department as the logical place to contact with only 30% of callers having consulted their GP beforehand.

2.5.7 Kernohan *et al.* 1992

This survey of 500 consecutive calls to a paediatric A&E Department represents a further small scale, convenience sample study of reasons for calling, time taken to deal with calls

(3-30 minutes), times of day calls occurred, caller relationship to the patient and evidence of previous attempts to contact the GP. The authors observe the workload associated with providing a telephone advice service (especially poisons advice) for which the Department was not specifically funded. The frequency of 30 minute calls is not stated, nor are details given of which staff responded to the calls included in the study.

2.5.8 Evans *et al.* 1993

This study appears to have arisen from the authors' concern about the general standard of telephone advice in A&E departments and they attempt to substantiate their concern through 97 simulated calls to all major and minor A&E departments in Wales. The report lacks methodological detail and there are ethical concerns in relation to not seeking the consent of departments and in making what could be described as nuisance calls, however well intentioned, to busy departments. The evidence presented of correct advice given by nurses on 68% of occasions appears to have been in the context of no consistent assessment and advice policy. The paper's contribution is in its highlighting of concern about the quality of advice giving generally.

2.5.9 Timpka and Arborelius, 1994

This study took place in a Swedish health centre and describes a two stage method for qualitative review of nurse receptionist calls using video and audiotape recordings. The first stage involved drawing a consultation map and the second stage involved nurses and researchers in a review of the interactions from which a classification of dilemmas was drawn.

The mean length of consultation was 3 minutes and the main reasons for calling were infectious diseases and orthopaedic problems. Of the 33 calls, 21 were managed by nurses without referral. Qualitative analysis (consultation mapping) was directed at exposing dilemmas encountered by the nurses. The most common dilemmas related to 'medical

reasoning' (2 in 3 calls) described as deciding if the patient should see a general practitioner. Communication dilemmas occurred in a third of calls and concerned doubts about what the patient had said (distrust) or doubts that the patient had understood the nurse. Most nursing activity was in informing rather than counselling with little time spent on patient concerns, ideas and expectations.

It is difficult to extrapolate from the quantitative element of this small study. However, the detailed account of the qualitative analysis and the links made by the authors to previous interaction analysis studies make this a useful paper.

2.6 Synthesis and discussion of emergent patterns, consistencies and inconsistencies in the literature

Certain patterns, consistencies and inconsistencies were discernable in the literature. USA studies of telephone triage began in the mid to late 1970's and there is evidence that they were consecutive, and built on previous work. The starting point for these studies, mainly undertaken by academic physicians and paediatric departments was summarised by Ott (1974)

Although most primary care physicians spend one to two hours a day evaluating patients' medical problems on the telephone, few of them have had any formal training in this area (p596).

The first four USA studies reviewed utilised simulated calls from a mother to inexperienced and experienced paediatricians. These studies appeared to demonstrate serious inadequacies in the history taking, assessment, diagnosis and management of telephone calls even in response to common problems such as cough, diarrhoea, vomiting and rash, leading to potential mis-management. Length of experience and further training in paediatrics appeared not to improve performance and in one study (Greitzer, 1976) less experienced doctors were more likely to outperform their seniors on a range of indicators. Further specific training in telephone management was recommended, although the authors had conceded that they had found no evidence that better qualified and more

experienced physicians performed adequately. Marteau and Johnston (1990) argue that the behaviour of health professionals is influenced by other factors as well as medical knowledge, evidenced by the presence of considerable variation in medical practice in assessment, diagnosis and treatment. They report several studies in the 1980's which point to the expansion of continuing medical education in North America and the absence of evidence that there is any relationship between the knowledge of health professionals and their approach to treatment.

In 1974, a key study in the history of nurse practitioner development was published called the Burlington Randomized Trial of the Nurse Practitioner (Spitzer *et al.* 1974). Although not a study of telephone triage it was a contemporary and influential study which demonstrated no differences in the health outcomes of 4850 patients randomly allocated to either a family physician or a nurse practitioner for their care over a year. This study was one of four commissioned by the Ministry of Health of Ontario which showed positive effects for a nurse practitioner role in primary care. However, widespread adoption of the practice was thwarted initially by financial constraints and later by an over supply of physicians in Canada (Crichton *et al.* 1994).

Perrin and Goodman's study in 1978 included nurses as a comparison group and asserted that nurse practitioners performed at least as well as, or better than paediatricians in all aspects of telephone care. By this stage, the illogicality of less experienced physicians or nurses outperforming experienced paediatricians had been acknowledged but it was not until Isaacman's study was published in 1992 that this observation was readdressed. The asking of a few, critical questions was associated with a sound triage decision rather than more extensive questioning as a general ideal. Yanowski *et al.* (1992) tested this hypothesis and found even adequate questioning did not predict a satisfactory triage decision.

It appears that there may be a critical point in the assessment process, a point at which the practitioner has to make a judgement about how to act, which is informed only in part by

the adequacy of information gathered to that point. Future work could usefully explore this 'black box'. One important observation in the literature review which might inform future work arose from observation of practitioners at work. Perrin and Goodman report:

An unquantifiable impression on listening to the taped encounters is the transition that occurs at that point in the interview when the professional has made up his mind what the problem is and is ready to prescribe therapy. He then communicates clearly to the mother that she is to stop talking and allow him his turn. There were a number of cases in which this phenomenon of '**the mind snapping shut**' occurred quite early in the interview, sometimes before any history had been obtained beyond the chief complaint (p 135).

Yanowski *et al.* (1992) confirmed this finding in their study over ten years later but were unable to be precise about the point in the dialogue when this 'shutting off' happened. Timpka and Arborelius (1994) developed a method of reviewing telephone consultations with the practitioners but this needs further development. It appears that appropriate triage could be connected to the moment of making a judgement and acting upon it, taking into account the ideas, concerns and expectations of patients. It may be that the stance of the practitioner would be more helpfully one of helping the caller to manage the situation than just one of making a diagnosis.

Several of the studies reviewed utilised small, convenience samples and collected data over short periods of time. Simulated calls may have offered a consistent presentation for practitioners to deal with but are of limited value (especially when enacted by other health professionals) in comparison with real calls. Measures of health outcome were lacking from most studies and further work is needed to develop appropriate measures. Measures of adverse events such as avoidable deaths or admissions to hospital should be included in future studies as the literature has highlighted the potential for poor telephone management. Patient follow up is rarely reported and evidence of patient perceptions would help to triangulate the observations of researchers and health professionals. With the exception of two studies the telephone encounter was not clearly described as an intervention.

2.7 Conclusions of the review

Evidence in the literature of the safety and effectiveness of telephone triage systems is limited in several respects. Many studies pointed to the inadequacy of observed telephone encounters between health professionals and callers, in real or simulated situations and the potential for missed cases would appear to be substantial. Whilst Marsh *et al.* (1987) reported no evident detriment to health in their study population, this observation was made on the basis that to their knowledge, no patients suffered adverse health outcomes. The work of drawing together the lessons from these previous studies therefore seems critical to developing practice through research. The observations from the literature review are summarised in Figure 1 together with other relevant observations made by Brown and Grimes (1995) in a recent meta-analysis of nurse practitioners and nurse midwives in primary care. Alongside these observations are my proposals for building in the lessons from the review into the trial design. It was clear from this review that the effectiveness and safety of a nurse telephone triage service in primary care had yet to be established in a UK setting.

Figure 2.1: Summary of the limitations of previous studies drawn from the literature review and from a meta-analysis of nurse practitioner literature (Brown and Grimes 1995) with implications for future work.

Observation (source ¹ = literature review; ² = meta-analysis Brown et al, 1995).	Implications for the design of future studies.
Lack of clarity and detail about the nature, purpose and context of the intervention ¹	The intervention must be defined and held constant during the trial. A period of stability prior to data collection would be desirable. Any changes to the intervention should be reported. The context of the study needs to be described in depth to enable readers of the study to review its relevance for them.
Lack of sensitivity of outcome measures (if any) to detect expected changes in populations served ^{1,2}	Outcome and process measures for nurse telephone triage need to be developed. Measures of adverse events will be essential to demonstrate that nurse telephone triage is at least as safe as the existing service.
Inattention to the relationships between the process of care and the outcomes of care ²	The tacitness of the process needs to be exposed through qualitative methods and caller perceptions need to be explored so that observed and perceived outcomes can be compared.
Lack of competence criteria for determining the quality of telephone triage ¹	An acceptable standard of care needs to be described, even if initially this focuses on essential components of the process which can easily be audited. These could be refined during and following the trial.
Tendency to present the caller/patient as the (passive) object of the study rather than as participant (knowing subject) ¹	A conceptual shift towards regarding the patient/caller as participant would encourage the study of patient caller expectations, perceptions and reactions and a practice of telephone triage in which the stance of the practitioner was more about problem setting and co-managing the situation than about diagnosis and problem solving.
Lack of randomised assignment of patients to providers in order to control for patient morbidity ^{1,2}	Randomisation of blocks of time rather than patients would be appropriate with the nurse service as the intervention (on days) and the existing service as the control (off days)
Lack of information to enable assessment of internal and external validity ² and inadequate sources of data ^{1,2}	The most likely threats to internal validity will arise from changes to the intervention over time and historical developments in UK primary care policy which could force changes in the control arm of the study by changing the organisation of out-of-hours services. These can be best assessed by detailed process recording of local and national events which may impact on the study and inclusion of this in the project report. Threats to external validity should be minimised by recruiting host practices which are typical rather than atypical and of providing a case study report with the trial which offers accessible and contextually detailed material for readers to be able to make their own judgements about generalisability.
Superficial (if any) cost analyses ²	Cost analysis was not a feature of any of the studies reviewed but an essential element of health services research. Initial work would need to identify the important factors to be taken into account.

CHAPTER 3 OBSERVATION: THE VIEWS AND EXPERIENCES OF GENERAL PRACTITIONERS ON THE PROVISION OF OUT-OF-HOURS PRIMARY CARE

3.1 The need to understand the views and experiences of general practitioners

During 1994, I recognised the potential for nurse telephone triage to make a contribution to out-of-hours primary care but I had no evidence that general practitioners would consider it to be an option of choice. At this stage, primary care nurse telephone triage had not been established in the United Kingdom, nor was it being discussed in the medical press. In a rapidly changing context, I needed to investigate general practitioners' responses to the idea of nurse telephone triage and other models, to ask them to bring their experiences to bear in considering the strengths and limitations of the models and to identify practices which might be willing to take part in a future trial. The Department of Health funded a six month investigation and after devising and field testing a questionnaire, I surveyed general practitioners in two primary care research networks.

3.2 Rationale

Surveys are concerned with the systematic collection of standardised information from a specific population, or some sample from one (Robson, 1993; Last, 1995). Surveys using questionnaires or interviews are frequently used in health services research 'to establish the attitudes, opinions or beliefs of persons concerning health service issues' (Polgar and Thomas, 1991, p75). Interviews enable in depth evidence to be gathered, but for a similar number of participants, are more expensive to undertake and to analyse than are questionnaire surveys. This observational study was constrained by time and costs. The potential richness of interview data had to be balanced against the opportunity to draw on questionnaire evidence from a larger group. I considered that a questionnaire containing a mixture of closed and open questions would provide fixed

responses where needed and allow respondents to express their own answers to others.

3.3 Devising the questionnaire

3.3.1 Issues of reliability and validity

The development of reliable and valid measurement instruments is an important objective in research because it is generally considered essential to be able to judge the extent to which results can be attributed to random and systematic error. Reliability normally refers to 'the consistency or stability of a measure or test from one use to the next' (Vogt, 1993, p195) and tests of validity concern the accuracy of measurement (Polgar and Thomas, 1991). Several measurable dimensions of validity are normally described. These are face validity, content validity, construct validity and criterion validity.

Face validity is the first stage of establishing content validity and is a check that measurement items appear reasonable. Content validity refers to the extent to which a measurement comprehensively incorporates the area of the phenomenon under study in a balanced way. This can be assessed by individuals similar to those to be recruited as participants and by other individuals with experience of the field of enquiry. Involving these individuals during the development stages of questionnaire design can strengthen content validity. Construct validity refers to the extent to which a measurement matches theoretical constructs concerning the phenomenon under study. It can be tested by calculating the correlation coefficient of one variable with another or with several others (multiple correlation coefficient), such as between items in a particular sub scale and general satisfaction scores. Criterion validity refers to the extent to which a measurement correlates with an external criterion of the phenomenon under study. This can be achieved by testing a new measure in tandem with a previously validated measure, if possible, one regarded as setting the 'gold standard'.

Where possible therefore, researchers are encouraged to draw on previously validated tools. Two problems confront researchers in primary care. First, the range of previously validated instruments is limited and of variable quality (Wilkin *et al.* 1992). Second, the importance of context in primary care is such that the qualitative perspective - that what matters is authenticity rather than reliability (Silverman, 1993) seems more convincing than the quantitative one - that the conditions for an enquiry can be reproduced, as in pre and post test reliability testing for example.

The combination of questions from different validated instruments requires re-validation with new populations (Streiner and Norman, 1995) and Wilkin *et al.* (1992) express concern at the ongoing development of original but infrequently replicated measures. The antecedents to this proliferation may include the difficulty researchers and practitioners have in perceiving the usefulness of instruments designed for different contexts and applications. A search of the literature revealed only one study (Electoral Ballot Reform Services, 1992) which had investigated the attitudes of general practitioners to their on-call commitment. The limited overlap of its focus with the objectives of this survey meant that the questionnaire was not suitable for adoption or modification.

3.3.2 Method of questionnaire development

In the absence of a suitable instrument, one needed to be developed. The stages in this process were (i) generating the central questions; (ii) field testing the questionnaire and (iii) developing a final version for use within a primary care research network environment.

(i) Generating the central questions

I was interested in several variables for which routine data would be available in each practice. These were the arrangements for on call in each practice (in order to be able to describe the pattern of provision); the numbers of patients visited at home, advised

on the telephone or seen in the surgery during three nights of recent on call; a retrospective estimation of the number of patients calling who could have attended a primary care emergency centre had one existed or who could have been managed over the telephone (in order to be able to estimate the proportion of calls manageable over the telephone); the time period when the majority of calls were received (in order to identify times when a telephone service could be most helpful); and the views of respondents on the need for a telephone triage service.

(ii) Field testing the questionnaire

The first draft was reviewed by the research team for face validity and preliminary content validity and was considered ready for field testing. Salisbury, Wiltshire was chosen as the setting because its general practitioners serve both urban and rural populations. The senior partners of the ten practices in the city were sent a letter of invitation to take part, together with the self completing postal questionnaire (appendix A). Ten questionnaires (100%) were returned without reminder of which two were partially completed. Issues of design, content and focus were more important than results in this small survey and so the data are tabulated in appendix B rather than in the main text.

(iii) Developing a final version of the questionnaire

Several changes were made to the questionnaire before production of the final version (appendix C) based on feedback from the field test and in view of the likely expansion of GP co-operatives and primary care emergency centres. The questionnaire was restructured into three sections. The first section asked for practice details, including practice demography, the number of full and part time partners, and the type of community served (urban or non-urban) and was designed to be completed by the practice manager. The second section, addressed to the individual general practitioner, asked for age, sex, number of years as a principal, aspirations to reduce or opt out of on call, use of deputising services current on call arrangements, and plans for the future provision of out-of-hours care. Respondents were asked to state the three most

important changes that they thought should be made to contemporary arrangements for out of hours primary medical care. Respondents were also asked to state, by jotting down words and phrases, what 'appropriateness' and 'inappropriateness' meant to them with reference to out of hours calls. The third section sought the views of practitioners on three approaches to providing out of hours care - namely, primary care emergency centres, cooperatives, and telephone triage services. Questions were preceded by a description of each service (figure 3.1). Respondents were asked whether they would be willing to try the services described; to identify the strengths and limitations of each service and to indicate how much they would be prepared to pay for a telephone triage service.

Three general practitioner 'experts' working in an academic primary care environment were asked to review the revised version. The first draft had asked respondents to retrospectively assess calls occurring during their last three nights on call. Prospective assessment, using a specially designed log had been considered a more accurate measure, and this was included in the revised version. The reviewers subsequently concluded that it made the instrument too long and that including it would deter respondents. It was decided that a prospective assessment of calls would be better undertaken as a separate study and the call log was removed.

Figure 3.1 Alternative out-of-hours services described in the survey

Primary care emergency centres

A primary care emergency centre would be established in a practice or health centre and would serve a number of practices during out-of-hours periods. It would be staffed by general practitioners on rota and would provide emergency out-of-hours care to patients who had been invited to attend the centre by their on call doctor. The centres would be equipped to deal with most emergencies.

Telephone triage service

A centralised telephone triage service would serve a number of practices during out-of-hours periods. It would be staffed by nurses specially trained in telephone consultation. Patients calling their general practitioner would first speak to a nurse who would receive and assess calls based on the history given by the caller and would establish whether contact with a general practitioner was necessary either during the out-of-hours period or the next day and would transfer the call to the general practitioner in those cases assessed as needing urgent attention. The nurse would be able to give health advice based on previously agreed medical protocols to those patients for whom general practitioner contact was not indicated. Where a 999 response was needed, the nurse would activate this on the caller's behalf.

Co-operatives

Co-operatives enable general practitioners to share on call. They are formally constituted, members pay a subscription fee. A co-operative of forty or more general practitioners is normally viable although co-operatives can vary in size from 15-200 general practitioners and surgery premises are sometimes used for evening appointments.

3.4 A survey with two primary care research networks

3.4.1 Subjects and methods

Regional primary care research networks were established as part of the national research and development strategy for the NHS. In some regions they were established quickly and at the time of the survey there were three networks in the UK. The networks comprised primary care practitioners who were committed to the conduct and dissemination of research evidence to support practice. I had begun to work with the Wessex Primary Care Research Network and had become aware that the network could provide access to the views of a wide range of general practitioners. The main advantages of working with networks were the ease of access and the increased chance of response. The main disadvantage was the questionable representativeness of the network members in comparison with non-network general practitioners and this is discussed in detail in 3.4.2.

Surveys of practising general practitioners in two primary care research networks were conducted consecutively between July 1994 and February 1995. At the time the Wessex Primary Care Research Network (WReN) had 180 members throughout the former Wessex Regional Health Authority. The Northern Primary Care Research Network had 83 practising general practitioners in the former Northern Regional Health Authority.

One hundred Wessex general practitioners were selected randomly from the Wessex Research Network membership list. The first 100 names selected included 16 cases where more than one partner from the same practice had been drawn. Randomly selecting a further 16 produced a sample of 116 wherein 100 were from different practices. Questionnaires plus a single reminder after three weeks were mailed to 116 of the 180 and to all 83 practising general practitioners from the Northern Research Network.

3.4.2 Issues surrounding representativeness

Membership of both networks was multidisciplinary, although general practitioners were in the majority. The networks contrasted with each other geographically, demographically and in previous patterns of out-of-hours service delivery. This provided access to general practitioners with experience of very different populations, health problems and working practices. Although the use of research networks as a sampling frame implies that the general practitioners sampled were to some extent a self-selected group, the populations contained on their practice lists may have been typical of the regions studied.

In order to see how well the sample represented most general practitioners I compared them with data drawn from various comparator sources in terms of age, sex, whether or not they were a senior partner in practice, and whether or not they were in possession of the MRCGP. Age and sex for both networks were compared with the age and sex distribution of respondents to the 1992 Electoral Reform Ballot Services survey of general practitioners. Proportions of senior partners in the two networks were compared with figures obtained for the former Wessex Regional Health Authority, the former Northern Regional Health Authority and from the Institute of Health Services Management. The Royal College of General Practitioners could provide data only on current paying members or fellows. In order to calculate a national figure for all those holding the MRCGP examination I inflated this figure by 19% based on data from a study in the Trent region which looked at current and past membership status of a sample of general practitioners (Baker and Pringle, 1995). The proportions of respondents possessing the MRCGP in our samples were compared with the ratio of our adjusted national MRCGP figure over the total number of general practitioner principals in Britain in 1994 (BMA General Medical Service Committee, personal communication).

3.4.3 Data Analysis

Responses to closed questions were analysed using the Epi-Info epidemiological analysis program (Dean *et al.* 1994). Responses to open questions were tabulated in their entirety and then analysed, using a content analysis approach as described by Field and Morse (1985). Issues and themes were identified, and another member of the team (HS) repeated the process independently, before categories were jointly developed.

3.5 Results

Completed questionnaires were received from 89 of 116 (77%) Wessex and 59 of 83 (71%) northern general practitioners. One Wessex respondent removed the personal identification number from the questionnaire and entered no personal details but completed other sections of the questionnaire. We expected a higher return rate from this postal questionnaire than we might have expected from a randomly selected sample of general practitioners. The majority of questionnaires were extensively and frankly completed with full use being made of space for comments.

3.5.1 Characteristics of respondents

Most of the respondents were male (78/89 - 88%; 45/59 - 76%), and under 44 years of age (59/89 - 66%; 44/59 - 75%). The mean number of years practice as a general practice principal was 11 in both groups. Tables 3.1-3.4 show the distributions of age and sex, partnership status, and MRCGP status of Wessex and northern respondents and comparator populations. One difference between the Wessex sample and general practitioners in general was that women were comparatively under represented. Northern research network respondents were younger, less senior in their practice and possibly with a higher level of formal educational achievement. The proportion of women in the Northern research network, however was higher than in Wessex.

Northern research network respondents were younger and more highly qualified than non-network general practitioners in the region.

Wessex research network respondents were more typical of general practitioners in Wessex with the exception of an under representation of women. Wessex and Northern general practitioners did however represent very different communities, the prevalence of deprivation and reported long standing illness being higher in the Northern Region (Central Statistical Office, 1994). Nevertheless, regional rates of general practice consultation in 1991-2 were similar (Central Statistical Office, 1994) as were night visits at the higher rate in 1992-3, Wessex having a slightly higher rate (NHSE, 1994). Night visits paid at the lower rate were much higher in the Northern Region, possibly reflecting greater demand, or availability of deputising services, or both. Northern general practitioners were more likely to have had experience of deputising services and given the differences between the two networks, it would have been reasonable to expect their responses to the survey to be different, but they differed little.

Table 3.1 Comparison of age distribution between Electoral Reform Ballot Services respondents, Wessex research network respondents, and Northern research network respondents.

Respondents	Age (years)		Total
	<44	>45	
Electoral Reform Ballot Services	15 320	9794	24450
Wessex Research Network	59	29	88*
	$X^2 = 1.10; P = 0.29$		
Northern Research Network	44	15	59
	$X^2 = 4.01; P = 0.05$		

*Table excludes respondent who removed personal identification number from questionnaire and entered no personal details.

Table 3.2 Comparison of sex distribution between Electoral Reform Ballot Services respondents, Wessex research network respondents, and Northern research network respondents.

Respondents	Male	Female	Total
Electoral Reform Ballot Services	17797	6553	24450
Wessex Research Network	78	10	88*
	$X^2 = 10.35; P = 0.001$		
Northern Research Network	45	14	59
	$X^2 = 0.21; P = 0.65$		

*Table excludes respondent who removed personal identification number from questionnaire and entered no personal details

Table 3.3 Comparison of partnership status between Wessex research network respondents and general practitioners in Wessex Region, and between Northern research network respondents and general practitioners in Northern Region. (Data for comparison gathered from the Hospitals and Health Services Yearbook, 1992).

Respondents	Senior	Non-senior	Total
Wessex research network	19	69	88*
Wessex region	531	1846	2377
	$X^2 = 0.00; P = 0.97$		
Northern research network	12	47	59
Northern region	568	1103	1671
	$X^2 = 4.17; P = 0.04$		

*Table excludes respondent who removed personal identification number from questionnaire and entered no personal details.

Table 3.4 Comparison of possession of MRCGP between research network respondents and general practitioners throughout Britain. (Data for comparison gathered from membership data of the Royal College of General Practitioners adjusted to include ex-members. Source: Royal College of General Practitioners, 1995; Baker and Pringle, 1995).

Respondents	MRCGP	No MRCGP	Total
United Kingdom	17 517	14253	31 770
Wessex research network	50	38	88*
	$X^2 = 0.04; P = 0.83$		
Northern research network	44	15	59
	$X^2 = 19.77; P < 0.0001$		

*Table excludes respondent who removed personal identification number from questionnaire and entered no personal details.

Table 3.5 shows the distribution of practices in the sample by type and shows that there were more urban and fewer non-urban practices in the north east of England than in Wessex

Table 3.5 Practice type expressed in response to the question 'please describe the kind of community your practice serves'. Figures are numbers (percentages) of practices. (Percentages refer to respondents to this question only).

Practice type	Wessex research network respondents (n=89)	Northern research network respondents (n=59)
Urban	31(43)	30(58)
Non-urban (rural or mixed)	41(57)	22(42)
Missing	17	7
Total	89	59

3.5.2 Use of deputising services

Deputising services were used by 27 of 89 (30%; 21-40%) and 19 of 59 (32%; 21-46%) general practitioners. A significantly higher proportion of urban than non-urban general practitioners used deputising services, probably reflecting availability (urban 36/42, non-urban 6/63: $\chi^2 = 27.44$, $P < 0.0001$). There was a long history of deputising services in the main conurbations of Newcastle and Teeside. In Wessex, deputising services were available in Hampshire and Dorset but not in Wiltshire or on the Isle of Wight.

3.5.3 Reducing or opting out of on-call

The majority of general practitioners (59/89 - 66%; 95% confidence interval 55% to 76%) in Wessex and 32/59 (54%; 41% to 67%) in the north east hoped to reduce their on call commitment. A quarter of respondents (22/89 - 25%; 16% to 35% and 15/59 - (25%; 15% to 38%) hoped to opt out of on-call completely. There were no significant differences between the responses of urban and non-urban general practitioners to these questions. Thirty nine of 62 urban general practitioners wished to reduce their on call commitment compared with 38 of 63 non-urban general practitioners ($\chi^2 = 0.8$; $P = 0.37$).

3.5.4 Plans for the future provision of out-of-hours care

A minority of general practitioners (30/89; 24% to 44%; 10/58; 8% to 29%) indicated that they had made plans for the future provision of out-of-hours care in their practices. Of those who stated their plans five (4/89: 1/58) planned to continue as before; seven (6/89: 1/58) planned various shared arrangements; four (3/89: 1/58) planned to make use of deputising services and thirteen (9/89: 4/58) had hoped to join a co-operative. Six co-operatives in Wessex were reported to have failed at an early stage because of difficulties in starting up arrangements.

3.5.5 Willingness to try new service models

Seventy eight of 89 (88%; 79% to 93%) Wessex general practitioners and 45 of 59 (76%; 63% to 86%) northern general practitioners were willing to try at least one of the service models described. Over half were willing to try two or more services (57/89 (64%; 53% to 74%), 33/59 (56%; 42% to 69%)). Tables 6-8 show responses to individual models together with themes derived from grouped qualitative data on the suggested service models. The least favoured model was the general practitioner co-operative.

Primary care emergency centres

Table 3.6 shows that 57/89 (64%; 53% to 74%) Wessex general practitioners and 36/59 (61%; 47% to 74%) northern general practitioners were willing to try a primary care emergency centre. Forty five of one hundred and forty eight (30%; 95% confidence interval 23% to 38%) commented that centres had the potential to reduce workload by requiring the patient to make an effort to attend for treatment but 59/148 (40%; 32% to 48%) noted the potential to increase workload by encouraging patients to use centres as an open all hours drop in service. Forty eight of one hundred and forty eight (32%; 25% to 40%) pointed to the benefits of a well equipped centre but there was a concern that the centre could overlap with the work of accident and emergency departments. Sixty two of one hundred and forty eight (42%; 34% to 50%) stated that patients would often be unwilling or unable to attend, suggesting that attendance would be particularly difficult for elderly patients, one parent families, those without transport and those on low incomes. In general, centres were considered more suitable for inner cities than for rural areas. A 'dilution' of patient care was envisaged by some respondents because patients would not see their own general practitioner (30/148: 20%; 14% to 27%) and although 47 of one hundred and forty eight (32%; 24% to 40%) envisaged a reduction in time on-call, in the number of night visits and in associated travelling, 28/148 (19%; 13% to 25%) were concerned that night visits would not be replaced by the primary care centre.

The willingness of general practitioners to try primary care emergency centres is interesting in the light of a survey of attenders and non-attenders at five out-of-hours primary care centres (Cragg *et al.* 1994) which reported a standardised patient attendance rate of only 22% and suggested that most patients were not able or prepared to attend a central facility for primary care out-of-hours. The main reasons given by patients for non-attendance were lack of transport and being too ill to travel, and these were also concerns raised by respondents in this survey. Cragg *et al.* (1994) concluded that a substantial cultural change in expectations of the delivery of out-of-hours care would be needed if primary care centres were to be accepted by the public.

Table 3.6

(a) Responses to the closed question about willingness to try a primary care emergency centre. Figures are numbers (%) of respondents [95% confidence intervals]

(b) Grouped qualitative data on perceived strengths and limitations of a primary care emergency centre.

Willing to try	Wessex research network respondents (n=89)	Northern research network respondents (n=59)
Yes	57 (64) [53 to 74]	36 (61) [47 to 74]
No	30 (34) [24 to 45]	21 (36) [24 to 49]
Missing	2	2
Total	89	59
Strengths:		Limitations:
Patient effort: Responsibility on patient to come to the doctor. Has to make the effort to attend. Make them think more as to whether their problem is worth getting out of bed for. Relative inconvenience might reduce inappropriate demand.		Patients unable or unwilling to attend: Not all patients can get to such a centre if unwell. Detriment to genuinely housebound, terminally ill and disadvantaged. Transport for poor. Bias towards well off and car owners. Unsuitable for rural practice.
Facilities: Fully equipped. Better facilities. Nursing backup. Equipped for emergencies. Better circumstances in which to assess and examine patient. Standard of treatment and diagnosis higher. Often quicker resolution of problems.		Encouraging inappropriate use: Wouldn't welcome most emergencies. Danger of patients using it as a drop in medical resource. Don't want centres to replace A&E leading to more work. Cannot be equipped to deal with most emergencies.
Reduced on-call and travelling: Less on call as more patients covered. Concentrated work pattern. Less doctor time wasted in travelling. End of exhausting car journeys trying to find patients houses.		Continuation of home visiting: Requirement for house calls would continue. Patients do not have to attend centre and can demand a visit. Patients still request home visits - who does those.
Reduced general practitioner stress: More secure way to practice in inner cities. General practitioner feels safer - less exposed. Safety of doctor and staff. Motivated and active general practitioners. Reduces effects on family. More time with family.		Culture shock for patients: Patient resistance. Will patients use them now our culture is 'to call out a doctor'. The main obstruction is the attitude of the public - they need educating before a centre is set up - peoples expectations need to change.
Access for patients: Useful in inner cities. Ideal for urban areas. Good hours of access for patients. Immediate access to care for the patient.		Dilution of the doctor/patient relationship: Less likely to see your own doctor. Contact with a strange general practitioner. General practitioner disinterest in follow up. Loss of continuity of care. Many would play doctors off against each other for second opinion.
Centralisation: Reduced number of doctors required for patient population. Doctors time used efficiently. Control and responsibility remains with general practitioners. Continuity. Less home visiting required. Keeps care in primary care. Records. Reduce need to hospitalise.		Organisational difficulties: Would need strong management and co-ordination. Problem of no notes and unfamiliar doctor. Lack of continuity of management protocols. Some fear of poaching patients. Not so easy to organise in rural areas.

Telephone triage

Table 3.7 shows that 50 of 88 Wessex general practitioners (56%; 46% to 67%) and 26 of 59 Northern general practitioners (44%; 31% to 57%) would try telephone triage. Fifty two percent (31/59) of Northern general practitioners would pay a minimum of £1,000 per 100 patients per annum for such a service including some who did not indicate willingness to try it. This somewhat contradictory response may have been generated by the use of the phrase “willing to try”. Respondents may have been unwilling to try an experimental service but willing to try an established service. By linking the second part of this question to a price, I may have suggested to respondents that such an established service was already available.

Perceived strengths of telephone triage included reducing unnecessary and inappropriate calls (69/148: 47%; 39% to 55%), meeting the needs of patients for advice and education (53/148: 36%; 26% to 42%), reducing patient contacts with the general practitioner (34/148: 23%; 16% to 30%) and reducing general practitioner stress (30/148: 20%; 14% to 27%). The need for training and protocol development was a limitation (50/148: 34%; 26% to 42%) and there was uncertainty about who would be clinically responsible for the service and liable for advice given (83/148: 56%; 48% to 64%). The potential of the service to increase demand was suggested (57/148: 38%; 31% to 46%) even though some resistance from patients was anticipated (38/148: 25%; 19%-33%). Thirty one of 148 respondents (21%; 14% to 27%) pointed to the difficulties in assessing patients over the telephone. Some uncertainties about telephone triage were expressed. Respondents asked who would be responsible and liable for telephone advice and what the role of the nurse would be in making diagnoses.

Table 3.7 (a) Responses to the closed question about willingness to try telephone triage. Figures are numbers (%) of respondents [95% confidence intervals] (b) Grouped extracts from qualitative data on perceived strengths and limitations of telephone triage.

Willing pay for service	Wessex research network respondents (n=89)	Northern research network respondents (n=59)
Yes	37 (42) [31 to 52]	31 (52)[39-66]
No	52 (58) [48 to 69]	28 (47)[34 to 61]
Total	89	59
Willing to try service		
Yes	50 (56)[45 to 67]	26 (44)[31 to 58]
No	38 (43)[32 to 54]	32 (54)[41 to 67]
Missing	1	1
Total	89	59
Strengths:		Limitations:
Reducing unnecessary and inappropriate calls: Would field a lot of calls. Should weed out trivial problems. Filters out many calls. Minor ailments, unnecessary calls would be dealt with without doctor involvement. Very good for identifying 999 and urgent calls.		Maintaining or increasing demand: Visiting is the workload - doesn't reduce visits. Not on call less. Unlikely to screen out much work. Our experience is that most calls would end up coming to the general practitioner. Difficult for a nurse to refuse a visit. Gives the impression of on call always available.
Reducing contact with general practitioner: Reduces contact with general practitioner as first call. Only urgent calls are seen by doctor. Saves general practitioner time. It would remove the patient's perception of automatic access to the general practitioner. Such triaging is an obvious way forward in all aspects of our service/care.		Loss of direct patient contact: Further loss of personal continuity. Makes the general practitioner remote. Deprives patient of direct contact with general practitioner. I think personal contact is an extremely precious aspect of our on call arrangements.
Meeting patient need for advice: Patients would more readily telephone for advice if they knew the service was manned at night. Most callers only need advice and call back if it doesn't work. Telephone advice is often all that is needed. Excellent idea: should be of enormous help to the patient. Readily available to patients. Patients might prefer it.		Resistance from patients: Patients won't accept other than a doctors advice and sometimes not even that. Patients may well insist on speaking to the doctor. Patients might feel cheated, fobbed off and complain. Might not trust the nurse. May cause patient to exaggerate symptoms to get to see a general practitioner.
Reducing general practitioner stress: Ease the burden. Takes general practitioner out of the front line. Reduce the guilt felt when refusing a call. Freedom. Good nights sleep. Reduced stress of doctors if reduced telephone calls. Might be helpful at night - I go to nearly every call at night as it's easier than ruminating on decisions.		Clinical responsibility and liability: Nurses (and most doctors) unprepared to take on the responsibility this would entail. Buck passing as with most nurses. Medico-legal liability. General practitioner has to be responsible. Potential for mistakes. Risk of misdiagnosis. Confusion of responsibilities.
Trained personnel: Medical/nursing trained expertise backed by protocol. Hopefully consistent advice. Some calls totally satisfied by nurse advice. Build in nurse to visit/assess - perfection! Provided nurses well trained, wouldn't miss real emergency.		Training needs and protocol development: Training would be paramount. Nurses not trained to diagnose. I would want to be certain of the nurse's confidence and competence. Difficult to construct protocols to deal with many out-of-hours calls. Patients rarely fit into protocols.
Patient education: Useful educative function. Patients would be educated on what appropriate for out-of-hours. Possibly encourages more autonomy and self choice. Re-education of patients' expectations.		Difficulty in assessing and advising over the telephone: I find it hard to handle telephone calls. I suspect nurses will find it harder and make more mistakes than we do. Limited by difficulty of assessing situation over the phone, particularly with children.. The situation at home may not be as described.
Costs: Probably cheaper. Less expense to employ a nurse than a doctor. Less expensive than emergency centre. I would be prepared to pay a considerable amount to enable me to get a safe system for me and my patients.		Costs: Cost would depend on how many visits it saves. Might be costly if you train/pay nurses as well as general practitioners. Loss of income. Need to pay nurse appropriately. Probably expensive.

Co-operatives

Table 3.8 shows that 46/89 (52%; 41% to 62%) Wessex general practitioners and only 23/59 Northern general practitioners (39%; 27%-53%) were willing to try cooperatives. More Northern general practitioners were likely to have had experience of deputising services organised as quasi co-operatives. The strengths of cooperatives included reduced time on call (81/148: 55%; 47% to 63%) though on call shifts would always be busy. Thirty of 148 thought that the availability of local general practice principals would enhance the quality of care (20%; 14% to 27%). Forty of 148 (27%; 20% to 34%) stated that a lack of continuity and propensity to deal with patient problems superficially would result from not knowing patients. For 39/148 (26%; 19% to 33%) covering large numbers of patients over a wide geographical area would be problematic (39/148: 26%). Establishing a co-operative was said to require a great deal of commitment and enthusiasm and to present management challenges (22/148: 15%; 9%-21%).

Although cooperatives were the least favoured service in this survey, they increased in number following the release of new development funding for out of hours services (Dorrell, 1995). Whilst the survey suggested that lack of start up funding was not the only factor inhibiting their establishment, the time limited opportunity for obtaining funding probably encouraged many practices to go ahead.

Table 3.8 (a) Responses to the closed question about willingness to try Co-operatives. Figures are numbers (percentages) of respondents [95% confidence intervals] (b) Grouped extracts from qualitative data on perceived strengths and limitations of cooperatives.

Willing to try	Wessex research network respondents (n=89)	Northern research network respondents (n=59)
Yes	46 (52) [41 to 62]	23 (39)[27 to 53]
No	28 (31) [32 to 42]	23 (39)[27 to 53]
Already a member	2 (2)[0.25 to 8]	4 (7) [2 to 17]
Missing	13	9
Total	89	59
Strengths:		Limitations:
Reduced on-call: Less on call for individual doctors. Improves the on call rota. Very flexible, you can do as much or as little as you want. Busy and can plan in advance for this.		Increased workload: Increased intensity of on call work. As with any service not run by practice, over visiting tends to take place. No better than deputising for actually relieving principals of out-of-hours work.
General practitioner stress: Clear definition of work/family boundaries. Less stress for my family. Doctors don't get tired.		Large area and number of patients: Delay of visit - some cooperatives cover large areas. Only works in centres of population otherwise distance becomes unwieldy. Difficult to cover more than 15-20,000 patients with one general practitioner.
Quality and continuity of service: Quality assurance - doctors kitemarked by FHSA. Fresh cheerful doctor, not reluctant to visit. Theoretically continuity is less of a problem than with commercial deputising agencies. Working with local general practitioners one knows and can relate to and discuss problems with next day.		Lack of continuity of care: Doctors wouldn't know the patients. Difficulties with access to notes. Other doctors seeing my patients. Tendency to practice safety not medicine. Problems dealt with superficially. Potential problems with follow up of patients.
Costs: Relatively cheap. Non profit making organisation. Using surgery premises keeps costs down. Avoid commercial profit margins.		Costs: Loss of night visit higher rate fee. Financially prohibitive as long as two tier night visit fee remains. Arbitrary limit of ten doctors. Often too costly.
Local general practice principals providing care: Uses local general practitioners. Only principals on call. Patient seen by local general practitioner colleague. Cover by experienced, committed general practitioners who have an interest in the community they serve.		Management Aspects: It takes a good organiser. No-one to take the plunge. General practitioners are not co-operative. Difficult to set up without funding from FHSA. Unwieldy. Accommodating styles of individual doctors
Benefits to general practitioners: Usually driver service which offers security. Flexible for doctors wishing to reduce on call. Income can reflect level of commitment to out-of-hours work.		Demand: Demand will increase inexorably. Almost encourages patients to ask for night calls. Dilutes patient responsibility further. The more anonymous the service the more it will be abused. Patients seeking second opinions.

3.5.6 Appropriateness and Inappropriateness

The inclusion of open questions about the appropriateness and inappropriateness of calls in the general practitioner survey was somewhat opportunistic. Other methods of data collection (focus group or in depth individual interviews) could have been more illuminating, but these would only have been possible with a smaller sample and the time taken to complete interviews might have rendered the work less timely given the immediacy of the out of hours debate. The volume of data, and the detail and frankness obtained from the survey made this a cost effective method of accessing the views of 148 practising general practitioners.

Responses were detailed and most respondents gave multidimensional definitions of appropriateness which were not simply the converse of their definitions of inappropriateness. There was more conceptual diversity in the inappropriateness data than in the appropriateness data. The results of the qualitative analysis are summarised in figures 3.2 and 3.3 in which the major headings correspond to the themes and the sub headings to the categories. These are further illustrated with original extracts from the responses in tables 3.9 and 3.10 .

Appropriate calls

There was broad consensus about what constituted an appropriate call. Genuineness was a key concept and the word 'genuine' occurred frequently, as in 'genuine unwellness' and 'genuine anxiety'. Potentially serious symptoms, severe symptoms or life threatening conditions were regarded as appropriate. Calls about patients who were terminally ill were always appropriate as were those about patients who were anxious, immobile or frail and elderly. Calls for young children with out of the ordinary illnesses and for babies under six months were also appropriate. General practitioners were willing to accept the best judgement of a carer where it was based on previous experience of the patient's illness. An important characteristic of appropriateness was the patient or carer participating in the process of care, for example by trying self help

remedies first, by accepting telephone advice, or by being willing to travel to see the doctor. Six respondents were of the view that out-of-hours calls were always appropriate, whatever the caller's concern. For some respondents, respectfulness for the doctor was in itself sufficient to render a call appropriate.

Inappropriate calls

The inappropriateness data were more extensive, more varied and more difficult to code. Calls about minor, self limiting illness and routine care such as repeat prescriptions and medical certificates were stated to be inappropriate. Patients with known, chronic illnesses or who had health problems which in the doctor's view could have been dealt with during the day were also inappropriate. Inappropriate calls came from patients who lacked knowledge about the practice's arrangements and showed a lack of timeliness either by calling too soon (usually in the case of minor illness) or too late (usually where the doctor could have dealt with the problem during the day).

Demanding patients, those exercising a 'right' to have a home visit and ones expecting a continuous 24 hour service generated inappropriate calls. These patients were said not to understand the emergency nature of out-of-hours care or to have asked for a home visit for reasons of convenience. On occasion, nursing and residential home staff were said to fail to take responsibility and were calling the general practitioner out to 'cover themselves'. Calls from visiting relatives of elderly patients, referred to as 'virtuous third party calls' were also in this category.

Examples were given of inappropriate calls from patients and other health professionals because of the unavailability of other services more suited to meeting the patient's needs (that is the calls were necessary but inappropriately directed). These included a perceived lack of dental services, district nursing services and social services and were a source of considerable frustration for respondents.. Out of hours calls about social problems were also considered inappropriate.

Figure 3.2 Outline of themes and categories relating to the concept of appropriateness

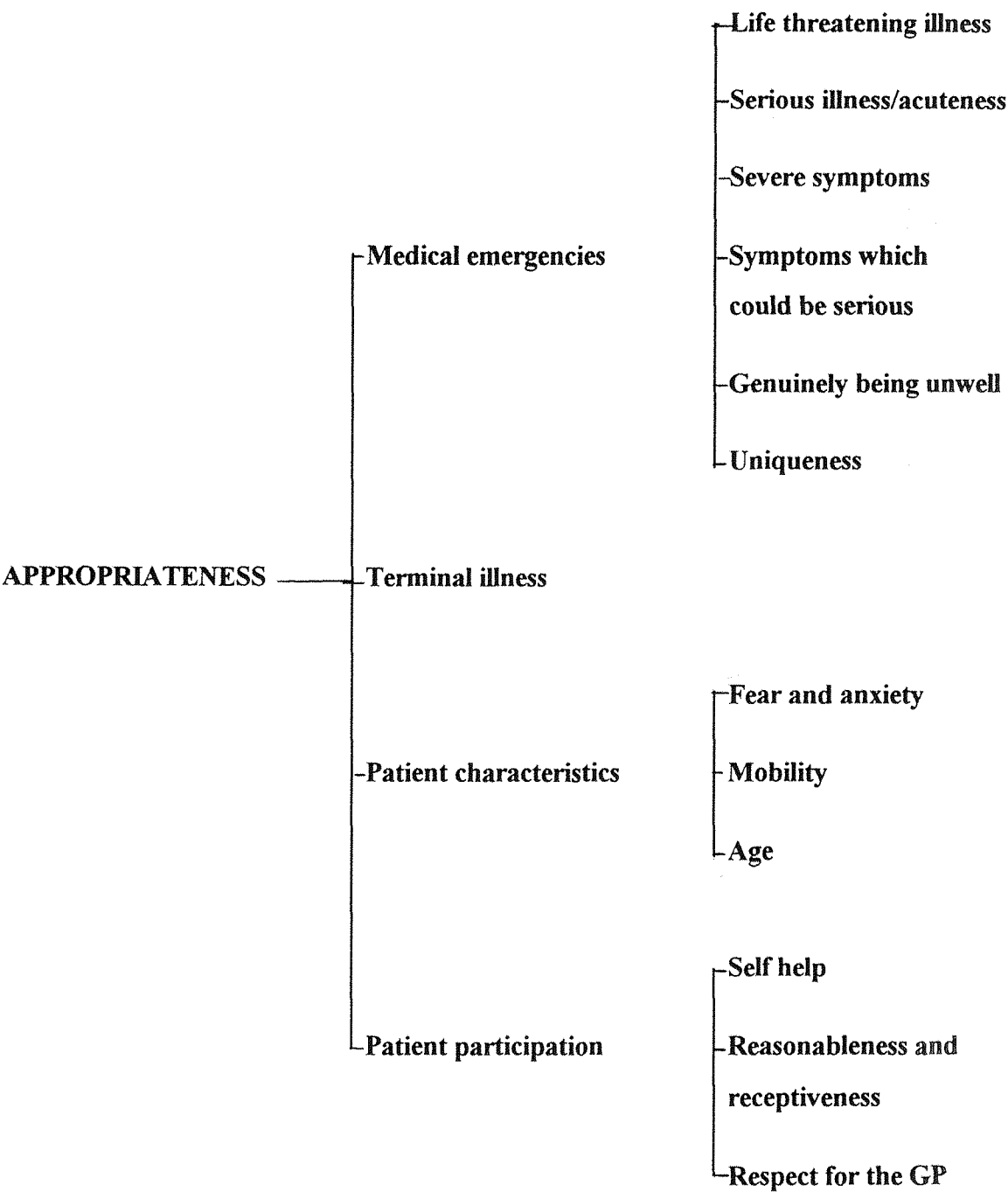


Figure 3.3 Outline of themes and categories relating to the concept of inappropriateness

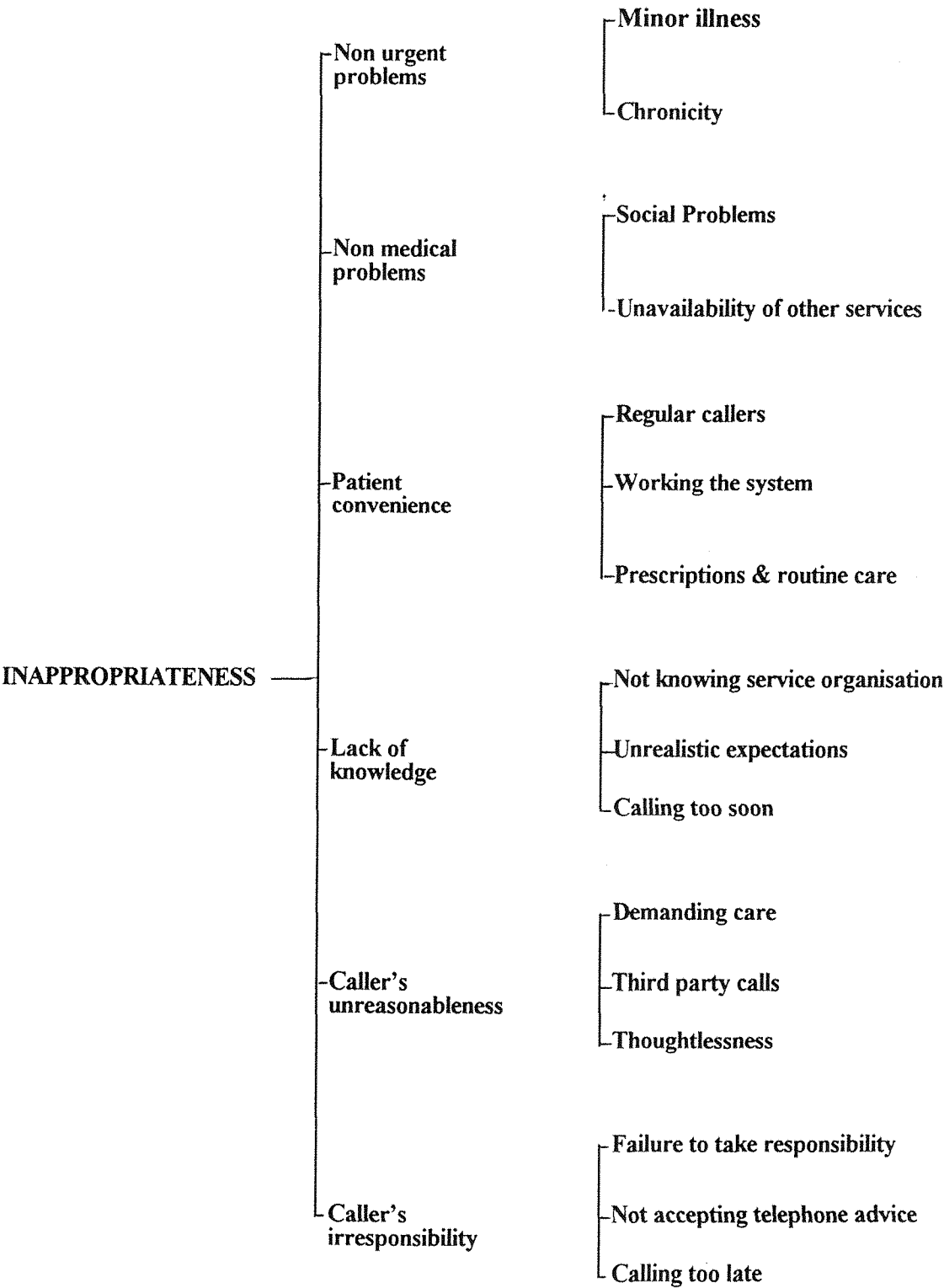


Table 3.9 General Practitioner's concepts of appropriateness in response to the question 'From your experience, please jot down some words and phrases which for you capture the meanings of appropriateness and inappropriateness.' Major headings correspond to the themes identified and sub headings to the categories. Each category is illustrated with extracts from the data.

APPROPRIATENESS IS ABOUT:
<p><u>MEDICAL EMERGENCIES</u></p> <p>Life threatening illness: "Calls where the patient's life is at risk". "Clinical emergencies". "Life threatening illness".</p> <p>Serious illness / acuteness: "Unexpected acute onset or change in chronic condition". "Acute episodes; new symptoms".</p> <p>Not intervening would be detrimental: "When medical intervention at that time will make a significant difference". "Will get worse if not treated". "Emergencies - where action may alter outcome". "Carry a threat to wellbeing and cannot wait until next day".</p> <p>Severe Symptoms: "Chest pain". "Abdominal pain". "Shortness of breath". "Unacceptable pain". "Inconsolable or dopey babies or children". "Collapse". "Psychiatric crises". "Bleeding". "Persistent vomiting".</p> <p>Symptoms which could be serious: "Problems that become worse". "Symptoms which could be serious". "Rapid onset". "Potentially severe". "Serious or possibly serious symptoms that need to be dealt with urgently". "Uncertainty regarding symptoms". "Threat of serious illness".</p> <p>Genuinely being unwell: "Genuinely being unwell". "Real problems". "Real pathology". "Genuine illness". "Discomfort I would not like to be with without receiving help".</p> <p>Uniqueness: "I don't like bothering you but I've never seen him/her like this before". "Requests for acute serious problem which an ordinary patient would not normally be able to cope with".</p>
<p><u>TERMINAL ILLNESS</u> "Palliative care". "Terminally ill patients". "Death".</p>
<p><u>PATIENT CHARACTERISTICS</u></p> <p>Fear and anxiety: "Genuine concern". "Genuine anxiety and illness". "Reasonable worry". "Genuine distress". "Not panicking". "Sick and frightened patients seeking help out of genuine fear of serious illness".</p> <p>Mobility: "Isolation with lack of transport". "Patients whose medical care can be continued at home but would suffer severe distress / discomfort on travelling to see General Practitioner".</p> <p>Age: "Children with out of the ordinary illnesses". "Young children". "Below six months old child". "Elderly, frail patient". "Elderly people with any problem".</p>
<p><u>PATIENT PARTICIPATION</u></p> <p>Self help: "Patients having fully utilised self help measures". "Self medicating appropriately". "Failure of self management". "Stopping to think". "Trying something first". "Taking responsibility". "Planning ahead a little".</p> <p>Reasonableness and receptiveness: "Willingness to play a part eg. travelling to doctor". "Accepting telephone advice". "Sensible self care followed by reasonable decision to ask for further timely advice and/or face to face consultation". "Negotiating a solution".</p> <p>Respect for the GP: "Valuing doctor's effort and advice". "Not making the GP feel awkward or that confrontation is required in order not to visit". "Being understanding and considerate of the hours worked by the GP". "The patient feeling appreciative". "I'm sorry to trouble you but". "Using a GP because of the skill he/she has". "Medical need not patient convenience".</p>

Table 3.10 General Practitioner's concepts of inappropriateness in response to the question 'From your experience, please jot down some words and phrases which for you capture the meanings of appropriateness and inappropriateness' Major headings correspond to the themes identified and sub headings to the categories. Each category is illustrated with extracts from the data.

INAPPROPRIATENESS IS ABOUT...
<p>NON URGENT MEDICAL PROBLEMS</p> <p>Minor illness: "Minor conditions". "Trivial problems - colds and other minor self limiting illnesses". "Minor discomfort, no changes. Infections: sore throats, earaches, mild kidney infections". "Diarrhoea and vomiting". "Stuff of common knowledge or common sense". "Toothache". "Worried well". "Coughs and colds in otherwise well children". "Drunkenness".</p> <p>Chronicity: "Ongoing chronic problems that are not really any worse". "Familiar ailments". "Panic attacks in regulars". "Chronic recurrent problems". "An ongoing problem with no change". "Longstanding conditions". "Problems days or weeks old".</p>
<p>NON MEDICAL PROBLEMS</p> <p>Social problems: "Intervention in family disputes". "Poverty, lack of transport". "Social needs". "Often being unable to help". "Something must be done social needs ie. patient requires residential care or a relative to help out".</p> <p>Unavailability of other services: "To cover deficiencies in other services eg. absent warden". "Calls that require a nurse (no nursing service available after midnight in this area)". "Having to carry out nursing duties ie catheterising when there is no district nurse available". "Called because no other agency is available - social workers not available or impossibility of finding NHS dentist at weekend or hospital decided to discharge to the community when patients unable to fend for themselves".</p>
<p>GP PERCEPTION OF PATIENT CONVENIENCE</p> <p>Regular users: "Repeated feckless use of service". "The same old people time and time again". "Well known patient who frequently calls". "Repeated calls from individuals / families for similar problems".</p> <p>Working the system: "Waiting until surgery closes before calling". "Using out-of-hours availability as a quick route to consultation". "Misleading description of symptoms". "Obtaining a second (third, fourth, fifth) opinion". "Deliberate manipulativenss". "Being called out as more convenient than coming to surgery in open hours". "Calling out-of-hours because it is more convenient". "Wanting a visit as they have to go to work tomorrow". "Well we've both been at work all day doctor". "Nursery wouldn't take him tomorrow - conjunctivitis".</p> <p>Repeat prescriptions and routine care: "Needs more pills as going on holiday tomorrow". "Using home visits to obtain a repeat prescription of a drug which could have been bought over the counter or ordered during the day". "Non-urgent or routine medical treatment". "New certificate".</p>
<p>GP PERCEPTION OF CALLERS LACK OF KNOWLEDGE</p> <p>Not knowing service organisation: "Assumption that doctor on call is the same as a 24hr service". "Are you the night time doctor?". "Lack of understanding re. service".</p> <p>Unrealistic expectations: "Expecting immediate care". "Just checking to make sure". "Regarding out-of-hours as a continuation of routine care but in the convenience of the patient's home". "Unrealistic expectations". "Expecting visits for minor illnesses". "Unrealistic expectations for instant treatments and cure".</p> <p>Calling too soon: "Could wait without risk of deterioration". "Calling too soon (half an hour after sore throat begins)". "It could wait". "Problems which the man on the Clapham omnibus would regard as suitable for a consultation in normal working hours".</p>
<p>GP PERCEPTION OF CALLERS UNREASONABLENESS</p> <p>Demanding care: "Demanding a visit when advice is all that is needed". "Calling without following previous advice". "Calling as a first resort". "It's my right to have a doctor out". "Feeling forced into doing a visit by threatening / aggressive behaviour of the public rather than medical need". "Demanding visits - I want you here now".</p> <p>Third party calls: "Virtuous third party calling on behalf of someone else". "Relative ringing from a distance to ask GP to visit mother". "Guilty weekend visiting relatives". "Nursing and residential home staff not taking responsibility".</p> <p>Thoughtlessness: "Lack of regard for doctor's own time / privacy". "Lack of thought by patient". "Being out when doctor calls". "Knee jerk calls - panic". "Forgetfulness". "Being casual about others". "Not thinking if the call would wait until morning". "Selfishness".</p>
<p>GP PERCEPTION OF CALLERS IRRESPONSIBILITY</p> <p>Failure to take responsibility: "Not using common sense - trying a proprietary over the counter medicine for simple complaints first". "Not taking responsibility". "Patients / parents not taking responsibility for more minor illness". "Failure to take responsibility for own health". "Excessive demand for service without acceptance of responsibility for health (poor locus of control by patient)".</p> <p>Not accepting telephone advice: "Refused to accept sound telephone advice". "Inability to accept advice". "Not helpable". "Failing to relieve pre anxiety by reassurance over the telephone".</p> <p>Calling too late: "Problem having been present all day and then calls at night". "At 7 p.m. He's been ill all day Doctor". "Any symptoms which have been going on for more than one day and could have been sorted out in normal hours".</p>

Inappropriate callers were perceived to be demanding, thoughtless, aggressive, not helping themselves or exhibiting lack of respect for the doctor. Appropriate callers were characterised as responsible, appreciative, understanding and valuing of the general practitioner. These observations are consistent with the nursing literature on the identification of good and bad, popular and unpopular and desirable and undesirable patients (Kelly and May, 1992). The overall picture was of general practitioners exasperated with the way in they perceived some patients used out-of-hours services inappropriately by 'working the system', being over demanding and failing to manage minor, self limiting illnesses. I was taken aback by the frankness of the comments and not sure why respondents had chosen to be so direct. Did this reflect a lack of awareness of the difficulties callers have in deciding to and then calling their doctor, or had such sensibilities been overwhelmed by the lived experience of being on call?

3.5.7 Perceived need for changes to be made to the current arrangements for out-of-hours primary medical care

The changes which general practitioners perceived were needed to the current arrangements for out- of-hours primary medical care are summarised in figure 3.4. Responses centred on the need to make changes to financial arrangements, to the regulations which guide the provision of out-of-hours care, and to patient education. A large scale patient education campaign was envisaged with media involvement to help change the 'unrealistic' expectations of the public and to encourage people to 'be more aware of their responsibilities'. How though could callers be expected to make such judgements when there was a lack of consensus amongst health professionals? Providers may need to focus more on offering *appropriate responses* to the undifferentiated demand.

Whilst it was perceived that changes in service organisation would address the increasing demand for out-of-hours care, there was seen to be a risk that re-organisation could fail to impact on the 'real' workload of night visits, and that patient awareness of the availability of out-of-hours care would be increased by public debate associated with the change process.

Further work to explore and address the reasons for increasing demand was said to be needed.

Figure 3.4 General practitioners' perceptions of the most important changes needed to current arrangements for out-of-hours care.

<p>Financial:</p> <p>Financial recognition of the burden of out-of-hours work.</p> <p>Specific financial support for Co-operatives and Primary Care Emergency Centres, in particular set up costs and infrastructure.</p> <p>Payment of the higher night visit fees for <u>all</u> visits and payment for casualty work.</p> <p>Modification of current fee - acts as a perverse incentive to encourage visiting after 10 p.m.</p> <p>Charge patients a small fee for out-of-hours medical care.</p> <p>Fund out-of-hours care separately from General Medical Services and put out to tender.</p> <p>Provision to allow doctors to contract out of out-of-hours work.</p>
<p>Regulations:</p> <p>Removal of responsibility to visit at home.</p> <p>Introduce centre based primary care which patients attend and provide transport if necessary.</p> <p>Screen all out-of-hours calls to prevent the use of primary care centres as a drop in service.</p> <p>Use nurse practitioners more for out-of-hours cover.</p> <p>Ensure time off after a night on call.</p> <p>General practitioner to decide if and where an emergency consultation should take place.</p> <p>Ability to opt out of 24 hour care or remove 24 hour responsibility.</p> <p>Encourage the development of local solutions and more flexibility in how care is organised.</p> <p>Reduce the amount of night work for general practitioners.</p>
<p>Patient education:</p> <p>Education campaign by government and primary care to encourage more appropriate use of on call services.</p> <p>Patient education - doctors do not mind attending emergencies.</p> <p>A wide range of symptoms relate to mild, self limiting illness and can be managed by the patient during out-of-hours periods.</p> <p>Patient education about symptoms - what is serious, what can wait, why it's better seen at day surgery that most things have no cure.</p> <p>Educate patients about appropriate home medical kit (eg paediatric preparation of paracetamol).</p> <p>Education of patients not to abuse the service and appreciate that a call is in addition to a working day.</p>

The survey focused entirely on general practitioners' perspectives and it was clear that the patient or caller perspective needed to be investigated. Others have argued that there is scope for increasing the extent to which patients make appropriate use of health care (Hopkins, *et al.* 1993; Joule, 1993; Parr, 1993) and further work could investigate whether consumers identify a lack of out of hours services, could seek their views on alternative models of out-of-hours service provision and could identify what information would help

patients decide whether or not to call. A more helpful, shared nomenclature such as necessary/unnecessary or immediate/next day calls would be preferable to that of appropriate/inappropriate.

3.6 Rigour in the analysis of qualitative data

Mays and Pope (1995) list eleven questions which can be used to assess rigour in qualitative research. Questionnaire surveys are generally considered part of the quantitative research methods repertoire, but this survey contained open questions relating to the perceived strengths and limitations of different service models and to the appropriateness and inappropriateness of out of hours calls required. Responses to these questions were analysed qualitatively and the Pope and Mays criteria are therefore useful in appraising the strengths and limitations of the analysis undertaken. Each criteria is considered in turn:

- *Overall, did the researcher make explicit in the account the theoretical framework and methods used at every stage of the research?*

The survey generated responses from practising general practitioners to immediate out of hours issues. It was a pragmatic survey which, together with the literature review, contributed to a period of observation within the overall study and the development of a theoretical framework. Use of the concepts 'appropriate' and 'inappropriate' in relation to out of hours calls was of theoretical interest and motivated the inclusion of specific questions in the survey. Avoidance of a dualistic conceptual distinction may have reduced the tendency for respondents to give extreme examples and have generated more examples of uncertainty. The method of analysis described would allow re-analysis of the data.

- *Was the context clearly described?*

The general context for the study was discussed in Chapter 1, in terms of the important developments in general practice, the rise in demand and the origins of the out of hours crisis. Use of an interview method would have enabled evidence of the context from each participant's perspective to have been reported, but this was not the primary aim of the study.

- *Was the sampling strategy clearly described and justified? And*
- *Was the sampling strategy theoretically comprehensive to ensure the generalisability of the conceptual analyses?*

The use of a mainly quantitative survey method discouraged purposive or theoretical sampling. Interviewing practitioners from a wide range of settings and with different views and perspectives would have enabled a maximum variety sample to have been obtained. Arguably, the size of the sample obtained produced variability of sorts by obtaining responses from many more general practitioners than could have been interviewed.

- *How was the field work undertaken? Was it described in detail?*

No fieldwork was undertaken within the study.

- *Could the evidence be inspected independently by others?*

Evidence was in the form of handwritten text. The completed questionnaires were retained for future reference and the responses were typed verbatim into a word processor. The tables containing these data, lines of text reassembled into themes and process notes of the analysis could be inspected independently.

- *Were the procedures for data analysis clearly defined and theoretically justified? Did they relate to the original research questions? How were themes and concepts identified from the data?*
- *Was the analysis repeated by more than one researcher to ensure reliability?*

The analysis of texts and documents is a major method in qualitative research. Content analysis, as used in this part of the study, is considered rather reductionist by some qualitative researchers (Silverman, 1993) as the researcher rather than the participants constructs the categories. The questions which generated the data, however, whilst requiring some conceptual thinking, were not truly higher order questions, and questionnaires are arguably only suitable for achieving fairly simple objectives. It would be difficult to justify a more sophisticated approach to the analysis of the data. Content analysis, in allowing the number of responses within categories to be counted, does allow an impression of the weight of evidence in each category to be conveyed. Analysis was undertaken independently by another researcher (HS). Issues in the data were identified first:

these are broad brush impressions of important aspects. After careful reading and re-reading, the data were coded and reassembled under headings. Initially, these headings were often simply key words or phrases which occurred frequently in the data. After discussion with HS and sharing impressions, a joint approach was taken to regrouping the data, discussing how the data could be interpreted and teasing out themes. The sense of an iterative process was impaired by waiting to start the analysis until after the second round of questionnaires had been returned. The analysis would have been strengthened by more frequent revisiting of the developing concepts and the raw data.

- *Did the investigator make use of quantitative evidence to test qualitative conclusions where appropriate?*

The conceptual maps of general practitioners' concepts of appropriateness and inappropriateness were not tested quantitatively. Evidence of the resonance of the conclusions could have been obtained by returning them to the original respondents and asking for their reflections on the analysis. However, time constraints prevented this.

- *Did the investigator give evidence of seeking out observations that might have contradicted or modified the analysis?*

Examples were given of contrary views. For example, a small minority of respondents stated that all calls were always appropriate. In the qualitative analysis of the strengths and limitations of different service models there was a great deal more contradictory evidence. Co-operatives for example were seen both to reduce on-call but increase workload, to lead to improved quality of care and to lack of continuity of care, to be less costly and to be more expensive.

- *Was sufficient of the original evidence presented systematically in the written account to satisfy the sceptical reader of the relation between the interpretation and the evidence?*

Extracts from the data were given alongside the categories in order to illustrate them. Quotations could have been numbered and linked back to individual sources, though this would have been more illuminating had the data been derived from interviews, and had more have been known about individual respondents and their characteristics.

In summary, the quality of the qualitative analysis was constrained by the data which was handwritten text in response to survey questions. The data did yield some surprising material, for example the role which patients attitudes towards the doctors and out of hours care plays in colouring general practitioner's judgements. Linking of the qualitative data more directly to characteristics of individual respondents may have been productive.

3.7 Validity and reliability of the survey

In questionnaire design, it is important to balance the need to invest in tests of validity and reliability with the intended lifespan of the instrument and the resources available for its development. This questionnaire needed to be developed quickly in order to reach its audience during the 'out of hours crisis'. The rapidly changing context of out of hours care and the limited resources available meant that its lifespan would be limited to a one-off study. The testing of validity and reliability could, however have been strengthened, even given these constraints.

For example, content validity was tested through piloting and through assessment by independent general practitioners, but general practitioners could have been involved in developing questionnaire items from the outset, perhaps through focus groups or individual interviews. Some testing of construct validity could have been achieved, even in the absence of Likert type scales, by comparing responses to questions in Section 3 about perceived strengths and limitations of services with those in Section 1 (years in practice, urban/rural practice). In the absence of another validated instrument, it was not possible to test for criterion validity, but pre and post reliability testing could have been built in to the design process.

As non-respondents differ from respondents by virtue of their non response, non-response is an important source of bias in survey research. Efforts to reduce this normally include second and third rounds of questionnaires with encouraging reminder letters and telephone follow up. Some level of non response is inevitable in a postal survey, though a response

rate of over 70% in postal survey was achieved. Any impact from non response in this study could have been reduced by obtaining further data about non respondents. Demographic data and data on qualifications and experience could have been requested from the Research Network co-ordinators and may have enabled the characteristics of non-respondents to be categorised.

3.8 New questions generated by the survey

Two questions about the future provision of out of hours care were distilled from the analysis of the survey. These were (a) how can care best be provided for those patients who need to be seen urgently by a general practitioner? (b) how can those who need urgent care be distinguished from those who do not, and what care should be provided for those who do not?

Whilst primary care emergency centres and cooperatives addressed the first question by rearranging arrangements for seeing patients and co-operatives reduced workload for individual general practitioners by reducing the frequency of on call sessions, there was no evidence to suggest that these models reduced overall general practitioner workload.

Telephone triage had the potential to influence workload by intervening at the point of assessment. If some 50% of calls could be satisfactorily managed by a nurse, then general practitioner load would fall, even if all that reduced was the number of telephone contacts. The question 'how best to provide care to those who do not need the urgent attention of a general practitioner' was important, given that less than a third of out of hours calls constitute emergencies (Beecham, 1994). Without research, developments in primary care would continue based on pragmatic solutions to problems.

CHAPTER 4 A SURVEY OF PUBLIC ACCEPTANCE OF THE CONCEPT OF NURSE TELEPHONE TRIAGE SERVICE

4.1 Identifying practices to take part in the study

The survey of general practitioners described in chapter 3 had highlighted the need to seek the views of the public about a nurse telephone triage service. In a review of forty research publications concerning patient judgements about their care, only five were found to have involved patients in selecting the aspects that were studied (Wensing *et al.* 1994). Undertaking a study in the locality of the intended pilot site would allow the views of the public to influence service development. Attention turned first to the recruitment of a study practice.

One of the aims of the survey of general practitioners in Wessex and the north of England was to identify practices interested in being involved in a pilot study of nurse telephone triage. The search for a study practice was undertaken within the Wessex Primary Care Research Network (WReN). Members were informed of the telephone triage project through their quarterly newsletter and at their 1995 annual conference and interested practices were invited to contact the WReN Director. Of those expressing an interest, one practice (Practice A) was felt to be the most suitable. One of the partners in the practice subsequently joined the research team.

Practice A had three full time partners and one part time partner covering a practice population of 7,500. The surgery was located in a city centre, drawing most of its population from across the city and the surrounding villages. The practice shared its on call rota with Practice B (population 2,500) based on a large local authority housing estate three miles from the city centre. This practice had a younger population profile with fewer elderly patients. When on call, the general practitioners provided a service for 10,000 patients across two practices.

Three factors commended this research partnership. Firstly, Practice A had been awarded research and development status by South and West Regional Health Authority in 1995. This was in recognition of its commitment to research and was an indicator that the team had both the skills and the enthusiasm to host the pilot study. Secondly, the practice out of hours call rate reflected the national average. It was important that the pilot service could be established in a practice where demand would be modest and could be met by the resources available, that is, one nurse. Despite the cathedral city image of the city, both practices cared for patients in lower socio-economic groups and Practice A was well known locally for its expertise in helping patients with mental health problems. Thirdly, the city was an ideal site for experimental research of this type being well defined and surrounded by a rural belt, and with an accident and emergency department which is the only reasonable point of reference for self referred patients needing emergency care.

4.2 Aim

The aims of the survey were

- (I) to discover the views of patients about the quality of the existing out-of-hours service and their views on the proposed nurse telephone triage service.
- (ii) to determine whether patient opinion supported the practices proceeding to a trial.

4.3 Method

I involved Salisbury and District Community Health Council in the design of the survey instrument. Ideas from a patient focus group meeting were used to develop the questions. Focus groups are group interviews intended to maximise data by encouraging participants to communicate together about a particular issue (Robson, 1993; Kitzinger, 1995).

4.3.1 The Focus Group

The group was convened on 18.10.95 from 7-8 pm with the author as facilitator and another member of the research team (ET) as note taker. Fourteen patients were invited

and eight attended ranging in age from 23-78 years and with a variety of health problems and experiences of using the current out-of-hours services. The aim of the meeting was to explore their experiences and views in an informal, confidential setting. During the session, participants were asked to discuss their experience of the current out-of-hours service and the idea of nurse telephone triage. Posters were used to explain both models. After the session the author was available to talk with individuals and the group were invited to contact one of the general practitioners in the practice for further information about the progress of the project.

In general, the group were very satisfied with the current service. At first, it was difficult for the group to envisage how the service could be improved, but in discussion some of the group had concerns about the way in which they were spoken to on the telephone. The need for advice and reassurance was expressed and the group agreed that in principle they would be happy to speak to a nurse and that they would find making the decision to call easier if a nurse was the first point of contact. Figure 4.1 gives examples of comments made by individuals in the group regarding the current service, their experiences of calling and their views on nurse telephone triage.

4.3.2 The questionnaire

The questionnaire (appendix D) was tested for face validity by lay members of the Salisbury and District Community Health Council. The questionnaire explained the current out-of-hours service, asked whether the respondent had a telephone at home and then asked them to agree or disagree with range of statements concerning the quality, responsiveness and accessibility of the service. Respondents were asked whether they had telephoned outside normal surgery hours during the last year and whether anyone in their household had received a home visit. The nurse service was explained and respondents were asked whether the nurse service would be acceptable; whether they agreed or disagreed with a range of statements about the nurse service and whether or not they would be happy for the practice to try the nurse service.

The questionnaire was produced using 'Formic' software (Formic, 1996) which allows for rapid scanning of completed questionnaires. Questionnaires were posted to a random sample of 500 households (250 households from each practice list) in a single mailing. The sample therefore comprised registered patients rather than the general public, though no account of frequency of contact with the practices was taken in the selection. Reminders were not sent to maintain the anonymity of respondents.

Figure 4.1 Focus group comments about the current out of hours service and the proposed nurse telephone triage service

The current service:

- 'The practice provides a very good service now'
- 'The GPs come out in a flash if you need them' (10-20 minutes)
- 'It is difficult to see how the service could be improved'

Experiences of calling the service:

- 'Sometimes the person answering the call is cold and distant'
- 'When you call you want to feel you're the only one'
- 'You do go through real agonies' [deciding whether or not to call]
- 'We always apologise to the doctor for calling at night, don't we?'
- 'Mostly it's only advice you need'
- 'You don't want to call someone out - you just want advice or reassurance'
- 'You're put under pressure when you know that they're on call at night - you try and wait until a reasonable time, another couple of hours'

Nurse telephone triage

- 'I would be more inclined to call'
- 'Nurses on call could increase demand not lessen it'
- 'The practice nurses here are very good but they would be taken away from real work'
- 'The nurse service sounds like a cheap option'
- 'Less work for the doctors but expensive if the GP is still on call'

4.4 Results

Completed questionnaires were received from 251 (50%) households. Recently published British patient surveys in primary care have achieved response rates of 43% (Grogan *et al.* 1995) and 46% (Poulton, 1996) suggesting that our return rate was typical of a single mailing postal survey. Then potential bias from non-response was therefore substantial. The majority of respondents may have been those who were enthusiastic about the idea, and the generalisability of the results is therefore limited.

4.4.1 Telephone access

Most respondents 241/251 (97%) had a telephone at home. This is slightly higher than a recent data on UK telephone ownership of 91%. (OFTEL, 1992). A quarter of respondents had telephoned the out of hours service in the last year and a fifth had received a home visit (table 4.1).

Table 4.1 **Respondents who had telephoned or received a home visit out-of-hours in the last year. Figures are numbers (%) [95% confidence intervals]**

Had telephoned		Had received a home visit	
Yes	60(24%)[19-30]	Yes	50(20%)[15-23]
No	191(76%)[71-81]	No	201(80%)[75-85]
Total	251(100%)	Total	251(100%)

Table 4.2 **Respondents agreeing or disagreeing with the statements about the current service outside normal surgery hours. Figures are numbers (% valid responses) of respondents [95% confidence intervals]**

	Strongly agree	Agree	Disagree	Strongly disagree	No experience	Missing	Total
I think that we have a first class service	56(23) [18-28]	88(36) [30-42]	8(3) [1-6]	1(0) [0-0.2]	91(37) [31-43]	7	251
Whenever a GP comes out to visit, they're here quickly	35(15) [10-19]	73(31) [25-36]	14(6) [3-10]	0(0) [0-0.1]	116(49) [42-55]	13	251
Sometimes the person answering the telephone is unfriendly	7(3) [1-6]	21(9) [5-13]	77(3) [26-38]	52(22) [16-27]	83(35) [29-41]	11	251
Sometimes I find it difficult to decide whether or not to call the GP	39(16) [12-21]	101(42) [36-48]	27(11) [7-15]	4(2) [0.5-4]	68(28) [23-34]	12	251
I wish I could call someone for advice without bothering the GP	62(26) [20-31]	113(47) [40-53]	17(7) [4-11]	5(2) [0.7-5]	45(19) [14-23]	9	251

4.4.2 Evaluation of the established out of hours service

Of those with experience of the service, few had found the person answering the telephone to be unfriendly, an issue raised at the focus group. Fifty eight percent agreed that it was sometimes difficult to decide whether or not to call the doctor and the majority (73%) wished they could call someone for advice without 'bothering' the GP (table 4.2). In contrast, 83% indicated that they would not worry about calling if a nurse was on duty and 81% would probably call earlier, before problems became too serious (table 4.3).

Table 4.3 Respondents agreeing or disagreeing with the statements about the nurse telephone triage service. Figures are numbers (% valid responses) [95% confidence intervals]

	Strongly agree	Agree	Disagree	Strongly disagree	Missing	Total
I think the nurse service would be an improvement	83(34) [28-40]	145(59) [53-66]	13(5) [3-9]	3(1) [0.2-3]	7	251
I wouldn't worry about calling if I knew that a nurse was on duty	61(25) [20-31]	147(61) [55-67]	24(10) [6-14]	8(3) [1-6]	11	251
I would probably call sooner, before problems got too serious	74(31) [25-37]	131(55) [49-61]	30(13) [8-17]	3(1) [0.3-4]	13	251
I wouldn't be happy to speak to a nurse	16(7) [4-11]	31(13) [9-17]	106(45) [38-51]	84(35) [29-41]	14	251

4.4.3 Acceptability of the proposed nurse telephone triage service

Ninety three percent of respondents considered that the nurse service would be an improvement. It appears inconsistent that 47/251 (20%) would not be happy to speak to a nurse. It is possible that the negative framing of the statement 'I wouldn't be happy to speak to a nurse' generated some falsely positive responses, with respondents reading 'I *would* be happy to speak to a nurse'; particularly as 95% of respondents found the nurse service acceptable and 97% were happy for the practice to try the service (table 4.4).

Table 4.4

Respondents who would find the nurse service acceptable and who would be willing to try the service. Figures are numbers (% valid responses) [95% confidence intervals]

<u>Nurse service acceptable</u>		<u>Willing to try the service</u>	
Yes	235(95)[91-97]	Yes	240(97)[94-99]
No	13(5)[3-9]	No	7(3)[1-6]
Missing	3	Missing	4
Total	251	Total	251

4.4.4 Issues of validity and reliability

The use of a focus group to generate issues for the questionnaire was important, but could have been strengthened by the involvement of more participants, perhaps with several meetings. The practice team nominated patients whom they knew to have used out of hours services and wrote to them to invite them to attend. In endeavouring to recruit a range of patients of differing ages and health problems, the practice team tried to generate a group with a maximum variety of perspectives. Though not evident from the focus group, this approach could have led to the exclusion of patients who were known to rate their experience of primary care poorly, or patients with challenging views or

attitudes. Based on the evidence from this survey of public demand, the practices felt confident in working towards a pilot study of the service. The results of the focus group and the survey suggested that objections to a nurse service would be few, especially as callers wishing to speak to the doctor would be able to do so. Clearly however, in the sense that non responders differ from responders, we cannot be certain that the level of support for the idea of a nurse telephone triage service expressed by responders would not have been weakened by a higher response rate.

CHAPTER 5 THE PILOT STUDY

5.1 Aim

The aim of the pilot study was to test the feasibility of nurse telephone triage in primary care, and to gather preliminary evidence of acceptability of the service to patients prior to a randomised controlled trial.

5.2 Subjects and methods

A nurse telephone triage service was provided for two practices in Salisbury (combined practice population 10,000) during 18 four hour sessions - 14 in the evenings and four at weekends. Incoming calls to the practice were diverted to an experienced practice nurse, working from home.

A profile of common patient problems which could be dealt with by a nurse had been distilled from Practice A's out-of-hours records over the previous four years. This provided an initial core group of protocols for development. Following substantial development work, however, a partnership with a research team in the Department of Primary Medical Care at Kings College Hospital was formed. The King's team had developed a computerised system for telephone assessment and advice in accident and emergency and primary care called the Telephone Advice System (Richardson, 1996). The software was reviewed by the research team, the practice nurse and the general practitioners and was subsequently purchased and modified for use in the trial.

5.2.1 Training and development of the practice nurse

An experienced practice nurse was recruited and a development plan designed to build upon her skills. This comprised:

- (i) Individual tutorials based on telephone triage course at the University of Southampton

- (ii) Keyboard skills development
- (iii) Training with the TAS system at Kings College Hospital
- (iv) Role play exercises based on likely case scenarios and to develop skills and to practice using the TAS system.
- (v) Support by the author when on duty. This enabled practical support, review of calls (what had gone well, what could have been improved) and helped the practice nurse to reflect on and document her observations of each call.

5.2.2 Timetable

The service commenced on January 8 1996 and terminated on February 29 1996. The out of hours period was defined as 7pm to 7am Monday to Friday and 24 hours a day at the weekend. Dates when the general practitioners from Practice A were on call were identified and the nurse telephone triage service was provided on two to three evenings per week from 7-11 pm to allow scope for a 4-6 hour period at the weekend. These had been identified as the times when most calls could be expected. Eighteen sessions were covered in all, 1 in 9 of the total out-of-hours sessions available.

5.2.3 Arrangements for receiving calls

The practice nurse was based at home and an additional, dedicated telephone line was installed with a three way call facility. A fax/photocopier was attached to the computer and a headset was used to enable hands free use of the computer keyboard. At close of surgery, the practice receptionist diverted all incoming calls to the pilot service number and checked that the call diversion was in place. The general practitioner on call could either be contacted on his home telephone number (from where he could also receive a fax) or on the practice mobile telephone. On receiving a call the nurse would commence the consultation with the words 'Hello, doctors' surgery. Sister speaking, can I help you?'

5.2.4 Triage calls

The procedure for triaging calls was discussed prior to commencing the service and provisional guidelines were prepared for situations in which the nurse would always refer the patient to the general practitioner. These were all patients with chest pain; all babies under one year of age who were unwell; all epilepsy care and all patients asking specifically to speak to the doctor.

Patient details were recorded first: the presenting problem, name and address, date of birth, usual general practitioner and the callers telephone number and relationship to the patient. The nurse then asked the caller to tell her more about the problem, explaining to the caller that her role was to see if she could help first before deciding with the caller whether they needed to speak to the general practitioner.

A detailed assessment was compiled and the TAS system automatically recorded the questions asked and the responses received. The nurse in discussion with the patient and exercising her judgement recommended to the patient one of several courses of action. These included:

- (i) nurse advice with reference to the TAS protocols (this might include referral to another agency)
- (ii) referral to the general practitioner (in these cases the caller was advised that the general practitioner would contact them shortly. This would either be by telephone or by a visit, but the doctor would decide).
- (iii) an appointment at an out of hours surgery (only available at the weekend).

A summary of the call was immediately printed and faxed to the general practitioner. Shortly afterwards, the nurse telephoned the general practitioner to discuss the call. A copy of the call summary was inserted in the patient's notes the following day, the

general practitioner having noted the outcome of the call where he had been involved. The usual system of notifying the general practitioners at Practice B about calls from their patients was continued. The nurse made personal notes about her experience of the call and these were drawn on later as part of the qualitative review.

For the purposes of the pilot study, the general practitioner received faxed details of all calls and could have reversed the nurse's triage decision if necessary. This did not occur.

5.2.5 Caller follow up

A follow up questionnaire was posted to callers within one week (appendix E). A postal survey was chosen in preference to a telephone follow up because of the potential for re-opening the consultation if the researcher spoke to the patient within a week. Questionnaires were specific for patients having experienced either the nurse service only or both the nurse and the doctor and included questions about the caller's perception of the urgency of the call; the way the nurse/doctor spoke with the caller; the questions asked and advice given; whether the caller was happy to speak to the nurse first and whether the caller would have preferred to talk to the doctor directly, even if this meant a delay.

5.2.6 Data analysis

Confidential records were maintained on computer for each call and the TAS audit system was used to produce summary data. The Epi-info epidemiological analysis programme was used to establish a case record for each call in which anonymised data about the call and the caller's responses to the follow-up survey could be combined and analysed. All calls were qualitatively reviewed by the nurse and the researcher in order to identify the strategies which had helped or hindered the interaction.

5.3 Results

No logistic problems were encountered. Overall, 56 calls were received from 54 callers. There were no deaths, no hospital admissions and no ambulance calls relating to any of the calls. The service appeared to be feasible in this setting and most patients found the service acceptable.

5.3.1 The number of calls

Table 5.1 shows that fifty six calls were received by the nurse during the study. On average there were three calls per evening session and five calls per weekend session.

Given that one in nine available sessions were covered by nurse telephone triage we might have expected 504 (9x56) calls had the service run full time. Extrapolated over a year this would generate some 4334 calls or 433 per 1,000 patients per year. The call rate nationally is estimated to be between 130-176 calls per 1,000 patients per year (Hallam, 1994). The rate we recorded, however, would generate an over estimate because we ran the service at peak times. The data helped us to see that we could provide the service for a larger patient population and it was proposed to provide the service for a population of up to 100,000 patients in the main trial.

Table 5.1 Number of calls per session during the pilot study.

Evening sessions 7-11 pm	
	Number of calls
Monday 8 January	3
Tuesday 9 January	2
Wednesday 10 January	3
Thursday 11 January	4
Wednesday 17 January	0
Thursday 18 January	1
Friday 19 January	2
Friday 26 January	3
Thursday 1 February	3
Thursday 15 February	3
Wednesday 21 February	9
Thursday 22 February	2
Wednesday 28 February	1
Thursday 29 February	1
Daytime weekend sessions	
Saturday 13 January 12-4	5
Sunday 14 January 9-1	4
Sunday 21 January 9-1	5
Sunday 17 February 10-6	5
TOTAL	56

Whilst the number of calls received from patients of Practice A was greater than for Practice B, the call rate per 1000 practice population was much higher for Practice B patients as table 5.2 shows. This was an expected outcome, given the greater proportion of young families in Practice B.

Table 5.2 Call rate per 1000 patients (n=56). Figures are numbers (%)

	Number of calls	Rate per 1000 practice population (Practice A 7500 and Practice B 2500)
Practice A	30 (53%)	4.0/1000
Practice B	24 (43%)	9.6/1000
Temporary residents (not registered)	2 (4%)	
TOTAL	56 (100%)	

5.3.2 Characteristics of callers

Table 5.3 shows that the majority of callers called from their home telephone and table 5.4 shows that most callers were either patients or the mothers of patients. Few calls were from men and this is consistent with the findings of Marklund and Bengtsson (1989) who found women to be the main users of telephone helplines.

Table 5.3 Number of callers who called from their own telephone (n=56).

Called from own telephone	
Yes	50 (90%)
No	6 (11%)
Total	56 (100%)

**Table 5.4 Relationship of the caller to the patient
(n=56)**

Caller identity	Number (%)
Patient	19(34%)
Mother	23(41%)
Father	2(4%)
Wife	1(2%)
Husband	4(7%)
Friend	3(5%)
Carer	4(7%)
TOTAL	56 (100%)

Table 5.5 shows the age profile of patients about whom calls were made. The high numbers of patients in the 17-49 age group can be partly explained by the younger age profile of patients in Practice B.

**Table 5.5 Age profile of patients about
whom the service was
contacted. Figures are numbers
(%) n=56.**

Age group (years)	
0-1	12(21)
2-5	3(5)
6-16	9(16)
17-49	25(45)
50-74	4(7)
75+	3(6)
TOTAL	56 (100%)

5.3.3 Content of calls

Calls are summarised in Figure 5.1 by the nurse's assessment of the presenting complaint alongside the age and sex of the patient. These data illustrate the range of calls to the service and the non-urgent nature of the majority but it is not appropriate to construct a classification because of the small numbers of calls.

5.3.4 Management of calls

Table 5.6 shows how the 56 calls were managed. Twenty one of 56 calls (38%) were managed by the nurse without referral to the general practitioner. Of the 35 referred calls, nurse advice was a key component in 22 of them, often as an interim measure for example advising the caller how to maintain the patient's safety or comfort until the doctor made contact. Nurse advice was therefore a component in 77% of calls.

In 12 of the 35 referred calls the general practitioner gave telephone advice only raising the question of whether the nurse could also have managed these situations without referral. In five of the referred calls, the patient had insisted on speaking to the doctor following receipt of advice from the nurse and had subsequently received the same advice from the general practitioner. For example, a 21 year old with toothache called demanding to speak to the general practitioner and stating that she would go to the A&E department if refused. The general practitioner instructed the patient to ring the on-call dentist. A patient with a chronic back problem called because he had run out of pain killers. The general practitioner asked him to make an appointment the next day. In both these cases the nurse had given detailed advice about pain management but the role authority of the general practitioner seemed to be required.

Figure 5.1: List of presenting complaints in the first and second halves of the study by age and sex of patient (* = GP visit mandated by practice policy)

First half		Second half	
Cough:	x1 age 65 (M)	Difficulty breathing:	x1 age 68 (F)
Wheeze:	x1 age 6/12 (M) *	Unwell asthmatic:	x1 age 5 (M)
Sore throat:	x1 age 12 (M) x1 age 19 (M) x1 age 9 (M)	Inhalation of gas fumes:	x1 age 14 (M)
Difficulty breathing:	x1 age 4 (M)	Difficulty swallowing:	x1 age 8 (M)
Lump in jaw:	x1 age 15 (M)	Swelling of known goitre	x1 age 16 (F)
Pain in jaw:	x1 age 30 (M)	Headache:	x1 age 36 (F)
Swollen face:	x1 age 33 (M)	Migraine:	x 1 age 25 (F)
Sticky eye	x1 age 6/12 (F) *	Head injury:	x1 age 1 (F) (called twice) x1 age 16 (M)
Toothache:	x1 age 21 (F)	Vomiting:	x1 age 41 (F)
Earache:	x1 age 8 (M)	Abdominal pain	x1 age 46 (F)
Eczema on scalp:	x1 age 36 (M)	Thrush:	x1 age 46 (F)
Vomiting:	x1 age 11/12 (M) * x1 age 4 (F)	Fever:	x1 age 1 (F) x1 age 6/12 (M) * x1 age 5/12 (M) *
Abdominal pain	x1 age 33 (F) x1 age 21 (F)	Crying baby:	x1 age 10/12 (M) *
Urinary infection:	x1 age 4 (F)	PV bleed in pregnancy:	x1 age 22 (F) x1 age 26 (F) (called twice)
Sore penis:	x1 age 1 (M)	PV bleed no pregnancy:	x1 age 46 (F)
Fever:	x1 age 1 (F)	Suprapubic pain:	x1 age 27 (F)
Back pain:	x1 age 43 (M)	Self harm:	x1 age 27 (F)
Leg pain:	x1 age 28 (F)	Suicidal thoughts:	x1 age 31 (M)
Right sided weakness:	x1 age 79 (F)	Appointment requests:	x1 age 80 (F) x1 age 27 (F)
Dizziness:	x1 age 60 (F)	Medication advice:	x1 age 68 (X) (worried because they had chewed instead of swallowed a tablet)
Fainting:	x1 age 13 (M)		
Post delivery check:	x1 age 20 (F)		
Sleeplessness:	x1 age 35 (F)		
Directions for GP on night visit:	x1 age 80 (F)		
Medication advice:	x1 age 23 (F) (analgesic advice)		

Table 5.6 Management of 56 calls received by telephone triage nurse. Figures are numbers (%).

Management of telephone calls by telephone triage nurse (n=56)	
Nurse assessment and advice only	21(38)
Referral to general practitioner with interim advice from nurse	22(39)
Referral to general practitioner with no interim advice	13(23)
Total	56(100)
Management of calls referred to general practitioner (n=35)	
Advice only	12(34)
Consultation at an out of hours surgery	6(17)
Home visit	17(49)
Total	35(100)

Between 9.1.96 and 14.2.96, 7/29 (24%) of calls were managed by nurse advice alone. However, between 15-29 February, 14/27 (52%) of calls were managed by nurse advice. This demonstrates that the nurse's confidence grew over time and, on reviewing some of the earlier calls, we are of the opinion that with further experience she would have managed more of these herself. It is unlikely that, by chance alone, the patient problems arising in the second half of the study were simply more amenable to nurse advice (Chi-squared = 4.58; p = 0.03).

5.3.5 Calls referred to the general practitioner

Eight patients were invited to attend an out-of-hours surgery and seven received treatment and advice. The nurse invited the patient to attend the surgery at times when the general

practitioner had planned to be there, normally on Saturdays and Sundays and co-ordinated with pharmacy opening times.

It could be argued retrospectively that only ten of the fourteen home visits undertaken were necessary. For example, a 6 month old baby with wheeze was found to be well and not needing treatment; a one year old with a fever was diagnosed as having a cold and a two year old with a rash and a fever was found to be well with neither rash nor fever.

These cases will provide useful studies in themselves for developing triage procedure. In general it appeared that nurse referrals were appropriate.

Over one third of the calls in the pilot study were handled by the nurse alone, and in the second half of the study this proportion increased to half. A message handling service (with calls passed on by a receptionist, for example), would therefore have referred calls to the general practitioner unnecessarily.

5.3.6 Caller satisfaction

Eleven callers were excluded from the follow up where to ask for further co-operation would have been unreasonable, for example, episodes of acute mental illness or emotional distress or where the enquiry had been entirely routine such as an appointment request. Questionnaires were therefore posted to 43 callers with one reminder and 29 were returned (67%).

Table 5.7 shows that 96% of callers were happy with the way the nurse spoke to them on the telephone and of these 82% were very satisfied. The caller who was dissatisfied was unhappy about being asked to attend an emergency surgery with her child. Whilst she had agreed to do this, the practicalities of taking her child out and arranging transport had proved more difficult than anticipated. The decision to invite her to the surgery appeared medically appropriate.

Table 5.7 Caller satisfaction with the telephone interaction. Figures are numbers of valid responses.

	Very satisfied	Satisfied	Somewhat dissatisfied	Very dissatisfied	Total
What did you think of the way the nurse spoke with you? (n=22)	18	3	0	1	22
What did you think of the way the doctor spoke with you? (n=19)	11	6	1	1	19
What did you think of the advice the nurse gave you? (n=24)	16	8	0	0	24

Few of the 56 calls could be classified as medical emergencies (the ambulance service was not called upon), however almost half the callers retrospectively rated their calls medical emergencies, illuminating the extent to which lay and medical perceptions of health can differ. Over a third of calls were requests for advice or reassurance, suggesting that there is a need for a service which can respond to these requests (table 5.8).

**Table 5.8 Perceptions of the urgency of calls .
Figures are numbers of valid responses
(n=26)**

Was the problem which prompted you to telephone the surgery	
A medical emergency?	11
Not an emergency but could not have waited until the next surgery?	6
A problem about which you wanted only advice or reassurance?	9
TOTAL	26

Five callers would have preferred to speak directly to the doctor even if this had meant a delay but the majority would not (table 5.9). In future patient information it will therefore be important to continue to make it clear that patients can ask to speak to the doctor, the nurse is not a barrier to access to the general practitioner. The caller who was dissatisfied (table 9) would not have preferred to speak to the doctor directly.

Table 5.9 Callers preferring to speak to the general practitioner directly (n=18)

	Strongly agree	Agree	Disagree	Strongly disagree	Total
I would have preferred to talk to the doctor directly, even if this meant a delay.	2	3	13	0	18

A range of written comments about the nurse service were received from eleven callers and these are reproduced in figure 5.3.

5.3.7 Issues of validity and reliability

The survey of callers was a small scale enquiry undertaken for a group who had received a unique service. The containment of the pilot study within two practices meant that any adverse outcomes from the service, including dissatisfaction, were likely to become known to the practice teams. Responses to the survey convey a broad impression of acceptability but were clearly insufficient in themselves to constitute any kind of ‘evidence’. The identification of one ‘unhappy’ caller prompted careful planning around the care management of callers without access to transport.

Figure 5.3 All comments from responders about their experience of speaking with the nurse

'I feel it is a very good idea because if it's only advice you need, you can be reassured by the nurse without calling the doctor out.'

'The advice the nurse gave me kept me going until the doctor 'phoned me back. It was reassuring being able to get verbal advice straight away. It was frustrating waiting for the doctor to 'phone because the nurse said he'd be 45 minutes but he was over 1 ½ hours (but that probably wasn't his fault). The doctor was very helpful and the information the nurse gave him probably helped him to access the situation quicker.'

'We are very fortunate to have such an excellent service.'

'I was delighted to be able to speak to a nurse. I did not want a visit and would not have rung a doctor. The nurse told me to lie down and ring again in 15 minutes. I felt too unwell to ring and the doctor rang me. He concluded it had settled down and he did not need to visit which left me feeling bemused. All in all the system worked marvellously. I had someone to talk to and if it had been (say) meningitis it would have been picked up.'

'The doctor had no details of illness on arrival. I was very annoyed to have to go to surgery. I told the nurse I had no transport and was told to get someone to take me. I had to arrange care for my other child, borrow a car and take a very sick baby into freezing weather. Not happy at all.'

'My sister had told me about the new system. I was impressed by it.'

'I do think it is a good idea to talk to a nurse first regarding your concerns as a patient. I would certainly never want to call out a doctor unnecessarily. I found the nurse reassuring and she did say to phone back in 30 minutes if no change. If a relative of mine was having severe chest/arm pains I would be concerned regarding this system as time would be of the essence and I feel I would have to go straight for the ambulance just to be on the safe side.'

'The nurse calmed me down as I was quite upset. I was happy on the advice she gave me.'

'The nurse I spoke with was very reassuring and I felt she was very competent.'

'I thought the service was very good. I was having a miscarriage and I knew I was, so didn't really want or need to disturb a doctor - just need advice and reassurance. I knew there was nothing that could be done, so just needed to reassure myself. The nurse was fantastic and made me 'phone back etc. I was extremely grateful and very pleased with the whole service.'

'My call was handled very well indeed and the nurse gave virtually identical advice to the doctor. However, it transpired that my problem was merely routine and however accurate the nurse's advice is, I would still feel more completely reassured to hear the same thing from the doctor. I think it is unlikely, therefore that, in my circumstances, I would be completely satisfied by the nurse alone.'

CHAPTER 6 METHODOLOGY

6.1 Introduction

The history of medicine is punctuated by profound scientific discoveries which have shaped the development of health care. The discovery of microbes, penicillin, and radium for example, all had a key impact on the understanding and management of disease. More recent scientific discoveries add weight to the supremacy of the scientific method as the basis for enquiry but Pocock (1983) points out that 'The evaluation of possible improvements in the treatment of disease has historically been an inefficient and haphazard process' (p.1).

In a rapidly changing health care context, clinical practice can develop in advance of relevant scientific enquiry with the consequence that much practice remains based on tradition and experience rather than on evidence.

Peckham (1992) warned of the dangers of a health evaluation bypass in which new technologies could become incorporated into the NHS through marketing and enthusiasm when evaluation of their merits and limitations might have led to their rejection. Similarly, new approaches to providing out of hours care constitute new technologies which are being enthusiastically incorporated into the health service on the grounds that they are 'common sense approaches'.

The NHS Research and Development initiative invests in the conduct of research in order to increase the evidence base for practice. In order to render the task manageable, it identifies key areas and questions for research. Given the observation that many randomised trials are small and/or report only moderate differences in outcome (Clarke and Stewart, 1994) and that large scale prospective studies are difficult and expensive to run; the Cochrane Collaboration, an international network of individuals and institutions is seeking to combine the results of randomised controlled trials through systematic review

and meta-analysis (Chalmers and Haynes, 1994). Proponents of systematic review claim that the method will increase the confidence with which practitioners can rely on the results of trials. Opponents are concerned that meta-analyses simply pool the biases and confounding factors within the original studies and offer over simplified syntheses. At the centre of this debate is a profound disagreement about the most appropriate paradigm for health services research.

6.2 Competing paradigms in health services research

Proponents of the scientific and interpretive research paradigms are often viewed as being in conflict (Pope and Mays, 1993). The scientific paradigm is based on an assumption that there is a real world external to individuals which can be objectified and measured. Within its battery of quantitative methods, the randomised controlled trial is hailed as the gold standard. Proponents of the interpretive paradigm on the other hand assert that there is no 'real world' except that lived and experienced by individuals. They emphasise situational and structural contexts (Strauss, 1987), focus on observation, description and the social construction of meaning (Silverman, 1993) and eschew the notion of 'results'. The epistemological origins of this debate can be traced to a critique of the enlightenment concepts of truth and rationality (Heckman, 1990) and the differences between the paradigms hinge on what constitutes 'truth'. This rather dualistic thinking has led to a stalemate in which researchers can only operate within one or other paradigm and eclectic pragmatists are seen to be naive, failing to understand the philosophical complexity of the debate.

Consequently, there are reports of randomised controlled trials which omit any substantial description of the context of the study (even on occasions the gender of the subjects) and reports of qualitative studies where the authors appear to refuse to include any numeric data even at the expense of being able to report on how many, how often or to what degree (Strauss, 1987). Trends in the funding of health services research suggest that the randomised controlled trial is still regarded as the method of choice for investigating

treatment effects. However, as the discipline of 'health services research' emerges (Pope and Mays, 1995), the opposing paradigms are seen to be in 'false conflict' (Black, 1996) and the use of mixed methods is becoming increasingly associated with effective research (Pope and Mays, 1993). A mixed methods approach allows different enquiry paradigms to be applied appropriately to different research questions within the same study, providing they are clearly identified as different questions.

Bearing in mind the limitations of previous studies, the research design for this study aimed not only to address causality (the effects of nurse telephone consultation on a range of variables), but to acknowledge the importance of context (the situation in which the trial took place and its effect on the development of the intervention).

6.3 Economic analysis

The economic analysis of primary care initiatives is described by Godber *et al.* (1997) as being in its infancy. The opportunity to analyse cost data from a randomised controlled trial (and especially one which might demonstrate equivalence between two approaches to care) was compelling. An understanding of the marginal cost implications of expanding nurse telephone triage to cover larger populations would inform the debate about effectiveness and equity of access to services.

There were two main obstacles to undertaking an economic evaluation during the trial. The first was a conceptual problem, the second one of resources. The trial may have established the efficacy of nurse triage (the extent to which the intervention achieved its objectives under ideal conditions) but not its effectiveness (the extent to which these would be achieved under everyday conditions). A period of post trial follow-up which tracked the costs further was needed to be able to observe the development of the intervention outside the constraints of the trial. Raftery (1998) outlines further concerns about undertaking economic evaluations alongside clinical trials. These are the difficulty of gathering data on the full costs of trials, the problem that the power of trials is usually framed in terms of benefits rather than costs, and the observation that trials can be

atypical. Furthermore, project resources did not allow for an economic analysis.

The approach chosen was therefore to collect relevant cost data during the trial but to defer the conduct of the economic evaluation until the year following the trial by which time it could be anticipated the service would have stabilised and specific funding obtained for the evaluation.

6.4 The rationale for an equivalence trial

The review of the literature, the period of observation and the pilot study had suggested that nurse telephone triage was a service worth developing, but that research was needed to test its safety and effectiveness. In particular, previous studies had lacked the random assignment of patients to providers of care in real, rather than simulated environments. With an intervention as brief as a 3-5 minute telephone consultation, the content of which would often be conveyed to the patient by a third party such as a parent or carer, it would be difficult to measure differences in health outcome. The potential for confounding was too great, and it would have been difficult, for example, to attribute health gain to telephone advice in the presence of unknown factors such as care given by the family, and the natural history of the ailment. The need was not to demonstrate that nurses could provide a 'better' service, but to establish that a co-operative augmented by nurse telephone triage was as safe as the standard model of care.

The randomised controlled trial is considered by Pocock (1983) to have become 'widely regarded as the principal method for obtaining a reliable evaluation of treatment effect on patients' (pxi). Robson (1993) argues that, as the crucial feature of experimental designs is random allocation to experimental conditions, a researcher should consider conducting a true experiment if a feasible and ethical way of achieving this can be found. For a successful randomised controlled trial, both treatment arms need to be perceived as broadly equally effective or ineffective, and the intervention should be tested before it has become an established part of practice (Fairhurst and Dowrick, 1996). Ideally, a state of

equipoise, of genuine uncertainty about the benefits or harms of the intervention versus the control is the strongest case for a randomised controlled trial (Last, 1995). In a randomised controlled trial of nurse telephone triage, random allocation would make possible the measurement of a cluster of key outcomes and enable causal relationships between variables to be explored. According to Sox (1979) 'only random allocation of a large sample assures the equitable distribution of all sources of bias, known and unknown, to both experimental groups' (p.460).

However, whilst in most randomised controlled trials the objective is to show a positive result in the sense that one treatment is significantly better than another, as Pocock (1983) suggests, there are trials such as this 'in which one is more interested in showing the 'negative' result that two treatments are equally effective' (p.129). In this trial, the aim was to demonstrate equivalence in the number of adverse events generated by a general practice co-operative augmented by a nurse service, compared with a standard co-operative service.

In comparative trials, the objective is to determine whether a null hypothesis of 'no difference' can be rejected. Tests of statistical significance are used to assess this together with confidence limits. In equivalence trials, however, the null hypothesis is reversed but failure to find a difference does not necessarily imply equivalence. Statistical tests of significance can be misleading because assessment of equivalence depends considerably upon a judgement about what constitutes a clinically relevant difference (Jones *et al.* 1996) and the use of confidence intervals is considered to be a much more helpful and illuminating approach to analysis.

6.5 Estimation of sample size in an equivalence trial

Makuch and Simon (1978) cited by Pocock (1983) p. 125 describe the following method for determining sample size based on a qualitative measure of patient response:

$$n = \frac{2p(100-p)}{d^2} f(\alpha, \beta)$$

Where: n = sample size; p = the overall percentage of success anticipated; d = maximum difference in percentage successes on the two treatments. The sample size calculation is based on the percentage of success (absence of specified adverse events) which could be expected in the standard treatment.

There are no data on adverse events arising from general practice consultations from which to derive sample size estimations. The seminal study to date in the field of adverse events incidence was that of Brennan *et al.* (1991): the Harvard Medical Practice Study. Thirty thousand randomly selected case records of acute hospital inpatients were reviewed and population estimates of iatrogenic injuries according to the age and sex of the patient and the speciality of the physician were developed. Adverse events occurred in 3.7% of the hospitalisations. In a British study of theoretical decision making, James and Pyrgos (1989) found a 3.6% error rate when nurse practitioners in an Accident and Emergency Department were compared with middle grade doctors. Of 332 'walking wounded' cases reviewed by nurses, 12 would have been mismanaged, principally through over investigation. If a rate of 3.7% were to be replicated in an out of hours setting, 37 calls per thousand would result in some kind of adverse event, and this would appear a high estimate.

Clearly, the worst kind of adverse event is a preventable death. Approximately 1067 deaths in the study population of 97,000 could be expected based on an all cause mortality rate of 1.1% per annum in the UK (ONS, 1994). Not all these deaths would have had the involvement of general practice, and as out of hours services operate for 115

of 168 hours per week locally (68%) it seemed reasonable to estimate that in the control arm, between 0.5% and 1% of reported deaths would be patients for whom the out of hours service had responsibility.

Jones *et al.* (1996) argue that where a new agent is being compared with a standard treatment, it is necessary to show that the new agent is so similar as to be clinically indistinguishable and recommend that a factor of two be considered. With this in mind and based on the expected mortality rate, it appeared reasonable to use an adverse event rate of 0.6% rather than the 3% suggested by the literature.

Using the above formula, a range of sample size calculations were made (table 6.1) where $\alpha = 0.1$ (95% confidence in a one sided calculation) and $\beta = 0.2$. and a range of the range of differences 'd'.

Table 6.1 Calculations of sample size based on the formula given by Pocock, 1993.

p	1-p	d	d ²	n
99.5	0.5	0.29	0.0836	7379
99.4	0.6	0.35	0.1225	6037
99.3	0.7	0.40	0.1638	5262
99.2	0.8	0.46	0.2139	4601
99.1	0.9	0.52	0.2707	4086
99.0	1.0	0.58	0.3364	3649

For the trial where $p=99.4$ (6 adverse events in 1,000 in the control arm) the calculations were as follows: For

$$n = \frac{2p(100-p)}{d^2} f(\alpha, \beta)$$

where $d=0.35$, then in each arm:

$$n = \frac{2 \times 99.4 \times 0.6}{0.35^2} \times 6.2 = 6037$$

Approximately 20,000 calls to the service were expected during the trial year. The nurse service operated at fixed times (18.15-23.00 on weekdays; 11.00-23.00 on Saturdays and 08.00-23.00 on Sundays) and call data from the non intervention arm was collected during the same time intervals. The main reason for excluding a night service from the trial was that calls after midnight were greatly reduced in number. Excluding night calls was expected to reduce the total call volume over the year by approximately 25%. It was therefore reasonable to expect some 14,000 calls during the year during the specified times, approximately 7,000 in each arm of the trial.

6.6 Eligibility

All patients registered with a general practitioner member of the co-operative would be included in the trial, and all patients who were temporary residents. Calls received from patients whose practice had moved to another co-operative were referred on at the time of the call and were excluded from the trial.

6.7 Block randomisation

A 'block design' refers to an experimental design in which subjects are grouped into categories or blocks, so that the blocks are treated as the experiment's unit of analysis

(Vogt, 1993). This approach was useful in this study, because it was not possible to randomise patients in advance. In order to achieve randomisation, the year was divided into sequential two week blocks (figure 6.1). Within each block, weekends (Saturdays and Sundays) were treated as one unit; one day within each pair of weekdays was randomly allocated (using odd/even random numbers generated on a calculator) to receive the intervention as was one weekend of each pair. The weeks commenced on a Wednesday to avoid splitting Bank Holiday periods. This design ensured that a true comparison could be made between the intervention and control arms of the study. It also had the advantage that theoretically any combination of two week blocks could be analysed and generate valid results. If for example there had been a need to terminate the trial early, the data collected could still have been utilised.

Figure 6.1 Block randomised design for the controlled trial showing a two week block where X=days when the intervention is running. Within each two week period, individual days are randomised to determine which of the two Mondays/Tuesdays and so on is the intervention day. Saturdays and Sundays are treated as one unit.

	M	T	W	Th	F	S	S
Week 1	X	X		X		X	X
Week 2			X		X		

6.8 Outcome measures

Where possible, outcome measures should reflect the intended outcomes of medical care (Sox, 1979). The intervention was intended to improve the access of callers to health advice and to reduce GP workload without generating more adverse events than the control. The outcome measures (figure 6.2) were developed through multidisciplinary discussion and with reference to previous work. Measurement of general practitioner occupational stress and anxiety was considered but rejected in the light of work by Chimiel *et al.*(1995) which reported the difficulties of measuring occupational

performance following sleep loss or when fatigued. Performance is unaffected by these factors although work rate drops following sleep loss, being most evident towards the end of the following day. It appears however, that many individuals overcome a lowered work rate by compensating in performance. Furthermore, the psychomotor tests which might be manageable in a real world study are unable to mirror the complexity of professional working and decision making.

6.8.1 Call management

Evidence from the pilot study had suggested that a nurse telephone triage service would produce changes in the patterns of call management, with up to 50% of calls being managed by nurse advice. Coding of the management outcome for each call during the trial would enable comparison by intervention and control group.

6.8.2 The incidence of adverse events

The best indicators of safety for this setting were considered to be the absence of discernable adverse events. Adverse events have been studied in hospital medicine and have been defined as injuries to patients caused by medical management (Brennan *et al.* 1991). Measuring the occurrence of unwanted treatment outcomes can be a proxy measure of patient safety and in the context of out of hours care, adverse events could have occurred in both arms of the study as a consequence of the actions of any of the care team. The possible points at which adverse events could arise within the service are set out below.

The role of the receptionist and the risk of adverse events

Callers always speak first to a receptionist who checks the patient's details and whereabouts before either passing the call on. In the intervention arm, this was always to the nurse, in the control arm, always to the doctor. Receptionists were required to pass on

all calls, however in some circumstances they were permitted to intervene prior to passing the call on. These circumstances were (i) if the receptionist received a call about an emergency situation such as a person with acute chest pain or in collapse, *and* the doctor/nurse was engaged with another case they would dial 999 (ii) when the intervention was off, receptionists were authorised to invite patients to attend a primary care centre for an appointment with the doctor.

Receptionists were not permitted to give medical advice. It could be argued, however that (i) and (ii) above constituted a form of 'receptionist triage' and there was therefore the risk of under and over-referral to the 999 ambulance service; failure to identify an emergency situation; the risk of inaccurate history taking with poor quality information being passed to the GP subsequently affecting the GP's judgement about how to respond to the situation.

The role of the general practitioner and the risk of adverse events

In both arms of the trial, the GP received initial information about the patient from someone other than the caller. The call management options for the GP were as follows:

- (i) Telephone advice
 - on home management of the problem
 - to see the patient's own GP the next day
 - to bring the patient to be examined at the primary care centre
 - to take the patient to the Accident and Emergency Department.
- (ii) Examination of the patient at their home or in the primary care centre with
 - advice on home management
 - advice to see the patients own GP the next day
 - treatment
 - admission to hospital.

In the above scenarios, there was the potential for a GP to fail to respond promptly enough to a call; to give inappropriate advice and or treatment; to fail to visit or examine

a patient or to refer the patient to hospital unnecessarily.

The role of the telephone triage nurse and the risk of adverse events

In the intervention arm of the trial, all calls were passed to the nurse, except in the exceptional circumstances described above. Nurses received initial information about the details of the call from the caller and the call management options for the nurses were:

- (i) Telephone advice
 - on home management of the problem
 - to see the patient's own GP the next day
 - to attend the Accident and Emergency Department
- (ii) Referral of the patient to the GP on duty
 - inviting the patient to attend the primary care centre
 - advising the caller that the GP would contact them by telephone
- (iii) Contacting the 999 ambulance service plus referral to the GP on duty
- (iv) Referral to another agency (eg on call Community Psychiatric Nurse) plus referral to the GP on duty.

In the above scenarios, there was the potential for a nurse to fail to assess the seriousness of a situation, possibly managing a call over the telephone which should have been referred to the GP; to fail to communicate the seriousness of referred calls so that the doctor delayed contacting the patient; to give inappropriate advice or to omit to invite the caller to call again if concerned; to refer calls to the GP which could reasonably have been managed by a nurse; or to refer the patient to hospital or 999 service unnecessarily.

All personnel were encouraged to invite the caller to ring back if they had further concerns or if the patient's condition deteriorated, and nurses were required to end all calls with this proviso. There was a risk therefore that a practitioner may have omitted to issue this invitation, with consequences for the patient's well being.

The actions of the caller and the potential risk of adverse events

The decision to contact an out of hours service is made in unique circumstances and as discussed in chapter 4, some callers delay calling, placing themselves or the patient at risk, whilst others are less hesitant about asking for help. Callers who were unhappy about the idea of a nurse service, or who had been dissatisfied with previous care (Locker and Dunt, 1978) may have delayed or avoided seeking medical advice. This would be difficult to determine beyond investigating whether those patients seen in A&E chose this option in preference to speaking to a nurse, and reporting the numbers of patients who contacted the out of hours service but asked to speak with the doctor rather than a nurse. Callers would not have known in advance whether or not the nurse service was available on a particular date.

It would also be difficult to determine whether or not callers had acted on the advice given by the service and the extent to which acting on advice, misunderstanding the advice or omitting to act on the advice would be contributing factors in the light of an adverse event. There could be instances where a caller invited to call back elected not to do so, or situations where a caller decided to take themselves or the patient to hospital even though this course of action had not been recommended to them.

It was evident from the range of call management pathways which might ensue with any one call that adverse events needed to be defined and searched for systematically.

6.7.3 Definition of adverse events

Adverse events were therefore defined as:

- emergency admissions to hospital, or attendance at the Accident and Emergency Department within three days of an out of hours call.
- death within seven days of an out of hours call.

Events would be considered avoidable if some aspect of care provided in either arm of the trial had been sub-optimal and had been relevant to the outcome. This could only be determined by a qualitative case review. The first step would be to determine whether there were differences in the proportions for deaths, admissions and attendances between the intervention and control arms of the trial. With the range of difference for observing equivalence defined as 0.35%, the 95% confidence intervals centred on the observed differences in proportions must lie entirely within this range for equivalence to be established.

If equivalence in the proportion of events was observed, it could be argued that there would be no reason to suspect that the number of avoidable events would be higher in the intervention arm. As a further test, however, case summaries of all patients who died within 7 days would be reviewed by a confidential enquiry panel. Time constraints did not permit a report of this process to form part of the thesis.

6.9 Process measures

The process measures developed for the trial are listed in figure 6.3.

6.9.1 Case mix

Previous studies have already answered the question 'who calls out of hours services?' and 'with what health problems to they call?' (Bergman and Rosenblatt, 1982; Knowles and Cummins, 1984; Marklund and Bengtsson, 1989; Cragg *et al.* 1994; Dale *et al.* 1995). More calls are made by women than by men and most calls concern the care of the young and the elderly. In a recent cross sectional study of the use of out of hours health services in Buckinghamshire, Brogan *et al.* (1998) confirm this 'broadly U shaped curve with respect to patients' age' (p.525) and in line with other studies found that the majority of calls concerned upper respiratory tract infection (23%); diarrhoea and vomiting (12%); ear infections (8%); chest infections (7%); abdominal pains (5%); skin

complaints (5%); injuries (4%); and urinary tract infections (4%). The development of a database for storing information about calls in collaboration with the co-operative would make it possible to report similar indicators and in addition to report on the age and sex of patients in the trial in comparison with the registered patient population.

6.9.2 Complaints

Complaints about the service would either be formal, managed through the co-operative's complaints procedure; or informal, managed at practice level. The co-operative manager routinely asked for feedback from the practice managers about patient's experiences of the co-operative. A method was needed to capture these data.

6.9.3 Caller experience

It was important to be able to determine whether there were differences in caller dissatisfaction between the two groups. The development of a measure for this outcome was informed by the literature on known conceptual and methodological problems with 'patient satisfaction'. In summary, the literature reflects the concerns of theorists that the concept itself lacks validity; the concerns of methodologists that attempts to measure it are generally flawed; the concerns of consumer representatives that the embracing of patient satisfaction surveys by providers enables them to feel that they are (mistakenly) learning about the real experiences and perceptions of patients and the prolific attempts by health service researchers to measure satisfaction even given these considerable difficulties.



6.10 The measurement of patient satisfaction

6.10.1 Arguments about the validity of the concept 'patient satisfaction'

Carr-Hill (1992) suggests that satisfaction is a derived concept (the product of factors such as life style, age, experience and values) likely to be defined differently by different people and by the same people at different times. This 'interpersonal and over time variability' (p.237) makes satisfaction a difficult concept to measure. Patient satisfaction surveys have tended to report high levels of satisfaction (Williams 1994; Grogan *et al.* 1995) and the expression of satisfaction may reflect compliance or acceptance of the dominant discourse of medicine. Where there is little evidence of dissatisfaction, little can be known about what needs to be changed.

6.10.2 Difficulties with the measurement of patient satisfaction

Williams (1994) takes the view that the 1993 NHS Management Enquiry called for work to be done to obtain the experience and perceptions of patients and the community but claims that Health Authorities and the 1989 White Paper have mistakenly interpreted this as a call for the measurement of patient satisfaction.

According to Carr-Hill (1992) attempts to develop a global index of satisfaction have failed because of difficulties in deciding what the dimensions of satisfaction are, and in knowing how to weight these dimensions. He concludes, 'this statistical reduction to a single index presumes that there is an underlying unity to 'satisfaction' for which there is very little evidence' (p238).

Furthermore, there appears to be a connection between expressed satisfaction, expectations of health care and the perceived outcome of care (Hallam, 1998) with patients whose experiences most closely match their expectations more likely to express satisfaction. This interconnectedness of expectation and experience, together with

interpersonal variability presents considerable challenges for health services research. A well rounded approach should accept that only certain aspects of satisfaction are likely to be measured, should ask about expectations as well as experience and should utilise direct and indirect approaches to measurement by both asking the respondent to give a satisfaction rating and by inferring satisfaction levels from specific questions about care.

One major advantage of studying satisfaction within a trial was the opportunity to make comparisons in a large enough sample of callers who had experienced the intervention and those who had not. In a meta analysis of 221 studies, Hall and Dornan (1990) reported that 82% were drawn from individuals known to have received care from a particular site or system and only 14% from studies in which there was some experimental manipulation of factors supposed to be contributing to satisfaction.

For Carr-Hill (1992) the survey method has a number of disadvantages. It is potentially expensive and inconclusive and can only report responses to pre-set questions rather than patients considered or spontaneous views. For Whitfield and Baker (1992) poor questionnaires constitute censorship: 'They give misleading results, limit the opportunity of patients to express their concerns about different aspects of care, and can encourage professionals to believe that patients are satisfied when they are in reality highly discontented' (p. 152).

The need for a large sample size influenced the choice of a questionnaire survey to investigate caller experience. The likelihood that non responders would be less satisfied needed to be addressed by attempting to facilitate the expression of dissatisfaction on the form itself, and by providing contact names, addresses and telephone numbers of named staff, including the Community Health Council, who would assist responders who wished to give verbal or further written feedback.

6.11 Ethical considerations

All research must safeguard the wellbeing of subjects and have careful regard for confidentiality. The ethical considerations surrounding the trial related both to the provision of the nurse service and to the conduct of the research. Primary care nurses routinely work with patients on the telephone and as discussed in chapter 2, evidence from previous studies suggested that nurses were likely to be at least as skilled if not more so than physicians in all aspects of telephone consultation. Prior to the pilot study, we were not aware of any other out of hours nurse telephone triage systems in the United Kingdom and so a newsletter containing an explanation about the trial was sent by the practices to every household. By January 1997, however, nurse telephone triage services were being provided by four other local service providers. Funding for the nurse service was transferred to the co-operative and the co-operative employed, managed and paid the telephone triage nurses. The co-operative facilitated the conduct of the research by agreeing to work to a randomised pattern of service delivery for the nurse service. Hence, whilst the study design was an experimental, the co-operative rather than the investigators had responsibility for and control over the intervention. As it was impractical to write to the entire patient population, only a small proportion of whom would utilise the service, information about the trial was published in the local press including free, delivered newspapers and posters announcing the nurse service were distributed to all practices. Although the nurse service was augmenting rather than reducing the service to patients, callers were given the opportunity to speak with the doctor if they wished to.

General practitioners gave their written agreement for their patients to be included in the trial and a mechanism was established whereby general practitioners could discuss any concerns. Withdrawal from the trial would have been a last resort, though GPs could have withdrawn at any time. The pilot study and the main trial were approved by the local research ethics committee. The committee received annual reports from the project team and notification of any changes to the research protocol and changes in the identity of investigators.

Figure 6.2: Outcome Measures

OUTCOME MEASURE	RATIONALE	METHOD
<p>Call management</p>	<p>To compare the management of calls ie: those managed with nurse telephone advice; GP telephone advice; attendance at a primary care centre and GP home visit.</p>	<p>Call outcome logged by code on PCM database. Download in to Microsoft Access for checking and into SPSS for analysis. Identification of calls occurring in matched time periods labelled on or off for the intervention.</p>
<p>Adverse events</p> <p>Number (% of patients about whom calls were made) of deaths (patients who had made contact with the out of hours service in the previous seven days).</p> <p>Number (% out of hours calls) of emergency hospital admissions (patients who had been admitted to hospital within 24 hours and within 3 days of a contact with the out of hours service)</p> <p>Number (% out of hours calls) of attendances at the Accident and Emergency Department (patients who attended within 24 hours of a contact with the out of hours service)</p>	<p>To determine whether there were differences in the frequencies of these events in both arms of the trial. The range of equivalence is defined as plus or minus 0.35% The 95% confidence intervals centred on the observed differences in proportions must lie entirely within this range in order for equivalence to be established. It will then be possible to assert that the true difference is unlikely to be outside this range.</p> <p>Following the trial (even if confidence intervals for differences lie entirely within the range $d=0.35$) anonymised case summaries of all patients who died within 7 days will be reviewed by a confidential enquiry panel. This will enable further discussion of the clinical relevance of 0.35 as the range of difference.</p>	<p>Matching of all calls with all deaths in the study population using data from the ONS Public Health Mortality File (PHMF). Initial computer matching, followed by hand matching by surname, forename, sex and date of birth. Calculation of frequencies of deaths where the last contact with the out of hours service was with the intervention arm or the control arm of the trial and calculation of proportions and differences in proportions. Review of all matched cases by scrutiny of GP case notes with the co-operation of the Health Authority. Production of a confidential, anonymous case summary document for all deaths in order to be able to report key characteristics (age, cause of death) and to have all cases reviewed by a confidential enquiry panel, first to select cases for full review (any reason) and second to identify cases where sub-optimal care may have contributed to the death. Publication of trial results withheld until this review has taken place. (The confidential enquiry process will not form part of the thesis)</p> <p>Review of all emergency hospital admissions and accident and emergency attendances using hospital data from the primary acute service provider for the co-operative. If equivalence (as defined) is not demonstrated, a random sample of cases will be reviewed by the confidential enquiry panel.</p>

Figure 6.3: Process Measures

PROCESS MEASURE	RATIONALE	METHOD
Case mix	To compare the number of calls in each arm of the study; the age and sex of patients comparison with the registered patient population and the most frequent presenting complaints with accounts given elsewhere in the literature.	Number of calls, age and sex data to be taken from the PCM database. Presenting complaint data to be drawn from the TAS system (nurse assessment only)
Complaints	How many complaints were there in both arms of the study and what were the themes?	Non-critical events monitoring of practices for three months. Formal and informal complaints to be managed by the co-operative manager who will report anonymised data to the researcher.
Caller experience	How did callers rate the adequacy of the service and their satisfaction with it?	Postal questionnaire survey of all callers (with exceptions where appropriate) between 1.10.97 and 20.1.98 in collaboration with Salisbury and District Community Health Council.

7.1 Introduction

Awareness of the pilot study had grown amongst local general practitioners following its conclusion in February 1996 and subsequent publication. Planning for a general practice co-operative was already in progress, and the invitation to the co-operative to host the trial was timely as it enabled the management team to prepare for this well in advance. The background to the establishment of the cooperative, and a description of the process of care it delivered are presented as contextual detail about the study site into which the intervention was later introduced.

**7.2 The formation of a general practice co-operative in South
Wiltshire**

The general practice co-operative for South Wiltshire formed in March 1996. Prior to this, the general practitioners of Salisbury and Salisbury Plain managed their own on call arrangements. Within large practices of more than five full time partners, general practitioners normally managed their on call workload by internal rotation. Smaller practices tended to join together to share their on call, as did the two practices which hosted the pilot study. There had been previous attempts by enthusiastic general practitioners to establish a co-operative in Salisbury, but these had not been successful. The availability of funding through the national out of hours development fund, together with increasing acceptability of the idea of a co-operative were further triggers for the development, though as with most co-operatives, patients were not systematically consulted about the change. A manager was appointed in the Autumn of 1995 to develop the service and to recruit staff under the guidance of one of the general practitioners (later the Medical Director) and the National Association of General Practice Co-operatives (NAGPC) was consulted on aspects of organisation.

7.3 The process of care in the co-operative

The co-operative comprised two geographical 'cells' serving 97000 patients registered with 55 general practitioners. The Salisbury cell comprised the city general practitioners with the exception of two practices which had not joined the co-operative. The Plain cell comprised all the general practitioners in the area bounded by Burbage and Pewsey in the north, Ludgershall in the east and Warminster in the west. The City was a more densely populated area than the Plain which had a more rural, dispersed population and a sizeable armed forces base. Partners and children of serving officers were registered with local general practitioners.

Amesbury (8 miles north of Salisbury) was chosen as the best location for the call answering centre as it offered reasonable access for general practitioners and patients from both areas. The call answering centre was accommodated within existing surgery premises. This comprised a room 17' by 17' in which initially one (and at busy times two) receptionists were based. The Amesbury centre provided a primary care centre for patients living on the Plain and the general practitioner on duty for the Plain always based themselves at the centre. Sleeping accommodation was provided for staff working overnight.

The Salisbury general practitioners were based at home when on duty for the co-operative. In practice, this usually meant spending the first period of time at their own surgery, as the start time for being on duty for the co-operative often followed the conclusion of evening surgery. For the first nine months of the trial, there was no dedicated primary care centre for the Salisbury cell and the GP on duty would open their own surgery in order to see patients. The Salisbury general practitioners had no need to visit the call answering centre in Amesbury, though some chose to do so. One GP from each cell was on duty for the co-operative, with a second GP for each cell on 'standby'.

7.3.1 Communication and support systems

At any point during a co-operative shift, a GP could be at the centre, at home, at their own surgery, in a car en route to see a patient or in a patient's home. A robust communication system was needed to ensure the safe transfer of information to and from the co-operative. Several aspects of the structure of the service and the process of service delivery were designed to ensure that communication was effective.

- A driver and a co-operative car was available for each GP on duty. This facility was not always used by the Salisbury GPs, some of whom preferred to use their own vehicle, however, the provision of a driver had several benefits. Detailed knowledge of the area was sometimes required in order to be able to reach a patient quickly. During the winter months, road conditions were often severe and it was helpful for the GP to have assistance. When not driving, the GP was able to prepare for the visit or make telephone calls to waiting callers, though several reported needing to stop the car to do this to prevent car sickness. Occasionally, drivers also assisted the GP to lift patients and provided an escort for women GPs. Drivers handled incoming calls to the car when the GP was engaged on a visit and maintained contact with the centre about their whereabouts. Particularly on the Plain, it was not uncommon once the driver and GP had left to undertake a visit for them to be absent from the centre for a several hours as they responded to further calls.

- The GP and driver could be reached by pager and by mobile telephone. Reception for mobile telephones in the area was poor. A pager system was the more reliable method of sending information out to the GP in a car, though this required the driver or GP to telephone to accept receipt of the message. The GP was required to acknowledge an urgent message within two minutes, but staff found not knowing whether the message had been received very stressful. There were occasions, for example where a pager had not been switched on and/or a GP could not be reached by mobile telephone. In these instances, staff were resourceful and either asked the GP on

duty for the other cell to help, or called the standby doctor. Callers were asked to contact the service again if they had not heard from the GP within 30 minutes.

- Incoming calls were digitally identified and all calls were recorded.

The telephone number from which the caller was dialling was digitally displayed at the receptionist's desk (with the exception of ex-directory numbers) so that if the caller became disconnected prior to giving the receptionist information about the location of the patient, the call could be re-connected. At the request of the local Community Health Council, funding was obtained for a four channel digital voice recorder. All incoming and outgoing telephone calls from the call answering centre were recorded and stored on digital tape. One telephone in the centre which was used for administration only was not linked to the tape recorder until November 1997. GPs occasionally elected to make calls to patients from other telephones, particularly if the answering centre was busy. Call recording was instituted for the safety of the caller and to enable audit of the service. The recordings were not used for the research.

- Information about the patient and the episode of care was faxed to the patient's practice the following morning.

A short summary of the presenting problem and the action taken was faxed to the patient's practice in order that the patient's own GP would be aware of the call and would take any appropriate further action. In addition, a handwritten account prepared on self adhesive paper was returned to the practice to be inserted in the patient's notes. This normally arrived at the practice within three days of the call being made.

7.3.2 The interface between general practices and the co-operative

Specific times were identified for the transfer responsibility for calls between the practices and the co-operative. On weekday evenings, this occurred at 6 pm for the Plain cell and 6.30 pm for the Salisbury cell. The receptionist would be ready on duty

at 6 pm and the practices called the co-operative to give notice that their calls were being transferred. All except two practices chose to leave an answer phone message for patients advising them that the surgery was closed and to call the co-operative in an emergency; the others operated a call divert system. Answer phone messages may have deterred some callers who on reflection decided their call could wait until the next day, at worst they may have deterred callers who really needed assistance. Responsibility for calls was transferred back to the practices at 8 am on weekdays. At the weekends, calls were transferred to the co-operative at 11.00 am on Saturdays and managed by the co-operative until 8.00 am on Monday mornings.

Calls to the co-operative were answered by a receptionist who documented the patient's details on computer using a programme called Patient Call Manager (PCM) which had been commissioned by the co-operative. PCM was based in Microsoft Access and drew on an FHSA patient database for its list of 97,000 registered patients. Each patient had a unique identification number and each call was allocated a unique call number. In the control arm of the study, the receptionist first checked the patient's name, age and current location, before taking a brief history of the problem (recorded on the system by clicking up to six symptom buttons with a mouse) and deciding whether the call was category A, B, or C. (A=emergency requiring immediate response to the pager; B=urgent requiring response to the pager within 10 minutes; C=routine requiring response within 30 minutes). These data were paged for each call, or, if the GP was in the centre, were printed out for information. In principle, all calls were passed to the GP and on receipt of the information, the GP would decide whether to telephone the patient, ask the patient to attend the primary care centre or visit the patient at home. However, the receptionists would invite patients to attend the centre on their own initiative and would call for an ambulance to attend the patient if they considered it necessary. There were also occasions when an elderly mentally infirm patient called the service and spoke incoherently for long periods of time. A plan was agreed in the co-operative that providing no urgent situation was evident, this caller would be asked to end the call, without transfer of the case to the doctor. Calls such as

requests for appointments and for information about pharmacy opening times were also managed by the receptionists. The quality standard set for response time was that a caller would receive a contact from a doctor within two hours (in line with the NAGPC guidelines).

7.4 The negotiation of a research partnership

Following the pilot study in 1996, the newly formed co-operative was approached to take part in the study. General practitioners appeared to be positive about the idea of the service. They consented to take part in the trial in writing and were offered the opportunity to contribute to the study and the development of methods. Whilst in one sense the addition of a nurse service was timely as the co-operative experienced a particularly busy 1996/1997 winter period and the assistance of nurses was to be welcomed, it presented some difficulties. Reception staff had already been appointed and had expectations about their roles. They were to feel threatened by the arrival of a new professional group who not only took away the most interesting part of their work (hearing the story of the patient's problem) but were better paid and by their presence changed the working relationships they had developed with the general practitioners.

A great deal of co-operation, planning and support was required to ensure the smooth integration of the nurse service including the development of new partnerships between staff and the interfacing of two software systems. Though the research project had offered the co-operative use of the TAS software, it had elected to continue with its own PCM system. This had required a software interface to be designed to enable the two systems to link together.

7.5 The nature and purpose of the intervention

The model of nurse telephone triage implemented during the trial was based on that developed for the pilot study. Though it was modified because of the scale and complexity of the co-operative's work, the purpose of the intervention remained to identify those patients needing the urgent attention of GP (based on an assessment of the situation), to make appropriate referral decisions and to manage those patients not needing referral to the GP either with telephone advice or referral to another agency.

7.5.1 The recruitment of telephone triage nurses

Although there were examples of other local telephone triage services, these had recruited staff from within existing practices or accident and emergency departments. In order to recruit nurses for the study, a person specification and job description were developed (appendix F) and these were reviewed by the Health Authority prior to the placement of an advertisement. In retrospect, they are useful documents historically in that they capture our vision of the role. Six posts were advertised nationally for telephone triage nurses to be employed by the co-operative, eleven candidates were interviewed and all the posts were filled. The appointees all had primary care nursing experience, three were currently employed as practice nurses, one a health visitor with a mixed child and adult caseload, one nurse was employed in the city accident and emergency department, and one practised as a school nurse and had recent practice nursing experience. All the appointees planned to maintain their part time clinical work in addition to the telephone triage and this was actively encouraged by the co-operative as one way in which the nurses could retain day to day contact with patient care. The practice nurse who had undertaken triage during the pilot study was appointed Project Nurse and had responsibility for the management and supervision of the nursing team, and for liaising with the co-operative manager and the general practitioners.

7.5.2 Nurse education and training

An education programme designed to prepare the newly recruited nurses to practice telephone consultation was developed and provided over a six week period between September and December 1996 (appendix G). The programme comprised group and individual tutorials, and individual supervision and included an assessment of competence. Continuing education in the form of monthly team discussions and seminars occurred during the trial year.

7.5.3 Integration of the nurse telephone triage system

Two nurses were always on duty when the intervention was running. During busy periods this proved essential, though on some evenings one nurse could have managed the calls. It was not possible to predict busy periods in such a way as to allow reduction to one nurse and so this staffing level was maintained throughout the trial.

Each nurse was allocated a password and used this to gain access to the TAS system, thus making it possible to link all calls to a named nurse. All calls about unwell children under the age of 1 year and all second calls about a patient within the same 24 hour period were to be referred to the GP.

7.5.4 The process of care when augmented by the intervention

Callers contacting the service spoke first to a receptionist who checked the patient's name, age and location and then briefly explained that she was going to transfer the caller to one of the two nurses on duty. This required both the transfer of the telephone call and the transfer of data between computers, but was normally executed within seconds. If both nurses were already on the telephone, the receptionist asked the caller whether the call was an emergency and if not, agreed with the caller that the nurse would call back. The nurse normally returned the call within five minutes and no more

that no more than five calls were permitted to 'stack' in this way. On one occasion when this number might have been exceeded, the nurse referred calls directly to the GP until those waiting were managed. Callers requesting to speak to the GP were able to do so and at the end of each call, the nurse checked with the caller that they were in agreement with the decision reached. Callers were advised not to hesitate to call back if they were concerned, or if the patient's condition worsened. In some situations (management of nosebleed for example) the caller was asked to ring back to let the nurse know of progress. Nurses also used the diary facility in TAS whereby the operator can remind themselves to return a call at a particular time.

On receiving the call transferred by the receptionist, the nurse would have the patient's details on screen. If a call had been made about the patient in the previous two weeks, details of this episode would also be displayed. The nurse would ensure that the patient's age was entered correctly, as the TAS system generates questions which are age and sex specific. In commencing the assessment, the nurse relied primarily on her own judgement about the nature of the problem, but allowed the TAS system to suggest questions which might inform the line of enquiry being pursued. So, for example, in the case of a child with a fever, the TAS system would display associated questions relating to rash, but the nurse could elect to accept or reject the line of enquiry suggested by the protocol. Arguably, the system was only as effective as the nurse was experienced, and skilled telephone triage nurses appear to learn to take time on problem setting before beginning problem solving. The emphasis was on managing the situation with the caller, rather than making a diagnosis.

If in doubt about how best to manage a situation, the nurses would always refer a call to the GP or would discuss a patient with them. At the end of a shift if it had not happened earlier, the nurses were required to contact the general practitioners on duty and report back on all the calls they had managed. The nurses also worked with the receptionist to ensure that all calls and the outcome of calls could be accounted for.

7.6 Legal issues

Arguably, the legal liability issues surrounding nurse telephone triage remain to be tested. Considerable debate has taken place around the question of responsibility for decisions made about patients by triage nurses. The advent of GP co-operatives had raised the question of whether a co-operative doctor or the patient's own GP was responsible and liable for the care given to the patient but there was uncertainty about how the addition of a nurse service would affect this (Nursing practice was guided by the UKCC Scope of Professional Practice, 1994). In the absence of precedent, specific legal advice was sought.

The legal advice received was that in undertaking telephone triage, nurses act as the competent agent of a GP (as do practice nurses). The nurse has a responsibility to ensure that they have been adequately prepared for the role. The GP can delegate care, but cannot ultimately delegate accountability for that care though of course the nurse is accountable for their own actions. Furthermore, there is an important difference between negligence which is culpable and errors of professional judgement which are not.

Indemnity insurance similar in scope to that arranged for the general practitioners was purchased from the co-operative's insurers. This was in addition to the personal indemnity insurance which the nurses had through membership of their professional bodies.

In practice, concerns about the care a patient had received from the co-operative were discussed initially with the patient's own GP. If the patient wished to make a formal complaint about the service, they were referred to the co-operative manager who investigated the case and responded to the complainant.

7.7 Practical aspects of achieving randomisation

The method of randomisation was described in 6.4. and the product of this process was a calendar of the trial year showing 'on' and 'off' dates for the intervention. The practice of blinding in randomised trials, that is of making the patient, the doctor and the researcher unaware of which treatment the patient is receiving, is clearly problematic in a trial of a health service. It was possible, however, to maintain blindness to the dates of the intervention for GPs and for patients. The original randomisation plan was held by myself and the Project Nurse had a photocopy of the original. GPs did not know until the start of a shift whether or not the intervention would be running and the question 'are there nurses on tonight?' was usually the first to be asked by the GP at the start of duty. This approach avoided the possibility that GPs might request duties to coincide with or to avoid the intervention dates. Patients had been advised in pre-trial information that from January 1997, when they called the out of hours service they *may* speak to a nurse and callers were unaware whether or not there would be a nurse available. In practice, callers appeared to find the presence of a nurse unremarkable. The nurse rota was prepared one month in advance and held by the nurses who understood the importance of not disclosing the intervention dates to other team members. The nurse rota was not displayed at the call centre.

7.8 Internal validity

As identified in Chapter 2, the most likely threats to internal validity would arise from changes to the intervention over time and developments in primary care policy which might impact on the provision of the service.

The process of care identified at the outset remained remarkably unchanged throughout the year. I had planned at the outset that any changes needed to the intervention would where possible be made at the commencement of a new two week block so that the impact of any change could be measured. During the year, the co-

operative manager identified the need for a primary care centre for the Salisbury cell and completed plans for one of the practices to become the designated centre. It opened at the beginning of a two week block on 01.10.97. One nurse commenced long term sick leave prior to the commencement of the trial and this required the recruitment of a replacement. Post code software was added to the PCM system in October 1997 to allow the production of address labels.

In terms of national primary care policy, the trial year coincided with the first period of stability in out of hours service development for some time; characterised by the formation and establishment of co-operatives. It had been possible that new practices would wish to join the co-operative during the year, but membership did not change. One practice located on the area boundary had left to join a neighbouring co-operative prior to the start of the trial. During the year, nurse telephone triage services developed in other U.K. sites and this may have influenced the perceived acceptability of nurse triage amongst the co-operative's general practitioners. The white paper 'A New NHS' (1998) was published too late to have any impact on the trial.

CHAPTER 8 METHODS II: METHODS OF DATA COLLECTION AND ANALYSIS AND THE MONITORING OF TRIAL PROGRESS

8.1 Introduction

This chapter describes the procedures for the recording, storage, retrieval and checking of data prior to analysis. The data required for the trial were mostly those also required by the co-operative and this enabled the use of a shared database.

8.2 Sources and management of population and patient data

Data on the base population (all patients registered with general practitioners who were members of the co-operative) were held by the co-operative and the source of these data were the records held by the Health Authority (commonly referred to as the FHSA database). Prior to 1990, these data were anecdotally considered fairly inaccurate, but the database was subsequently updated by monthly return from the practices and was considered much improved by the time of the commencement of the trial. During the trial, a strategy was needed for managing entries to and removals from the register. The risk with removal of patients was that new arrivals could be assigned old patient numbers by the PCM software, and so whilst new patients were added to the database, none were removed. Descriptive population data are therefore based on a mid trial estimate (as at 23.07.97) of 97229 patients registered in 19 practices. These included a small number of 'difficult to place patients' whose registration was assigned to practices in monthly rotation by the Health Authority.

8.3 Collection of patient data

Initial data were collected at the time of a call and data on the outcomes for each call were entered once they were known (always by the end of an out of hours period). A paper record of every TAS call was retained as these occasionally showed post-call handwritten notes about the care of the patient. These were useful when matching A&E attendances or hospital admission by hand.

The following data were recorded for each call: the name and address of the patient, a unique patient identity number assigned by the system; the name of the GP with whom they were registered and the patient's date of birth and sex. At the time of the call, the patient's name, address and location were checked by the receptionist. Any missing data such as date of birth or sex was added to the file. Each call was automatically assigned a call identity number and the name of the receptionist, nurse and doctor on duty were recorded. Presenting complaint was recorded (obtained by the nurse rather than the receptionist when the intervention was running) and once the call had been processed, a numerical code was entered which summarised the management of the call (code 0=attend primary care centre, code 1=GP home visit, code 2=GP telephone advice, code 3=nurse telephone advice); and number inserted as an action code which indicated the outcome of the call (action 0= own GP to review, action 1= admit to hospital, action 2= patient died, action 3=no further action).

This coding system was constructed by the co-operative for its own purposes, with the exception of code 3 which was added in March 1997 by modification of the software. Calls managed by nurse telephone advice prior to this were coded as 2 (GP telephone advice) and required manual sorting of these categories as part of the data checking procedure with reference to the TAS printed records.

8.3.1 Impact of software problems on data collection

As discussed in chapter 7, the interface between the PCM and TAS systems failed on several occasions resulting in temporary loss of the TAS function. The PCM system did not fail at any stage and all calls were recorded on its database. Figure 8.1 shows the dates and times when the interface failed with TAS not available for 122 hours (9%) of the 1352 hours of service in the intervention arm.

Figure 8.1 Summary of dates and times when the TAS and PCM software link failed and the number of hours affected.

Date	Time period	Number of hours service affected
01.02.97	11.30-13.00	2
02.02.97	08.00-23.00	15
03.02.97	18.00-23.00	5
16.02.97	08.00-23.00	15
23.02.97	14.00-15.00	1
15.03.97	11.00-23.00	12
16.03.97	08.00-23.00	15
14.06.09	13.00-18.00	5
26.09.97	18.00-23.00	5
27.09.97	11.00-23.00	12
28.09.97	08.00-23.00	15
1.10.97	18.00-23.00	5
23.11.97	13.00-23.00	10
20.01.98	18.00-23.00	5
Total		122

8.4 The development of systems for data collection

Provision was made for the collection and secure storage of data from the co-operative's PCM and TAS databases, from the patient database at the local NHS Acute Trust and from the Health Authority.

8.4.1 Confidentiality and Data Protection

The principles of maintaining confidentiality in health services are well established (UKCC, 1989) however, new services present new challenges which require thinking through. The staff of the co-operative were instructed in the possible risks to confidentiality posed by the service and were required to sign a confidentiality agreement on appointment. Patient records stored on computer were only accessible by password, with each staff member having a specified level of access. The recording of patient information is governed by the requirements of the Data Protection Act and the co-operative was registered for the purposes of data protection. The research project was registered with the University of Southampton Data Protection Registrar.

8.4.2 Call data

The PCM system held the complete database, whilst TAS held records only for calls made when the intervention was running. However, TAS recorded details of nurse assessment not held by PCM. In establishing the interface between the two software systems it was important to ensure that transferred data would be compatible and share the appropriate labels, call and patient identity numbers. A unique call number was generated by the database for each call, and linked to the patient identity number. Data were saved on to tape daily as part of the co-operative's data management routine. The database was down loaded zip disc on completion of the first six months (13 blocks) of the trial and at the end of the trial. The data was transported to the Dept of Medical Statistics and stored there on a pass worded system, the original disc being

stored in a locked filing cabinet. No other copies of the data were made. Identifying variables were removed from the file once matching had been achieved.

8.4.3 Mortality data

A method of creating a death register for general practice was described by Khunti (1996) who reported that GPs only certify some 30% of patient deaths themselves. The deaths of concern in this study were of general practice patients and initially I approached the local Registrar of Births, Marriages and Deaths to discuss negotiating access to public records. Data were required for Wiltshire residents who had died in the county; Wiltshire residents who died elsewhere and non-Wiltshire residents who had died in Wiltshire. These data would not be available locally. In 1995, the Office for National Statistics (ONS) launched the Public Health Mortality File (PHMH), a monthly summary of individual death records, purchased by Directors of Public Health. The PHMF includes all information on the public death record as well as coded details of age, sex, area of residence and cause of death. The ONS advise caution in the use of these data for statistical use, but they do serve as a helpful addition to the paper record. In particular, the recording of death may be delayed and for our application, searching for a match need to be undertaken for a month following the known date of death. I was allowed access to the ONS data by Wiltshire Health Authority and this enabled us to match the ONS data with call data.

8.4.4 Emergency hospital admission and A&E attendance data

Links with the Accident and Emergency Department at the acute trust had been made prior to the trial commencing and access to hospital admission and attendance data had been discussed with the Medical Director. The Chief Executive of the Trust gave permission for the Trust's Information Services Department to advise on the best way of retrieving the relevant data. General practitioners were identified by code on the hospital system and it was therefore possible to generate a list of all emergency

admissions between particular dates for the patients of co-operative general practitioners. Matching of cases would be undertaken at base. A&E attendance data had to be obtained from the department. A small minority of patients (approximately less than 0.5%) residing in the far north, west and east of the co-operative's area could have attended other hospitals for accident and emergency care by virtue of their proximity to these services. These centres include the minor injury unit at Savernake Hospital near Marlborough; the Andover War Memorial Hospital and the Princess Margaret Hospital in Swindon. However, the majority of patients and their general practitioners look to the acute trust at Salisbury District Hospital to provide emergency care. The effect of this in terms of the trial results would be a slight under reporting of actual admissions and attendances, but the effect would apply equally to both arms of the trial and it was considered impractical to undertake data retrieval and matching for small numbers of cases.

8.5 Procedures for checking and matching data

Routine data is often collected by busy personnel and can be inaccurate. PCM data contained numerous 'test' calls which were identifiable by a pseudonym, but also contained calls 'entered in error' and duplicate entries. ONS data drawn from death certificates has limitations if it is the cause of death which is of interest, but for the purpose of matching proved very helpful. The name of the GP with whom the patient was registered is not, however recorded on the mortality file, and this would have been a useful search criteria. As expected with routine activity data, hospital data contained some mis-spellings and errors in the date of birth (approximately 20% of matches were found through careful searching by hand).

8.5.1 Checking the call data

Calls were deleted which had not occurred on the dates and times specified in the trial and those remaining were labelled as being 'on' or 'off' for the intervention. Next, all

test calls, duplicates and entries in error were removed and a list of patients for whom sex or date of birth was missing was produced. Sex was added in all but 3 cases where first name was also missing and it was impossible to determine sex from any other aspect of the call data. Missing dates of birth were checked with practice records.

8.5.2 Matching the call data with the Public Health Mortality File

Matching was undertaken using surname, date of birth and sex. Matching by forename proved to be ineffective as it was occasionally absent, or used as a middle name. A manual search of the PCM database then revealed entries such as 'RIP' in call records not found on matching. On closer review, this was because of a difference in the date of birth or surname between the two files and matching was done again by hand.

Where more than one call had been made concerning a patient, possibly on several dates, these were listed. Patients were then identified who had died within seven days of a contact with the out of hours service. Deaths were coded as having occurred following an intervention or a non intervention call. Some patients would have had contact with both arms of the trial, but it was the last contact prior to the death which generated the intervention on/off code. It would become clear on searching the GP notes of the deceased that some of the matches identified were also requests for certification, the co-operative not having been involved in the patient's care prior to the death.

8.5.3 Matching the call data with emergency hospital admission and attendance data

Admission data were matched in the same way as mortality data but the 11,000 episodes of A&E attendance required computer matching. Matched cases were those where a patient had made contact with the out of hours service and then attended or was admitted to hospital within three days. Admissions within 24 hours were also identified.

8.6 The monitoring of trial progress

Five reasons for monitoring trial progress are suggested by Pocock (1983). These are ensuring compliance with the trial protocol; monitoring the reporting of side effects (adverse events); practising data processing; maintaining interest and satisfying curiosity amongst investigators and looking for treatment differences by analysing interim results. In this trial, there were informal and formal elements of monitoring.

I visited the call answering centre frequently, in the evenings and at weekends to support or train staff, to respond to information technology problems, meet with the Co-op manager and to observe the process of care. The project nurse and I often had daily contact about the project and met together with the Medical Director from time to time, to review progress and in month ten, to plan for the smooth transition from trial to service. I was conscious of the risk that I could unwittingly intervene in the study, and took care to leave management decisions to the management team.

This high level of contact with the service meant that I was made aware of problems and concerns and could keep the research team informed of these through our team meetings. It was important to try to ensure that there were no differences emerging in the two arms of the study which would point to the need to stop the trial. We agreed that the research team would take responsibility for any decision to stop the trial and would base this decision on the results of interim analyses. Arrangements were made for general practitioners wishing to withdraw from the trial to meet with the project leader and the Medical Director of the cooperative.

8.6.1 Complaints about the service

Three methods of collecting data about complaints were used, a review of formal complaints processed by the co-operative manager; a three month survey of practices and an invitation to express concern via the caller survey.

The co-operative manager had responsibility for responding to formal complaints about the service on behalf of the co-operative and for retaining the appropriate documentation. The potential weakness in this system was that patients may have approached their own practice to discuss their concerns. Local resolution whilst desirable, could obscure the level of dissatisfaction in the community. We therefore asked for the assistance of practice managers to collect feedback from patients about the service over the three month period October to December 1997. Managers were asked to complete a standard form each month (appendix H) entitled a 'non-critical events survey' on which they were asked to note (anonymous) feedback from patients about the care they had received. The covering letter emphasised that the intention was not to intervene in any way but to record the frequency of informal feedback. The caller survey questionnaire included an invitation for respondents to contact the co-operative manager or the CHC directly if they wished to discuss any aspect of the service further.

8.7.2 Interim analyses

Interim analyses of call management, deaths and emergency hospital admissions were undertaken after six months and reviewed by the research team. Call management analyses were shown to general practitioners at one of their meetings in October 1997 but the team were cautious about disseminating the interim results in order not to influence the rest of the trial.

9.1 Introduction

The trial design created the opportunity for a comparative study of caller experience. There were two main questions to be answered. First, what were the experiences of callers who contacted the service and how satisfied were they with the care they received? Second, were there differences between the two groups? These questions, together with the availability of resources and issues of confidentiality and anonymity influenced the choice of method.

9.2 Rationale for the choice of method

There have been few studies of patients' perspectives and experiences of out of hours care until recently (Hopton *et al.* 1996; Salisbury 1997). Understanding more about the pathway to care for callers and patients, that is, the physical, psychological, social and environmental factors which led to a decision to call; what self help had already been tried; how the situation was managed and the outcome from the user's point of view remain to be studied. Interviews with callers, preferably in person but possibly by telephone could have enabled me to explore some of these aspects, but the need for a comparative study with a larger sample than could be achieved with interviews was required. There was also a question of whether interviews should have been undertaken by an independent researcher, though in qualitative research, immersion in the context of the study is highly desirable. Early qualitative fieldwork often involves a period of detailed observation, and where the researcher already knows the environment, techniques for 'making the familiar strange' are used to illuminate ordinary features. The researcher does not strive to be objective and neutral but accepts that personal beliefs and values always exist and are best declared from the outset in order to allow the audience to appraise the work in the light of them. As

there were no resources to recruit another trained interviewer, I considered working with the CHC to develop a telephone interview method. A CHC project officer would contact callers by telephone within seven days of their call to the co-operative to talk through a structured interview schedule. The main obstacle to this approach was one of confidentiality. It was not possible to provide the CHC with a list of names and telephone numbers without seeking the callers consent to be contacted. Callers are often anxious and it seemed unreasonable to ask the receptionists or nurses to seek consent during the consultation. There was also a risk that callers might agree to be interviewed at the time of the call but later regret their decision, and that operators may be reluctant to seek consent from callers they had found difficult, thereby introducing an unacceptable level of selection bias into the study.

Interviews are relatively expensive to undertake in comparison with survey methods, although Carter and Thomas (1997) consider that the costs of survey research are often underestimated. Use of a postal questionnaire would, however, enable the entire caller population to be surveyed over a period of four months (eight two week blocks).

9.3 Response bias, access to data and caller consent.

It is generally accepted that a response rate of at least 70% is required before response bias in questionnaire surveys is overcome. Second and third mailings of questionnaires are normally required to achieve this level of response. Response rates in postal surveys are notoriously poor, though high response rates can be achieved as Van Campen *et al.* (1998) demonstrate, concluding that the postal survey was the most cost effective method and produced consistently high response rates in a group of patients who had given written consent to take part in the study. By definition, non responders differ from responders and they are considered less likely to be satisfied with services.

Patients approached to take part in research, may infer that their willingness to participate could affect their ongoing care. In conducting a survey of callers who contacted the out of hours service during the trial, I needed to be certain that the ethical aspects of the method were well thought through.

In order to encourage respondents to give critical feedback about their experiences it was important to assure them that their comments would not be attributable. The CHC team were clear that respondents must be assured of confidentiality and anonymity, that is, that they must be able to trust that their completed questionnaire would not be shown to their own doctor or to the co-operative's staff. There was a potential dissonance therefore between the need to ensure that individuals felt free not to take part in research, the need to maintain confidentiality and anonymity and the desire to maximise response rates.

9.3.1 The case for ensuring that individuals feel free not to take part in research

When patients or those caring for them are approached to take part in research, there is a risk that they may fear that their non participation or the detail of their participation will be made known to their care team and that this may affect their future care. Item 3.6 of the Ethical Principles for Conducting Research with Human Participants states:

Investigators should realise that they are often in a position of authority or influence over participants who may be their students, employees or clients. This relationship must not be allowed to pressurize the participants to take part in, or remain in an investigation (British Psychological Society, 1991, cited by Robson, 1993, p.472).

Researchers therefore need to accept that whilst non-response may be an oversight, correctable by a courteous reminder, it may reflect a wish not to participate which should be respected. Jones *et al.* (1995) regard the sending of personalised letters from the patient's general practitioner with surveys as excessive pressure in the sense that

patients may find it difficult to refuse to take part. They see assuring the patient that their GP will not be informed about whether or not they have taken part in a study as one solution, but one which would be undermined by the sending of reminder letters.

9.3.2 Confidentiality, anonymity and the sending of reminders

An undertaking of anonymity and confidentiality would be a promise that neither the identity of the patient/respondent nor the details of their case would be made available to anyone other than the organisers of the study. Individuals should not be identifiable in the report and if there is a risk that individuals might be able to identify themselves they should have the opportunity to see the report prior to its completion. In this study, disguising the location of the study site was impossible and this made it all the more important to protect the identities of patients, callers and staff.

The separation of the process of dispatch and return of questionnaires was the best way of ensuring anonymity and confidentiality. Questionnaires would be sent out by the co-operative as they had legitimate access to names and addresses and the CHC could receive and process the completed questionnaires, overcoming the potential risk that co-operative staff would be able to link the responses to particular cases. I would then analyse the data and prepare a report for all parties from anonymous data.

This approach would, however, preclude sending reminders and linking the questionnaire data back to other trial data by matching study numbers. If a non-respondent, previously assured anonymity received a reminder letter, they would know that one agency or the other was aware that they had not replied. The CHC was not supposed to have their name and address, and the co-operative was not supposed to know whether or not they had returned a form - a breach of trust would be evident. This is a concern shared by *Jones et al.* (1995) who see problems 'in sending reminders to non-respondents, which involves disclosure of patients' details to the researchers.' (p.623). Previous studies have tended to report the procedure for issuing

reminders without comment (Salisbury, 1997) though in a rare example, Grogan *et al.* (1995) state ‘reminders could not be sent because of anonymity of responses’ (p.526). It would have been unethical without patient consent to link the two data sets, that is, to use the study number to make connections between the responses given within the confines of the survey and the trial data even though it would have been interesting to compare a respondents reason for calling the service (to get help in a medical emergency, to ask for a doctor to visit or to ask for advice) with the call data. Whilst these concerns may appear pedantic, once raised they had to be addressed with care. Finally, if reluctantly, it was accepted that we would have to accept a lower response rate from a single mailing.

9.4 Devising and testing three versions of a questionnaire

The difficulties of measuring patient satisfaction were outlined in chapter 6 and earlier discussion of questionnaire development in chapter 3 highlighted the importance of utilising instruments previously shown to be valid and reliable. In the view of Carr-Hill (1992) however, locally devised surveys on specific topics are often the most purposeful and effective, arguing that ‘their methodology was often flexible and ingenious, and often permitted more labour intensive methods which gave higher quality data’ (p247). Furthermore, he urges caution in the use of standardised instruments because of the differing objectives and contexts of studies. A balance needed to be achieved between an insensitive application of an existing instrument (which might not have good fit with local priorities) and the ad hoc development of a questionnaire, but as suitable pre-validated instrument was not available initially, work commenced with the CHC on the design in January 1996. We drew on our experiences of the questionnaire sent to callers following the pilot study and the CHC’s experience of undertaking patient surveys with local Trusts and general practitioners.

We experienced difficulty in developing one questionnaire which appeared to speak equally clearly to the three groups of callers with whom we were concerned (patients themselves, parents or carers calling about a child and adults calling about another adult). A single instrument was desirable for ease of administration, analysis and cost, but achieving this required too many 'skip sections' and rather generic language. It was not possible to ask a question about 'your child' for example without including all the other options such as your partner, and in the case of a child, referring to 'the patient' seemed cumbersome. Three versions of the questionnaire were produced, one for each caller type. The face validity of these versions appeared much improved and during the pilot study, eight people contacted the service to say they had been sent the 'wrong form' - they appeared to be able to tell the difference.

The publication of a new measure of patient satisfaction with out of hours primary medical care by McKinley *et al.* (1997), (appendix I), required a reappraisal of our design. The McKinley questionnaire had been designed with large scale service evaluation in mind, had been tested in Leicester and was claimed by the authors to be valid and reliable. We reviewed the McKinley questionnaire with a view to utilising it but we encountered several difficulties which needed to be overcome.

The authors explain that the questionnaire was suitable for completion by the patient or their carer, though the questions do address the patient directly. Callers who were not patients and who may not have been aware of the entire care process could have had difficulty in completing the form. The questions related mainly to the patient's experience of contact with a doctor, with a few questions asking about initial contact with the service. Responses from patients who had only received telephone advice 163 of 1402 (12%) had been excluded from the reliability tests. There was a possibility therefore that when tested on callers who received only telephone advice (and up to 50% of callers in this study were expected to be in this category) the reliability may have been reduced. The questionnaires were self completed by the patient or carer during an interview and authors noted that their questionnaire could 'be successfully

administered at interview and probably by post to a broad range of urban patients' (p.196) though only 56% of patients returned the postal re-test questionnaire, despite having experienced an interview with the researcher earlier in the day.

As the main purpose of the survey would be to detect differences in the experiences of callers who did or did not receive the intervention, we were less inclined to focus on aspects of general practice care at home, or on patients' experience of attending the out of hours centre. Whilst wishing to contribute to the co-operative's own evaluation of its service, we were concerned not to generate a lengthy questionnaire and to resist the temptation to include questions on the basis of 'while were here let's find out'. It was suggested by the co-operative, for example, that we ask callers how far they would be willing to travel to the primary care centre.

We had some technical concerns about the McKinley questionnaire. Negatively and positively worded questions were clustered in places rather than being interspersed with each other. The use of qualifying adjectives in questions with scaled responses could have been confusing for respondents (for example question 18 'I was a *little* unhappy with the telephone advice I received and question 25 'I would have liked the doctor to tell me a *little* more about my treatment' - strongly agree, agree, neutral, disagree, strongly disagree). Taken together, these limitations made it impractical to adopt the instrument in its entirety.

We agreed to retain the core elements the McKinley questionnaire, adding information and questions which would make sense to local people. Salisbury (1997) similarly made minor modifications to the instrument prior to a postal survey of patient satisfaction with a GP co-operative. Whilst it is regrettable that a 'once and for all' questionnaire could not be accepted for use in the field, the framing of questions so that the respondent would be helped to remember the situation and the sequence of events seemed important. We were able to make use of Formic software which allows for the design and production of questionnaires, the bar-coding of forms, scanning in

of completed returns (including handwritten text) and down loading of summary data into SPSS for analysis.

9.4.1 Features of the questionnaires

The questionnaires were in four sections and contained on 5 sides of A4 paper. The caller survey omitted direct questions about the effects of telephone advice on the patients problem. Section 1 commenced 'First some questions about yourself, where you live and the reason you called'. Section 2 commenced 'Now some questions about what happened', Section 3 began 'These questions are about the telephone advice you received' with those not receiving telephone advice asked to go straight to Section 4: 'Finally, some questions about your overall impressions of calling the out of hours service'. General comments were invited and the name and contact number of the co-operative manager and the CHC were clearly displayed..

Thirteen of the questions from the McKinley questionnaire were included. These were all but one of the seven questions from the communication and management theme, one question from the access to out of hours care theme, two questions from the telephone advice theme and three from the overall satisfaction theme. Additional questions related to the patient's age, sex and nearest town; the main reason for contacting the service (to get medical assistance in an emergency, to ask a doctor to visit, to ask for advice, other reason); the time of the call, the time of GP visit if received and the time spent with the patient; impressions of the call reception; the sequence of events (whether the patient received telephone advice, an appointment at an out of hours surgery, a home visit, went to hospital by ambulance or other); whether the patient had received further medical help from their own GP, an accident and emergency department, the out of hours service or other agency. Callers who received telephone advice were asked who gave the advice (a nurse and/or a doctor, not sure) and then asked to respond to a series of statements about the advice. Figure 9.1 shows the items in the original and revised question scales.

Figure 9.1 Modification of the original questions developed by McKinley *et al.* (1997) for use with SWOOP.

McKinley <i>et al.</i> (1997)	SWOOP
I am totally satisfied with the explanation the doctor gave me	I am satisfied with the explanation I was given and I got exactly the right amount of advice I needed and The advice I was given worked well for me/the patient/my child in practice
The doctor gave me very clear advice about when to get more help	I was given clear advice about when to get more help
I understand my problem much better after talking to the doctor	I understand the problem/my problem much better after being given advice
I would have liked the doctor to tell me a little more about my treatment	I would have liked to have been told more about the treatment
The treatment the doctor has recommended has helped me get better	The treatment I was recommended has helped me/ the child to get better
I felt very much better after talking to the doctor	I felt much better after talking through the problem
The doctor made me feel that I was wasting his/her time	I was made to feel I was wasting everyone's time
It was difficult to get through on the telephone	It was difficult to get through on the telephone
If possible, I would have preferred to have had a visit from the doctor	Would you have preferred a visit from the doctor rather than the advice received? (Yes/No/Don't know)
I was a little unhappy with the telephone advice I received	I was unhappy with the telephone advice I received
Overall, I was delighted with everything about the care I received	I was generally satisfied with the out of hours service
I am not completely happy with the care I received	I am not completely happy with the call
The out of hours service could not be improved	The out of hours service I received could not be improved

9.4.2 Piloting the questionnaires

The pilot study served several purposes: to test the process of dispatch, completion and return of questionnaires; to highlight any difficulties respondents might have had in completing the form which could be ameliorated; and to test the reliability of the scales within the instrument. Piloting of the questionnaire commenced on 16.06.97 at the start of a two week block. Three hundred questionnaires were mailed to

consecutive callers to the out of hours service (100 of each type) until the quota was reached.

Questionnaires were accompanied by a letter of introduction from the Medical Director of the co-operative, a letter from the CHC containing guidance on how to complete the form and offering recipients the option of completing the form over the telephone, or with help at home from a CHC member. Pre-paid envelopes for return were provided. The questionnaires were posted from the research base and returned anonymously to the Community Health Council for scanning.

Response rates to the questionnaires were: carer survey 44/100 (44%); patient survey 45/100 (45%); caller survey 60/100 (60%) and statistics for the scales in each survey are shown in figures 9.2, 9.3 and 9.4. There is a difference of opinion in the literature about the acceptable value for an alpha coefficient. Bland and Altman (1997) concede that for scales used as research tools to compare groups, a lower value of alpha is acceptable than in the clinical situation when a minimum score of 0.90 is desirable. Streiner and Norman (1995) challenge the assumption that the higher the coefficient the better. They argue that the alpha score depends not only on the extent of correlation between the items in a scale but also on the number of items. Suggesting that very high alpha scores indicate that some items in the scale are redundant, they argue for alpha scores of between 0.70 and 0.90. The original tests performed by McKinley (1997) *et al.* generated alpha scores of between 0.61 and 0.88 compared with 0.61 and 0.94 in the SWOOP questionnaire (tables 9.1 - 9.3).

Table 9.1 Parent survey: alpha coefficients, mean and standard deviation of scale scores and variance. Question numbers relate to their sequence in the questionnaire. (n=44)

Scale 1	Access to out of hours care (3 items)	Coefficient
	Cronbach's alpha coefficient 0.63; mean scale score= 5.0; SD=1.93; variance = 3.71	
Q7a	It was difficult to get through on the telephone	0.6163
Q7b	I think the receptionist was polite	0.2452
Q7c	I think the receptionist was rushed	0.5584
Scale 2	Telephone advice (10 items)	
	Cronbach's alpha coefficient 0.92; mean scale score= 20.07; SD=7.77; variance = 60.45	
Q12a	I got exactly the right amount of advice I needed	0.9144
Q12b	I understood all the advice I was given	0.9351
Q12c	The advice I was given worked well for my child in practice	0.9165
Q12d	I was unhappy with the telephone advice I received	0.9214
Q12e	I am satisfied with the explanation I was given	0.9119
Q12f	I was given clear advice about when to get more help	0.9278
Q12g	I understand the problem much better after having been given advice	0.9155
Q12h	I would have liked to have been told more about the treatment	0.9194
Q12i	The treatment I was recommended has helped the child to get better	0.9139
Q12j	I felt much better after talking through the problem	0.9195
Scale 3	Overall satisfaction (4 items)	
	Cronbach's alpha coefficient 0.87; mean scale score= 8.02 SD=3.44; %variance = 11.87	
Q14a	I was generally satisfied with the out of hours service	0.8053
Q14b	I was made to feel I was wasting everyone's time	0.8058
Q14c	I am not completely happy with the call	0.7732
Q14d	The out of hours service I received could not be improved	0.8941

Table 9.2 Patient Survey: alpha coefficients, mean and standard deviation of scale scores and variance. Question numbers relate to their sequence in the questionnaire. (n=45).

Scale 1	Access to out of hours care (3 items)	Coefficient
	Cronbach's alpha coefficient 0.72; mean scale score= 4.7; SD=1.59; variance = 2.53	
Q7a	It was difficult to get through on the telephone	0.5443
Q7b	I think the receptionist was polite	0.6498
Q7c	I think the receptionist was rushed	0.6579
Scale 2	Telephone advice (10 items)	
	Cronbach's alpha coefficient 0.94; mean scale score= 22.04; SD=7.61; variance =57.95	
Q12a	I got exactly the right amount of advice I needed	0.9270
Q12b	I understood all the advice I was given	0.9376
Q12c	The advice I was given worked well for my child in practice	0.9319
Q12d	I was unhappy with the telephone advice I received	0.9328
Q12e	I am satisfied with the explanation I was given	0.9269
Q12f	I was given clear advice about when to get more help	0.9445
Q12g	I understand the problem much better after having been given advice	0.9335
Q12h	I would have liked to have been told more about the treatment	0.9304
Q12i	The treatment I was recommended has helped the child to get better	0.9318
Q12j	I felt much better after talking through the problem	0.9355
Scale 3	Overall satisfaction (4 items)	
	Cronbach's alpha coefficient 0.89; mean scale score= 7.21 SD=2.89; variance = 8.34	
Q14a	I was generally satisfied with the out of hours service	0.8328
Q14b	I was made to feel I was wasting everyone's time	0.8310
Q14c	I am not completely happy with the call	0.8367
Q14d	The out of hours service I received could not be improved	0.8968

Table 9.3 **Caller Survey: alpha coefficients, mean and standard deviation of scale scores and variance. Question numbers relate to their sequence in the questionnaire. (n=60)**

Scale 1	Access to out of hours care (3 items)	Coefficient
	Cronbach's alpha coefficient 0.61; mean scale score= 5.1; SD=1.68; variance= 2.82	
Q9a	It was difficult to get through on the telephone	0.5042
Q9b	I think the receptionist was polite	0.5311
Q9c	I think the receptionist was rushed	0.3852
Scale 2	Telephone advice (6 items)	
	Cronbach's alpha coefficient 0.92; mean scale score= 10.77; SD=4.20; variance=17.61	
Q14a	I got exactly the right amount of advice I needed	0.8655
Q14b	I understood all the advice I was given	0.8840
Q14c	The advice I was given worked well for the patient in practice	0.8562
Q14d	I was unhappy with the telephone advice I received	0.9260
Q14e	I am satisfied with the explanation I was given	0.8513
Q14f	I was given clear advice about when to get more help	0.9013
Scale 3	Overall satisfaction (4 items)	
	Cronbach's alpha coefficient 0.78; mean scale score= 8.31; variance = 11.57	
Q15a	I was generally satisfied with the out of hours service	0.6115
Q15b	I was made to feel I was wasting everyone's time	0.7253
Q15c	I am not completely happy with the call	0.6957
Q15d	The out of hours service I received could not be improved	0.7933

9.4.3 Refining the final version

Minor changes were made prior the final version, (appendix J). Two respondents had hand written 'wife' next to the response option 'partner' on the form and this possibly reflected a dislike of the expression 'partner' by older people. This was changed to 'spouse/partner'. We added the town of Marlborough to the list of nearest towns which we discovered had been omitted and removed the words 'suggestions for improvement' from the box at the end of the questionnaire. On reflection, this was a higher order question and appeared not to be well understood. As Locker and Dunt (1978) observed, people unclear about the range of services available are unlikely to be able to comment on changes they would like to see.

9.4.4 Procedure for excluding callers from the survey

It is considered good practice to exclude individuals from surveys who might be distressed by receiving a questionnaire or who would not be mentally or physically able to complete one. Salisbury (1997) excluded patients who had died, had been admitted to hospital under the Mental Health Act, were demented and living in a nursing home, or had already been sent a questionnaire in an earlier contact. This survey of callers rather than patients, required the adoption of different ground rules.

Mentally or physically infirm patients tended not call the service themselves, rather someone else, such as a partner or neighbour did this on their behalf. Callers and not the patients were sent questionnaires in these situations. For example, questionnaires were sent to named members of staff in nursing homes rather than residents. Initially we intended to exclude callers who called more than once during the survey period, but we could not assume that further calls were related to the first problem, nor indeed the same patient. We therefore agreed not to exclude repeat callers except those who called more than once in 24 hours. Each event was treated as a new episode, and recipients could choose to discard the questionnaire. We were careful not to send

questionnaires out addressed to the deceased, but did after careful consideration, write to callers we knew had been expectedly bereaved. Our general practitioner colleagues took the view that such carers might welcome the opportunity to say how they felt about the care. These judgements were made by the care team at the time on a case by case basis. A system of inserting a ** on the address label was instituted for those callers not to be sent a questionnaire. When labels were printed, these were removed from the batch. The date the call was made was entered on the form prior to posting to ensure that it would be possible to differentiate between the intervention and control groups.

9.5 Administering the questionnaire

The co-operative did not routinely collect the names and addresses of callers. The PCM system had a limited number of text fields and adding to these involved considerable changes to the software. During the pilot phase, caller details had been recorded by hand. On 28.10.97, post code software was integrated with the PCM system, and from that date, entry of caller details became a mandatory on screen field so that an address label could be produced for each caller. The survey commenced on 01.10.97 and questionnaires were to be sent to all callers for whom a name and address could be obtained, who contacted the service between the start date and the end of the trial on 20.01.97.

10.1 Introduction

The trial commenced on 23 January 1997 at 18.00h and ended on 20 January 1998 at 23.00h. The blocked randomised plan was sustained throughout the trial year. In presenting results, descriptive population and patient data are given first, followed by comparative data derived from the measurement of the key outcomes.

10.2 Characteristics of the study population and of patients in the trial

Age profiles of the study population (patients registered with GP members of the co-operative) and of patients in the trial are shown in table 10.1. In comparison with the study population, the proportion of calls concerning babies under 1 year exceeded their proportion in the population by a factor of 8, and calls concerning children aged 1-4 years by a factor of 3.5. Calls concerning children and young people aged 5-24 years were in proportion to their numbers in the population, with calls for adults aged 25-74 generally reduced, particularly for the 45-64 year age group for whom calls were reduced by a factor of 0.5. As expected, more calls were received concerning patients over 75 years than their numbers in the population would suggest. The proportion of male and female patients is shown in table 10.2

Table 10.1 Age profiles of the study population and patients in the trial. Population data were calculated at the mid point of the trial year (22.07.97). Patient age refers to age in years on the date of the call. Figures are numbers (%)

Age (years)	Number (%) of registered patients in the study population (n=97229)	Total number(%) of calls during the trial concerning patients in each age group (n=14492)	Number (%) of calls concerning patients in each age group in the intervention and control arms of the trial	
			Intervention group (n=7184)	Control group (n=7308)
Under 1	476 (1)	1205(8)	623(9)	582(8)
1-4	5162 (5)	2362(16)	1137 (16)	1224 (17)
5-14	12020 (12)	1693(12)	877 (12)	816 (11)
15-24	10557 (11)	1399(10)	707 (10)	692 (9)
25-34	14293 (15)	1754(12)	840 (12)	904 (12)
35-44	13676 (14)	1225(8)	604 (9)	621 (9)
45-54	13144 (13)	1035(7)	520 (7)	515 (7)
55-64	10004 (10)	731(5)	362 (5)	369 (5)
65-74	8903 (9)	1000(7)	489 (7)	511 (7)
Over 75	8614(9)	1825(13)	892 (13)	933 (13)
Missing	380(0.4)	273(2)	33(0.5)	141(2)
Total	97229	14492	7184	7308

Table 10.2 Sex of the study population and patients in the trial.
Figures are numbers (%)

Sex	Study Population (n=97229)	Calls concerning patients in the trial (n=14492)		
		Total calls (n=14492)	Intervention group (n=7184)	Control group (n=7308)
Male	46358 (48)	6039(42)	2970 (41)	3069 (42)
Female	50270 (52)	8450(58)	4212 (59)	4238 (58)
Missing	601(0.6)	3(0.02)	2(0.03)	1(0.01)
Total	97229 (100)	14492 (100)	7184(100)	7308 (100)

10.2.1 The patient denominator

Of 97229 registered patients, 10134(10.4%) contacted the out of hours service during the specified times in the trial year on 14492 occasions. The majority of these 10134 patients called once during the year(7622/10134: 75%). However, sixteen percent (1651/10134) called twice and 5% called on three occasions. One hundred and thirteen patients contacted the service on six or more occasions, and one patient made 44 contacts (table 10.3). As patients could have received care from both the intervention and the control arm of the study, and could have been admitted to hospital or attended A&E on more than one occasion, the number of calls is used as the denominator for these observations. In the study of deaths, the number of patients is used as the denominator.

Table 10.3 Frequency of calls made concerning patients in the study population during the trial year (n=97229)

Call frequency	Number (%) of patients
0	87095 (89.6)
1	7622 (7.8)
2	1651 (1.7)
3	492 (0.5)
4	173 (0.2)
5	83 (0.1)
>6*	113(0.1)
Total	97229 (100)

*for the 113 patients about whom the service was contacted on 6 or more occasions during the trial year , call frequency ranged from 6 to 44 calls (median = 14, mean = 16).

10.2.2 Presenting complaints

If the process of randomisation had accounted for sources of bias (known and unknown), then it could be argued that presenting complaints would be similar in both arms of the trial. In the intervention arm, an assessment of presenting complaint was recorded by the nurse using the TAS system. In the control arm of the study, receptionists would highlight up to six ‘pre-defined’ symptom boxes as a way of sending a pager message to the GP on duty. The nurse assessments were taken as the more informed basis for generating a list of presenting complaints the ten most frequently recorded presenting complaints are shown in table 10.4.

Table 10.4 Ten most frequently presenting complaints as assessed by triage nurses. 1=most frequent

Rank	
1	Fever
2	Vomiting
3	Abdominal pain
4	Cough
5	Cold/flu
6	Breathing difficulty
7	Headache
8	Rash
9	Diarrhoea
10	Earache

10.3 The impact of the intervention on call management

A total of 14492 calls were received during the specified times in the trial year concerning 10134 patients. There were 7308 calls in the control arm of the trial and 7184 in the intervention arm. Of the 7184 calls made during intervention periods, 3581 (49.8%) were managed by the nurse without referral to a doctor. There were significant reductions in GP workload in the other three categories, the largest being GP telephone advice. Final data on call management (table 10.5) were similar to those in the interim analysis at the mid point of the trial (table 10.6).

Table 10.5 **The impact of the intervention on call management during the trial year. Figures are numbers (%) with [95% confidence intervals for relative risk].**

Management outcome	Control group	Intervention group	Reduction in GP workload expressed as relative risk
Calls managed with nurse telephone advice	0	3581 (50)	
Calls managed with GP telephone advice	3629 (50)	1109 (15)	0.31 [0.29-0.33]
Patients attending a primary care centre	1934 (26)	1177 (16)	0.62 [0.58-0.66]
Patients visited at home by the duty GP	1745 (24)	1317 (18)	0.77 [0.72-0.82]
Total	7308 (100)	7184 (100)	

Table 10.6 **Interim analysis of the impact of the intervention on call management during the first six months (13 two week blocks) of the trial year. Figures are numbers (%) with [95% confidence intervals for relative risk].**

Management outcome	Control group	Intervention group	Reduction in GP workload expressed as relative risk
Calls managed with nurse telephone advice	0	1786 (49)	
Calls managed with GP telephone advice	1896 (51)	586 (16)	0.35 [0.33-0.37]
Patients attending a primary care centre	932 (25)	570(16)	0.69 [0.65-0.73]
Patients visited at home by the duty GP	889 (24)	720 (20)	0.75 [0.70-0.80]
Total	3717 (100)	3662 (100)	

10.4 Deaths within seven days of a contact with the out of hours service.

Data concerning deaths in the study population are presented with the greatest care to protect the identities of patients concerned, particularly as the location of the study site is widely known. The main objective of the study of deaths was to identify equivalence in both arms of the trial and the thorough matching and searching exercise undertaken has identified every death in Wiltshire, of patients residing or visiting the county, about whom a contact with the out of hours service was made.

A total of 125 patients died during the trial year within seven days of a contact with the out of hours service. The majority of patients were elderly and the mean and median age at death was 83 years with a range of 30-107 years. When the ages of the five youngest patients (aged 30, 48,49,54 and 58 years) are excluded as outlying values, the mean age remains 83 years. General practice notes were located for all patients. Table 10.7 shows how the deaths were distributed between the two arms of the trial, as a proportion of patients about whom calls were made.

Table 10. 7 Number of deaths during the trial year of patients who had been in contact with the out of hours service within the previous within 7 days. Figures are numbers (% of patients)

	Deaths within 7 days of contact with the out of hours service (n=10134)			
	Total number of deaths	Intervention group	Control group	Difference in proportion [95% confidence interval]
Deaths in the study population	125	58(0.57)	67(0.66)	-0.09% [- 0.30 to + 0.13]

The worst estimate of excess mortality when the intervention is running is 0.13%. This observation lies within the limits set for equivalence (-0.35% to +0.35%). When the number of calls is used as the denominator, rather than the number of patients, the worst estimate of excess mortality is 0.19% (table 10.8)

Table 10. 8 Number of deaths during the trial year of patients who had been in contact with the out of hours service within the previous within 7 days. Figures are numbers (% of calls)

Deaths within 7 days of contact with the out of hours service				
		Intervention group (n=7184)	Control group (n=7308)	Difference in proportion [95% confidence interval]
Total deaths	125	58(0.8)	67(0.9)	-0.11% [-0.41% to 0.19%]

10.5 Emergency hospital admissions

There were 935 patient admissions within three days of an out of hours contact during the trial year, constituting 6.4% of all out of hours contacts. Narrowing the search to patients admitted within 24 hours reduced the number of admissions to 815, showing that the majority of patients were admitted within 24 hours. The distribution of admissions between the control and intervention arms is shown in table 10.9.

Table 10.9

Number of emergency hospital admissions during the trial year of patients who had been in contact with the out of hours service within (a) the previous three days (b) the previous 24 hours . Figures are numbers (% of total calls and % of calls in each arm of the trial)

	Emergency hospital admissions			
	Total admissions (n=14492)	Intervention group (n=7184)	Control group (n=7308)	Difference in proportion [95% confidence interval]
Admissions within 3 days	935(6.4)	428(6.0)	507(6.9)	-0.98%[-1.8 to -0.18]
Admissions within 24 hrs	815(5.6)	375(5.2)	440(6.0)	-0.80 %[-1.5 to -0.05]

At worst, the percentage of emergency admissions which could be expected when the intervention was running was -0.18% for admissions within three days and -0.05% for admissions within 24 hours. These observations lie well within the limits for equivalence specified (-0.35% to +0.35%).

10.6 Accident and Emergency Department attendances

The accident and emergency department recorded 27771 patient attendances during 1997 (these included new episodes and unscheduled returns but excluded clinic appointments). There were 810 patient attendances at the accident and emergency department within three days of an out of hours contact during the trial year (table 10.10). These comprised 5.6% of all out of hours contacts and approximately 3% of all A&E attendances.

Table 10.10 **Number of accident and emergency attendances during the trial year for patients who had been in contact with the out of hours service within the previous 3 days. Figures are numbers (% of calls)**

	Accident and emergency attendances			
	Total attendances (n=14492)	Intervention group (n=7184)	Control group (n=7308)	Difference in proportion [95% confidence interval]
A&E attendances	810(5.6)	412 (5.7)	398 (5.4)	0.29% [-0.46 to + 1.04]

These data show that at worst, the estimated excess accident and emergency attendances generated when the intervention was running was 1.04%, a value outside the limits for equivalence prescribed (-0.35% to +0.35%). Though equivalence cannot therefore be declared for accident and emergency attendances, the difference observed is very small and is unlikely to be of clinical importance. Based on these data, at worst, eight additional attendances per year could be expected.

10.7 Summary

The intervention and control groups were similar in age and sex and each group generated a similar number of calls to the service, there being an additional 124 calls in the control arm (difference in proportion = 0.8% with 95% confidence intervals for the observed difference of -0.3 to 2.0%). The intervention changed the pattern of call management substantially. Nurses managed 50% of calls without referral to the general practitioner, thereby reducing the proportion of calls managed by general practitioner telephone advice. The proportion of primary care centre attendances was reduced during intervention periods and this may in part have been attributable to a reduction in receptionist initiated invitations for patients to attend. These changes, together with the reduction in the proportion of home visits undertaken did not appear to have had an

effect on the proportion of deaths within seven days, or the number of emergency hospital admissions within 3 days of a contact with the out of hours service, these being within the limits of difference set for equivalence. Equivalence in accident and emergency attendance was technically uncertain.

CHAPTER 11

RESULTS II: CALLER EXPERIENCE AND
SATISFACTION WITH THE OUT OF HOURS SERVICE

11.1 Introduction

This chapter brings together the results of the monitoring of complaints described in Chapter 7 and of the caller survey described in Chapter 9 and in a review of the evidence concerning the experience and satisfaction of callers and patients.

11.1.1 Complaints about the service

The number of complaints received about the out of hours service are listed in table 11.1 and detailed in Figure 11.1. More complaints were received relating to calls made during non-intervention periods than during intervention periods. The actual number of complaints may of course be less important than the magnitude of the complaints. The details shown in the figures are the complainants’ concerns, no judgement is made regarding the accuracy of events described.

<div>Table 11.1</div> <div>Number of complaints received by the co-operative during the trial year. Figures are numbers (numbers in superscript are the case numbers detailed in figure 11.1).</div>		
Source of complaint and staff group concerned	Intervention group (n=7184)	Control group (n=7308)
Complaint from patient to the co-operative manager	1 ^[11]	7 ^[2-8]
Complaints made via the CHC in response to the caller survey	1 ^[9]	4 ^[10-13]
Non-critical events from survey of practices	0	3 ^[14-16]
Total	2	14

Figure 11.1

Synopsis of complaints received about the out of hours service during the trial year. Shaded boxes highlight calls made when the intervention was running.

Case	Staff group	Details of concern
1	Nurse	Mother of young adult with breathing difficulty was given telephone advice. Called again 20 minutes later, and decided to call an ambulance to take the patient to A&E. Chest infection and anxiety diagnosed, patient discharged home. Nurse considered unhelpful in a stressful situation. Relatives were unclear what to do and took matters into their own hands.
2	GP	Parent given telephone advice on the first call, second call resulted in a visit by the GP and admission of the child to hospital. The first GP was said to be unsympathetic and not to have taken the child's condition seriously. Mother and child said to have suffered because of a late decision.
3	GP	Partner called an ambulance to take his wife to hospital. She was in labour, had been unable to contact the midwife and the GP on duty had not visited but given advice over the telephone.
4	GP	Older man with abdominal pain had been given telephone advice when he wished for a home visit.
5	GP	A child which had a febrile convulsion was seen at the PCC after the parent spoke with the doctor on the telephone. Asked to call again if child worsened. Parents called again and admission was arranged over the telephone, the child was discharged the following day. A third call was made concerning the child's high temperature but it was over two hours before a doctor visited. Doctor said to be uncaring and delay in home visit not acceptable.
6	GP	Telephone advice given to the parent of an unwell child. Parent subsequently took the child to A&E where the child was seen and discharged. Parent considered telephone advice unacceptable and compelled to take the child to A&E for care.
7	GP	Elderly man called with abdominal pain. Duty doctor was said to have contacted him two hours later and asked him to attend the PCC. Only mode of transport was neighbour's car. When neighbour saw him, called 999. He was admitted to hospital for a week. Complaint was that the doctor should have visited and not expected the patient to attend.
8	GP	Patient complained that GP failed to visit.
9	GP	Call concerning an unwell child with a possible chest infection. The doctor who saw the patient was said to be unsympathetic and disinterested. Drugs given to the patient by the doctor were out of date.
10	Receptionist and GP	Concern about the care of a bereaved elderly person. Receptionist was said to have been unsympathetic and patronising and the attitude of the GP who visited and gave sedatives was said to have been unhelpful.
11	GP	Parents of a young adult were concerned about him being very unwell over 2-3 days. Calls concerned two doctors, both said to be unsympathetic and unhelpful, who gave telephone advice but did not visit.

12	Receptionist GP	Son concerned about the care of his elderly mother. No information had been given about the time of the doctor's visit, the doctor had the wrong address and told the son that he was wasting the doctor's time as was his mother who shouldn't call if she just felt unwell.
13	GP	Young man with acute abdominal pain had been visited at home. Prior history of abdominal problems and hospital admissions said not to have been taken into account. Patient advised to take paracetamol. Second call made to service 45 mins later, GP advised not enough time allowed for tablets to take effect. Wife called 999, patient admitted to hospital. Said to have had abdominal surgery.
14	Receptionist	Message from patient said not to have been passed to District Nurse.
15	GP	Patient with gallstones admitted to A&E where she was kept waiting for several hours and then sent home. Own GP considered this unnecessary stress for the patient as she was awaiting an appointment and her history was known.
16	GP	Patient not happy with the advice and attitude of the doctor.

Three general practitioners spoke to the Project Nurse during the trial to communicate a concern about an episode of care (figure 11.2). It should be noted however that there are no comparable data available (general practitioners concerns about other general practitioners) as practitioners tend to discuss and resolve matters between themselves.

Figure 11.2 General practitioner concerns about the intervention communicated to the Project Nurse

1	First call concerning patient who had had a hysterectomy 2 weeks previously and was experiencing brown vaginal discharge and pain was referred to the GP who visited. Second call two days later, patient was on antibiotics, no pain but discharge continued. Managed with telephone advice. Patient was later found to have a faecal fistula. Patients GP concerned that nurse needed to be aware of potential surgical complications.
2	GP had been in the A&E Dept at the time a baby was admitted with bronchiolitis. Baby had been seen by this GP in the morning, mother had called in the evening as baby was unwell. Had been advised to take to A&E. Baby admitted to hospital for one week. GP concerned that on call GP should have visited before parents were advised to take the child to hospital.
3	Wife of a middle aged man with a 12 hour history of abdominal pain and recent travel called. Patient had seen his GP earlier in the day and had also been given advice by a pharmacist. Caller asked if it was necessary for the nurse to contact the GP, was advised to try home management and call back if the situation worsened. Called back in the early hours of the morning. GP visited and admitted the patient who had surgery for a perforated appendix. Caller complained because the nurse did not contact the GP in the first instance and they had wanted a GP to visit.

11.2 Survey response rates

The merits and limitations of postal surveys have been discussed and as expected, response rates reflected those achievable in a single mailing. They were low, though comparably so in both arms of the trial. In the sense that respondents differ from non-respondents it is unwise to attempt to draw conclusions in surveys with a response rate of less than 70%. However, over 1500 callers who received a service took the time to complete a questionnaire and it could be argued that their responses are not without value.

The results of the survey are presented here so that differences between the two arms of the study can be discussed, rather than to claim that they represent the views of the population from which they were drawn. In the hierarchy of evidence, these questionnaire data are secondary to the results reported in Chapter 10, but they add a dimension to the study which would otherwise be missing.

Table 11.2 shows the response rate to a single mailing of each of the three surveys. Respondents are normally considered more likely to be satisfied than non-respondents and so similar response rates in the two arms of the study would be an indication that there was no further differential bias in operation. These data show a maximum 10% difference in response rate between the two groups, the response rate in the control arm being reduced in the patient and caller surveys.

Table 11.2 **Response rates for the three surveys.**

	Number distributed	Number (%) returned
Patient survey	1231	459 (37)
<i>Intervention</i>	615(50)	259(42)
<i>Control</i>	616(50)	200(32)
Parent survey	1630	545(33)
<i>Intervention</i>	775(47)	289(37)
<i>Control</i>	855(53)	256(30)
Caller survey	1248	519(42)
<i>Intervention</i>	601(48)	249(41)
<i>Control</i>	647(52)	270(42)
Total	4109(100)	1523(37)

11.2.1 Characteristics of respondents and non-respondents

One way of understanding low response rates is to describe the characteristics of non respondents to see if they differ from respondents. Trial data were collected for patients rather than callers and it would therefore be difficult to utilise patient data to make observations about the representativeness of respondents, though intervention and control groups in the survey can be compared.

Respondents were patients themselves, parents or carers of children (hereafter referred to as the parent survey) or adults calling about adult patients (hereafter referred to as the caller survey). In the caller survey, the patient was a spouse or partner (298/519: 57%), a parent (60/519: 12%) or another relative 14% (71/519: 14%). Fewer than 12% were friends, neighbours or residents of nursing homes and only 11% (58/519) patients were said to be living alone. Fewer than 1% of all respondents reported using a public telephone to contact the service, though users of public telephones may have been under-represented amongst responders.

The co-operative cares for more patients living in the Salisbury Plain area than in the City and this is reflected in the respondent's perceived area of residence shown in table 11.3

Table 11.3 **Number (%) of respondents categorised by area of residence.**

	Salisbury	The Plain	Missing	Total
Patient survey (n=459)	186(40)	260(57)	13(3)	459(100)
<i>Intervention</i>	103(22)	155(34)	5(1)	263(57)
<i>Control</i>	83(18)	105(23)	8(2)	196(43)
Parent survey (n=545)	182(33)	351(64)	12(2)	545(100)
<i>Intervention</i>	101(18)	175(32)	2(0)	278(51)
<i>Control</i>	81(15)	176(32)	10(2)	267(49)
Caller survey (n=519)	210(40)	293(56)	16(3)	519(100)
<i>Intervention</i>	123(24)	142(27)	8(1)	273(53)
<i>Control</i>	87(16)	151(29)	8(1)	246(47)

Tables 11.4 and 11.5 show the ages of patients whose care was the subject of the survey.

Table 11.4 **Responses to the question 'How old are you/how old is the patient?' Figures are numbers (%).**

	16-24	25-44	45-54	55-64	65-74	75+	Missing	Total
Patient survey (n=459)	31(7)	164(36)	83(18)	40(9)	64(14)	69(15)	8(2)	459(100)
<i>Intervention</i>	19(4)	92(20)	48(10)	19(4)	42(9)	40(9)	3(1)	263(57)
<i>Control</i>	12(3)	72(16)	35(8)	21(5)	22(5)	29(6)	5(1)	196(43)
Caller Survey (n=519)	37(7)	96(18)	57(11)	64(12)	87(17)	155(30)	23(4)	519(100)
<i>Intervention</i>	16(3)	45(9)	36(7)	30(6)	51(10)	82(16)	13(2)	273(53)
<i>Control</i>	21(4)	51(9)	21(4)	34(6)	36(7)	73(14)	10(2)	246(47)

Table 11.5 Responses to the question How old is the child? Figures are numbers (%).

	Under 1 year	1-5	6-10	11-15	16-18	Missing	Total
Parent survey (n=545)	125(23)	247(45)	89(16)	48(9)	22(4)	14(3)	545(100)
<i>Intervention</i>	55(10)	127(23)	50(9)	28(5)	11(2)	7(1)	278(51)
<i>Control</i>	70(13)	120(22)	39(7)	20(4)	11(2)	7(1)	267(49)

Table 11.6 shows the sex of patients and suggests that male patients reporting their own experiences were under-represented as respondents in both arms of the study.

Table 11.6 Responses to the question 'Are you / Is the patient / Is the child male or female?' Figures are numbers (%).

	Male	Female	Missing	Total
Patient survey (n=459)	98(21)	328(71)	33(7)	459(100)
<i>Intervention</i>	45(10)	200(43)	18(4)	263(57)
<i>Control</i>	53(11)	128(28)	15(3)	196(43)
Parent survey (n=545)	272(50)	235(43)	38(7)	545(100)
<i>Intervention</i>	138(25)	119(22)	21(4)	278(51)
<i>Control</i>	134(25)	116(21)	17(3)	267(49)
Caller survey (n=519)	251(48)	253(49)	15(3)	519(100)
<i>Intervention</i>	132(25)	132(25)	9(2)	273(53)
<i>Control</i>	119(23)	121(24)	6(1)	246(47)

11.3 Main reason for contacting the service

The main reasons selected by respondents for contacting the out of hours service are shown in table 11.7. Over half the number of patient (55%) and parent respondents (68%) indicated that the main reason for contacting the service was to seek advice. Respondents calling on behalf of another adult were more likely to have called to request a visit from a doctor, or to have requested medical assistance in an emergency than to ask for advice. A quarter of patient respondents (25%) indicated that they had sought help for a medical emergency whilst only 12% parents had done so. Although the question had asked for the main reason, respondents were able to select more than one response option.

Table 11.7 Responses to the question 'What was the main reason for contacting the service'. Respondents were able to select more than one response option. Figures are numbers (%).

	To get medical assistance in an emergency	To ask a doctor to visit	To ask for advice	Total
Patient survey (n=488)	112(25)	123(27)	253(55)	488(100)
<i>Intervention</i>	62(13)	52(11)	160(33)	274(56)
<i>Control</i>	50(12)	71(16)	93(22)	214(44)
Parent survey (n=563)	67(12)	126(23)	370(68)	563(100)
<i>Intervention</i>	29(5)	71(13)	189(33)	289(51)
<i>Control</i>	38(7)	55(10)	181(35)	274(49)
Caller survey (n=576)	165(29)	211(37)	200(35)	576(100)
<i>Intervention</i>	87(15)	107(19)	111(19)	305(53)
<i>Control</i>	78(14)	104(18)	89(15)	271(46)

11.4 Pathways to care

Respondents were asked about ease of access to the service by telephone, their initial impressions of contact with the receptionist and about what happened to the patient during the episode of care, that is whether they received telephone advice, were invited to attend the out of hours primary care centre, received a home visit or went to hospital. The majority of respondents (360/459: 78% patients; 482/545: 88% parents and 386/519: 74% callers) disagreed or strongly disagreed with the statement 'It was difficult to get through on the telephone' (table 11.8). Most agreed or strongly agreed with the statement 'The receptionist was polite' (409/459: 89% patients; 507/545: 93% parents and 479/519: 92% callers) though fewer disagreed or strongly disagreed with the statement 'I think the receptionist was rushed' (301/459: 65% patients; 446/545: 82% parents and 346/519: 67% callers).

Table 11.8 Responses to the statement 'It was difficult to get through on the telephone' Figures are numbers (%).

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	Missing	Total
Patient survey (n=459)	7(2)	19(4)	11(2)	169(37)	191(42)	62(13)	459(100)
<i>Intervention</i>	3(1)	11(2)	5(1)	109(24)	101(22)	34(7)	263(57)
<i>Control</i>	4(1)	8(2)	6(1)	60(13)	90(20)	28(6)	196(43)
Parent survey (n=545)	5(1)	10(2)	5(1)	229(42)	253(46)	43(8)	545(100)
<i>Intervention</i>	3(1)	7(1)	1(0)	128(23)	117(21)	22(4)	278(51)
<i>Control</i>	2(0)	3(1)	4(1)	101(19)	136(25)	21(4)	267(49)
Caller Survey (n=519)	11(2)	22(4)	3(1)	183(35)	203(39)	97(19)	519(100)
<i>Intervention</i>	8(1)	10(2)	2(4)	91(17)	116(22)	46(9)	273(53)
<i>Control</i>	3(1)	12(2)	1(2)	92(17)	87(17)	51(10)	246(47)

Responses to the question ‘Which of the following happened’ after speaking to the receptionist are shown in table 11.9. Half the patient respondents and 68% parents indicated that they received telephone advice, reflecting the proportion of calls managed by advice in the trial. Caller respondents report the highest level of GP home visits (50%) and the lowest proportion of PCC attendances and this may reflect the tendency for the patients concerned to be older. Those who received advice were asked by whom it was given and table 11.10 suggests that some callers were unclear who the adviser had been. In each survey, some respondents were of the view they had received advice from a nurse when one was not available. The alternative explanation for these data is a coding or analysis error. In draft form, callers were to be asked to insert the date of the call on the questionnaire. In the final version, this was inserted as an office procedure, the date being taken from the computerised label. Callers could have received advice from a nurse and a doctor only in the intervention arm of the study.

Table 11.9 Responses to the question ‘Which of the following happened’ after speaking to the receptionist. Figures are numbers (%).

	Telephone advice	Out of hours surgery	Ambulance to hospital	GP home visit	Don’t know	Total
Patient survey (n=459)	250(54)	115(25)	26(6)	92(20)	0(0)	459(100)
<i>Intervention</i>	153(33)	57(12)	12(3)	46(10)	0(0)	268(58)
<i>Control</i>	97(21)	58(13)	14(3)	46(10)	0(0)	191(42)
Parent survey (n=545)	349(64)	190(35)	2(0)	55(10)	0(0)	545(100)
<i>Intervention</i>	196(36)	82(15)	1(0)	26(5)	0(0)	305(56)
<i>Control</i>	153(28)	108(20)	1(0)	29(5)	0(0)	240(44)
Caller Survey (n=519)	270(52)	72(14)	52(10)	259(50)	3(1)	519(100)
<i>Intervention</i>	151(29)	34(7)	26(5)	130(25)	3(0)	344(66)
<i>Control</i>	119(23)	38(7)	26(5)	129(25)	0(0)	166(34)

Table 11.10 Responses to the question ‘Who gave you advice?’ for those who received telephone advice. Figures are numbers (% valid responses).

	A nurse	A doctor	Not sure	Total
Patient survey (n=338)	122(36)	190(56)	26(8)	338(100)
<i>Intervention</i>	105(31)	92(27)	16(5)	213(63)
<i>Control</i>	17(5)	98(29)	10(3)	125(37)
Parent survey (n=416)	180(43)	221(53)	15(4)	416(100)
<i>Intervention</i>	146(35)	82(20)	7(2)	235(56)
<i>Control</i>	34(8)	139(33)	8(2)	181(44)
Caller Survey (n=323)	96(30)	203(63)	24(7)	323(100)
<i>Intervention</i>	75(23)	102(32)	18(5)	195(60)
<i>Control</i>	21(7)	101(31)	6(2)	128(40)

11.5 Satisfaction with telephone advice

Responses to a series of questions about the telephone advice received by the caller are shown in table 11.11 (caller survey) 11.12 (patient survey) and 11.13 (parent survey). Results suggest most callers found the advice to have been sufficient, understandable and worked well for the patient in practice, though the proportion of respondents omitting to respond to some of the statements reduces the reliability of the data.

Table 11.11

Caller survey: Responses to a series of statements about telephone advice. Figures are numbers (%) n=519.

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	Missing	Total
I was given exactly the right amount of advice I needed	79(15)	162(31)	20(4)	19(4)	9(2)	230(44)	519(100)
<i>Intervention</i>	46(9)	95(18)	12(2)	11(2)	5(1)	104(20)	273(53)
<i>Control</i>	33(6)	67(13)	8(2)	8(2)	4(1)	126(24)	246(47)
I understood all the advice I was given	102(20)	170(33)	3(1)	4(1)	2(1)	238(46)	519(100)
<i>Intervention</i>	58(11)	97(19)	3(1)	1(0)	2(1)	112(21)	273(53)
<i>Control</i>	44(9)	73(14)	0(0)	3(1)	0(0)	126(25)	246(47)
The advice I was given worked well for the patient in practice	70(13)	129(25)	29(6)	21(4)	11(2)	259(50)	519(100)
<i>Intervention</i>	39(7)	83(16)	14(3)	8(1)	8(1)	121(23)	273(53)
<i>Control</i>	31(6)	46(9)	15(3)	13(3)	3(1)	138(27)	246(47)
I was unhappy with the telephone advice I received	15(3)	27(5)	8(1)	96(18)	95(18)	278(54)	519(100)
<i>Intervention</i>	7(1)	15(3)	4(0)	57(11)	60(11)	130(25)	273(53)
<i>Control</i>	8(1)	12(2)	4(0)	39(7)	35(7)	148(29)	246(47)
I am satisfied with the explanation I was given	69(13)	155(30)	13(2)	14(3)	10(2)	258(50)	519(100)
<i>Intervention</i>	41(8)	91(17)	6(1)	6(1)	8(1)	121(23)	273(53)
<i>Control</i>	28(5)	64(23)	7(1)	8(1)	2(0)	137(27)	246(47)
I was given clear advice about when to get more help	75(14)	150(29)	15(3)	11(2)	10(2)	258(50)	519(100)
<i>Intervention</i>	40(8)	84(16)	11(2)	9(2)	6(1)	123(24)	273(53)
<i>Control</i>	35(6)	66(13)	4(1)	2(0)	4(1)	135(26)	246(47)

Table 11.12

Patient survey: Responses to a series of statements about telephone advice. Figures are numbers (%) n=459.

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	Missing	Total
I was given exactly the right amount of advice I needed	93(20)	125(27)	34(7)	21(5)	11(2)	175(38)	459(100)
<i>Intervention</i>	55(12)	75(16)	23(5)	14(3)	4(1)	92(20)	263(57)
<i>Control</i>	38(8)	50(11)	11(2)	7(2)	7(1)	83(18)	196(43)
I understood all the advice I was given	109(24)	168(37)	3(1)	4(1)	3(1)	172(37)	459(100)
<i>Intervention</i>	63(14)	108(23)	1(0)	1(0)	2(0)	88(19)	263(57)
<i>Control</i>	46(10)	60(14)	2(0)	3(1)	1(0)	84(18)	196(43)
The advice I was given worked well for me in practice	71(15)	129(28)	25(5)	31(7)	12(3)	191(42)	459(100)
<i>Intervention</i>	43(9)	77(17)	16(3)	21(5)	4(1)	102(22)	263(57)
<i>Control</i>	28(6)	52(11)	9(2)	10(2)	8(2)	89(20)	196(43)
I was unhappy with the telephone advice I received	19(4)	22(5)	8(2)	108(23)	96(21)	206(45)	459(100)
<i>Intervention</i>	11(2)	16(3)	3(1)	66(14)	57(12)	110(24)	263(57)
<i>Control</i>	8(2)	6(2)	5(2)	42(9)	39(9)	96(21)	196(43)
I am satisfied with the explanation I was given	79(17)	153(33)	15(3)	15(3)	12(3)	185(40)	459(100)
<i>Intervention</i>	48(10)	92(20)	10(2)	8(2)	6(1)	99(22)	263(57)
<i>Control</i>	31(7)	61(13)	5(1)	7(1)	6(1)	86(18)	196(43)
I was given clear advice about when to get more help	91(20)	128(28)	17(4)	18(4)	10(2)	195(42)	459(100)
<i>Intervention</i>	54(12)	82(18)	10(2)	12(3)	4(1)	101(22)	263(57)
<i>Control</i>	37(8)	46(10)	7(2)	6(1)	6(1)	94(20)	196(43)
I understand my problem much better after being given advice	57(12)	106(23)	49(10)	25(5)	12(3)	210(46)	459(100)
<i>Intervention</i>	34(7)	63(14)	32(7)	12(2)	6(1)	116(25)	263(57)
<i>Control</i>	23(5)	43(9)	17(3)	13(3)	6(1)	94(21)	196(43)
I would have liked to have been told more about my treatment	9(2)	37(8)	36(8)	101(22)	49(11)	227(49)	459(100)
<i>Intervention</i>	5(1)	27(6)	22(5)	52(11)	33(7)	124(27)	263(57)
<i>Control</i>	4(1)	10(2)	14(3)	49(11)	16(4)	103(22)	196(43)
The treatment I was recommended has helped me to get better	55(12)	112(24)	39(8)	28(6)	16(3)	209(45)	459(100)
<i>Intervention</i>	37(8)	65(14)	27(6)	16(3)	9(2)	109(24)	263(57)
<i>Control</i>	18(4)	47(10)	12(2)	12(3)	7(1)	100(21)	196(43)
I felt much better after talking through the problem	76(17)	110(24)	24(5)	31(7)	13(3)	205(45)	459(100)
<i>Intervention</i>	43(9)	68(15)	14(3)	23(5)	7(2)	108(23)	263(57)
<i>Control</i>	33(8)	42(9)	10(2)	8(2)	6(1)	97(22)	196(43)

Table 11.13

Parent survey: Responses to a series of statements about telephone advice. Figures are numbers (%) n=545.

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	Missing	Total
I was given exactly the right amount of advice I needed	111(20)	193(35)	33(6)	35(6)	7(1)	166(30)	545(100)
<i>Intervention</i>	63(11)	108(20)	11(2)	22(4)	3(0)	71(13)	278(51)
<i>Control</i>	48(9)	85(15)	22(4)	13(2)	4(1)	95(17)	267(49)
I understood all the advice I was given	148(27)	227(42)	5(1)	3(0)	1(0)	161(29)	545(100)
<i>Intervention</i>	84(15)	119(22)	4(1)	1(0)	0(0)	70(13)	278(51)
<i>Control</i>	64(12)	108(20)	1(0)	2(0)	1(0)	91(16)	267(49)
The advice I was given worked well for my child in practice	101(18)	187(34)	26(5)	39(7)	16(3)	176(32)	545(100)
<i>Intervention</i>	53(10)	104(19)	12(2)	21(4)	12(2)	76(14)	278(51)
<i>Control</i>	48(8)	83(15)	14(3)	18(3)	49(1)	100(18)	267(49)
I was unhappy with the telephone advice I received	16(3)	23(4)	15(3)	158(29)	154(28)	179(33)	545(100)
<i>Intervention</i>	8(1)	10(2)	8(1)	98(18)	79(14)	75(14)	278(51)
<i>Control</i>	8(1)	13(2)	7(1)	60(11)	75(14)	104(19)	267(49)
I am satisfied with the explanation I was given	101(18)	203(37)	25(5)	24(4)	10(2)	182(33)	545(100)
<i>Intervention</i>	54(10)	111(20)	17(3)	14(2)	3(0)	79(14)	278(51)
<i>Control</i>	47(8)	92(17)	8(2)	10(2)	7(2)	103(19)	267(49)
I was given clear advice about when to get more help	113(21)	203(37)	24(4)	19(4)	6(1)	180(33)	545(100)
<i>Intervention</i>	55(10)	116(21)	13(2)	9(2)	3(0)	82(15)	278(51)
<i>Control</i>	58(11)	87(16)	11(2)	10(2)	3(0)	98(16)	267(49)
I understand the problem much better after being given advice	72(13)	175(32)	48(9)	42(8)	6(1)	202(37)	545(100)
<i>Intervention</i>	36(7)	94(17)	33(6)	21(4)	5(1)	89(16)	278(51)
<i>Control</i>	36(7)	81(15)	15(3)	21(4)	1(0)	113(21)	267(49)
I would have liked to have been told more about the treatment	16(3)	32(6)	41(7)	175(32)	68(12)	213(39)	545(100)
<i>Intervention</i>	6(1)	18(3)	22(4)	103(19)	34(6)	95(17)	278(51)
<i>Control</i>	10(2)	14(3)	19(3)	72(13)	34(6)	118(22)	267(49)
The treatment I was recommended has helped my child to get better	81(15)	140(26)	49(9)	46(8)	15(3)	214(39)	545(100)
<i>Intervention</i>	40(7)	75(14)	31(6)	26(5)	10(2)	96(18)	278(51)
<i>Control</i>	41(8)	65(12)	18(3)	20(3)	5(1)	118(21)	267(49)
I felt much better after talking through the problem	142(26)	139(25)	30(5)	31(6)	11(2)	192(35)	545(100)
<i>Intervention</i>	75(14)	78(14)	18(3)	15(3)	7(1)	85(15)	278(51)
<i>Control</i>	67(12)	61(11)	12(2)	16(3)	4(1)	107(20)	267(100)

11.6 Preference for a GP visit over telephone advice

Exclusion of the question ‘Would you have preferred a visit from a doctor rather than the advice received?’ was debated when the questionnaire was in draft form because it seemed likely that the majority of respondents would opt for a visit if this could be provided. However, as table 11.14 shows, where telephone advice was the outcome of the call, most respondents indicated that they would not have preferred a visit to the advice received. This may reflect the higher than anticipated proportion of callers who sought advice in the first instance, the premise being that if the caller wanted and received advice, they would be less likely to seek a home visit.

Table 11. 14 Responses to the question ‘Would you have preferred a visit from a doctor rather than the advice received’ answered by respondents who received telephone advice. Figures are numbers (%) of intervention and control group totals.

	Would have preferred a visit from the doctor rather than the advice received			
	Yes	No	Don't know	Total
Patient survey (n=202)	34(17)	145(72)	23(11)	202(100)
<i>Intervention</i>	27 (13)	84 (41)	16 (8)	127 (63)
<i>Control</i>	7 (4)	61(31)	7 (3)	75 (37)
Parent survey (n=288)	54(19)	205(71)	29(10)	288(100)
<i>Intervention</i>	28 (10)	108 (37)	14 (5)	150 (52)
<i>Control</i>	26 (9)	97 (34)	15 (5)	138 (48)

11.7 Perceived length of time spent with patients during home visits

Where patients had received a home visit, respondents were asked to recollect how long the doctor had spent with the patient. Differences in length of time spent between the intervention and control groups may have pointed to an effect by the intervention

on the management of visits. The data presented in table 11.15 suggest that patients and parents reported similar length of visit times in each arm of the study. Visits to children appear to have been generally shorter than for adults and this would be reasonable given the more complex medical histories presented by unwell adults.

Table 11.15 **Length of time in minutes the doctor was reported to have spent with the patient during the home visit. Figures are numbers of visits (%) and n is taken from Q8 (Q10 in the caller survey).**

	0-15minutes	16-30 minutes	Over 30 minutes	Total
Patient survey (n=92)	45(49)	43(47)	4(4)	92(100)
<i>Intervention</i>	23(25)	24(26)	0(0)	47(51)
<i>Control</i>	22(24)	19(21)	4(4)	45(49)
 Parent survey (n=63)*	46(73)	13(21)	4(6)	63(100)
<i>Intervention</i>	20(32)	6(10)	1(1)	27(43)
<i>Control</i>	26(41)	7(11)	3(5)	36(57)
 Caller survey (n=232)	115(50)	100(43)	17(7)	232(100)
<i>Intervention</i>	50(22)	58(25)	7(3)	115(50)
<i>Control</i>	65(28)	42(18)	10(4)	117(50)

*Note: In response to Q8, 55 parents stated that a home visit was arranged, but 63 report doctor visit times.

11.8 Further medical help

Many patients contacting out of hours services are advised to consult their own GP about non-urgent problems, and this referral of workload back to daytime general practice is observed and accepted by those working in the service. Asking respondents whether the patient had received further help regarding their medical problem, and from which provider, was intended to triangulate the measurement of hospital admission and A&E attendance in the trial. Table 11.16 suggests that half of patients

in all groups subsequently saw their own GP about the problem with less than 10% of patients and parents and 16% of callers reporting use of the Accident and Emergency Department.

Table 11. 16 Responses to the question 'Has the patient/child received further medical help about this problem? Figures are numbers (% valid responses).

	Own GP	Accident & Emergency	Out of hours service	Don't know	Total
Patient survey (n=328)	251(76)	48(15)	29(9)		328(100)
<i>Intervention</i>	152(46)	19(6)	15(5)		186(57)
<i>Control</i>	99(30)	29(9)	14(4)		142(43)
Parent survey (n=295)	229(78)	29(10)	37(12)		295(100)
<i>Intervention</i>	115(39)	17(6)	19(6)		151(51)
<i>Control</i>	114(39)	12(4)	18(6)		144(49)
Caller Survey (n=445)	289(65)	84(19)	54(12)	18(4)	445(100)
<i>Intervention</i>	146(33)	49(11)	28(6)	13(3)	236(53)
<i>Control</i>	143(32)	33(8)	26(6)	5(1)	209(47)

11.9 General satisfaction with the out of hours service

The four statements 'I was generally satisfied with the out of hours service'; 'I was made to feel I was wasting everyone's time'; 'I am not completely happy with the call' and 'The out of hours service could not be improved' were designed to generate feedback about overall satisfaction with the out of hours service and the results are shown in tables 11.17-11.20.

Table 11.17 Responses to the statement ‘I was generally satisfied with the out of hours service’. Figures are numbers (%).

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	Missing	Total
Patient survey (n=459)	183(40)	211(46)	13(3)	17(4)	17(4)	18(4)	459(100)
<i>Intervention</i>	96(21)	131(29)	9(2)	11(2)	9(2)	7(2)	263(57)
<i>Control</i>	87(19)	80(17)	4(1)	6(2)	8(2)	11(2)	196(43)
Parent survey (n=545)	207(38)	274(50)	17(3)	27(5)	8(1)	12(2)	545(100)
<i>Intervention</i>	95(17)	152(28)	9(2)	12(2)	5(1)	5(1)	278(51)
<i>Control</i>	112(21)	122(22)	8(1)	15(3)	3(0)	7(1)	267(49)
Caller Survey (n=519)	194(37)	223(43)	9(2)	20(4)	15(3)	58(11)	519(100)
<i>Intervention</i>	107(21)	109(21)	6(1)	10(2)	8(2)	33(6)	273(53)
<i>Control</i>	87(16)	114(22)	3(1)	10(2)	7(1)	25(5)	246(47)

Table 11.18 Responses to the statement ‘I was made to feel I was wasting everyone’s time’. Figures are numbers (%).

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	Missing	Total
Patient survey (n=459)	24(5)	18(4)	19(4)	138(30)	193(42)	67(49)	459(100)
<i>Intervention</i>	14(3)	15(3)	10(2)	88(19)	98(21)	38(8)	263(57)
<i>Control</i>	10(2)	3(1)	9(2)	50(21)	95(21)	29(6)	196(43)
Parent survey (n=545)	21(4)	25(5)	27(5)	201(37)	231(42)	40(7)	545(100)
<i>Intervention</i>	10(2)	15(3)	11(2)	115(21)	108(20)	19(3)	278(51)
<i>Control</i>	11(2)	10(2)	16(3)	86(16)	123(22)	21(4)	267(49)
Caller Survey (n=519)	7(1)	25(5)	8(1)	138(27)	194(37)	147(28)	519(100)
<i>Intervention</i>	5(1)	13(5)	6(1)	71(14)	103(20)	75(14)	273(53)
<i>Control</i>	2(0)	12(2)	2(0)	67(13)	91(17)	72(14)	246(47)

Table 11.19 Responses to the statement 'I am not completely happy with the call'. Figures are numbers (%).

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	Missing	Total
Patient survey (n=459)	25(6)	36(8)	28(6)	135(29)	162(35)	73(16)	459(100)
<i>Intervention</i>	13(3)	29(6)	19(4)	76(16)	82(18)	44(10)	263(57)
<i>Control</i>	12(3)	7(2)	9(2)	59(13)	80(17)	29(6)	196(43)
Parent survey (n=545)	19(4)	61(11)	25(5)	189(35)	206(38)	45(8)	545(100)
<i>Intervention</i>	9(2)	32(6)	16(3)	109(20)	87(16)	25(5)	278(51)
<i>Control</i>	10(2)	29(5)	9(2)	80(15)	119(22)	20(3)	267(49)
Caller Survey (n=519)	23(4)	39(7)	14(3)	133(26)	171(33)	139(27)	519(100)
<i>Intervention</i>	13(2)	20(4)	8(2)	69(13)	92(18)	71(14)	273(53)
<i>Control</i>	10(2)	19(3)	6(1)	64(13)	79(15)	68(13)	246(47)

Table 11.20 Responses to the statement 'The out of hours service I received could not be improved'. Figures are numbers (%).

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	Missing	Total
Patient survey (n=459)	107(23)	141(31)	80(17)	46(10)	32(7)	53(12)	459(100)
<i>Intervention</i>	57(12)	79(17)	47(10)	31(7)	17(4)	32(7)	263(57)
<i>Control</i>	50(11)	62(14)	33(7)	15(3)	15(3)	21(5)	196(43)
Parent survey (n=545)	116(21)	147(27)	137(25)	84(15)	23(4)	38(7)	545(100)
<i>Intervention</i>	51(9)	74(13)	75(14)	49(9)	11(2)	18(3)	278(51)
<i>Control</i>	65(12)	73(14)	62(11)	35(6)	12(2)	20(4)	267(49)
Caller Survey (n=519)	125(24)	155(30)	77(15)	44(8)	23(4)	95(18)	519(100)
<i>Intervention</i>	71(14)	88(17)	40(8)	16(3)	11(2)	47(9)	273(53)
<i>Control</i>	54(10)	67(13)	37(7)	28(5)	12(2)	48(9)	246(47)

11.10 Summary and discussion of validity and reliability

Fewer complaints (2 versus 14) were made concerning calls made during intervention periods. The completeness of complaint data could be questioned, however, as some concerns may have been dealt with by general practitioners themselves. It might be reasonable, however, to expect that concerns about the nurse service would have been reported because the intervention was new and untested.

The limitations of the survey in terms of poor response rate have been discussed and caution in interpreting the results has been recommended. Respondents were generally evenly distributed between intervention and control groups (as were missing data) and they were generally satisfied with the out of hours service. The proportion of patients and parents who indicated that the main reason for calling was to obtain advice was surprisingly high, as was the proportion of all callers who received telephone advice and would not have preferred a visit from the doctor. This could be explained if one accepts that callers who seek and receive advice are more likely to be satisfied, and more likely therefore to be respondents. There is no evidence from these data that reduced GP workload during intervention periods influenced the length of time general practitioners spent with patients during home visits. Recollections of length of visit may of course be so approximate that any real difference is obscured. Nonetheless, this strengthens the case for an economic analysis in which GPs' use of time released by nurse triage would be studied.

12.1 Introduction and summary of methods and results

In the study which is the basis for this thesis, a nurse telephone triage service was established in a general practice co-operative and tested in a randomised controlled trial over a year.

Nurse telephone triage was developed in response to the increasing demand for out of hours primary care and the need to manage demand more effectively. The literature review showed that nurse telephone triage had yet to be tested in the United Kingdom. Two surveys, one of general practitioners and one of patients, demonstrated the acceptability of the idea and a pilot study showed the service would be feasible. A nurse service was developed and integrated in primary care in preparation for a trial, becoming permanently established thereafter.

In total, 14492 calls were received during the specified time periods of 18.00-23.00 on weekdays; 11.00-23.00 on Saturdays and 08.00-23.00 on Sundays during the trial year. There were 7184 calls in the intervention arm and 7308 calls in the control arm of the trial, adequate for tests of equivalence on the key trial outcomes with an expected range of difference 'd' of 0.35%. The outcome measures used were number (%) deaths of patients who had received contact with the out of hours service within 7 days; number (%) of patients admitted to hospital as emergencies within 3 days and the number (%) of patients attending the accident and emergency department within 3 days of a contact with the out of hours service. Caller experience and satisfaction were measured in a questionnaire survey.

There were substantial changes in the pattern of call management during intervention periods with nurses managing 50% of calls. Calls managed by GP telephone advice were reduced as were patient attendances at a primary care centre and GP home visits. These

reductions appeared to be achieved without an increase in adverse events, with fewer patient deaths and emergency hospital admissions, fewer complaints and with a marginal increase in the number of accident and emergency attendances.

12.2 Interpretation of the main results

With an intervention as brief as a telephone consultation lasting approximately 5 minutes, alternative explanations for the differences observed between the two arms of the trial must be considered. The strength of a randomised design is that it addresses all sources of bias, those known or anticipated and those unknown. To all intents and purposes therefore, the only systematic difference in the two arms of the trial should be the presence or absence of the intervention. If this is the case, then any differences in outcome should be attributed to the intervention. The use of 95% confidence intervals around the observed differences is an important gauge of the likelihood that the true difference lies within the calculated range. Clearly, if it cannot be determined that the observed differences were due to the intervention, then the study may not have had sufficient power to detect a clinically important difference. For example, it may be important to ask what other factors were at work when the intervention was running, besides the involvement of a nurse. Inclusion of nurse telephone consultation required the out of hours system to function differently, and differences could, theoretically have been the result of indirect rather than direct aspects of care.

The sensitivity of the outcome measures used has a bearing on the interpretation of the results of the trial. Specifically, the measure of deaths within seven days of a contact with the service could be considered an unequivocal, if somewhat extreme measure of outcome. Nonetheless, it was complicated by the possibility that more than one call may have been made concerning a patient to different arms of the trial, in the period prior to a death. The procedure of attributing the death to the intervention or control group based on the handling of the last call made may have obscured a more complex sequence of events. Also, not all deaths can be regarded as adverse events and death may be expected

or unexpected.

Observation of the number of emergency admissions to hospital could suggest that all such events were considered undesirable. On the contrary, immediate emergency hospital admission may be the treatment option of choice, though it could be the consequence of over-referral. Later admissions to hospital (such as the 120 in this trial which occurred 24-72 hours after a call) may have been timely and in response to a deterioration in the patients condition, but conversely, may indicate sub-optimal care and unacceptable delay. There may also have been patients who should have been admitted to hospital but were not. A reduction in the number of hospital admissions per se cannot therefore be assumed to constitute a desired outcome, although it was not accompanied by a rise in the number of deaths.

The data concerning deaths and emergency admissions therefore constitute a source of potential adverse events. A further study of the processes of care leading to death or emergency hospital admission is now needed for both arms of the trial in order to be able to differentiate between expected deaths and timely emergency admissions to hospital on the one hand (as a consequence of appropriate care) and situations where sub-optimal care may have been relevant to the outcome (true adverse events) on the other. The proposed confidential enquiry will enable further comment on the processes of care and may reveal differences between the two arms of the trial not suggested by incidence data. All deaths, all emergency admissions to hospital which occurred 24 to 72 hours following a call and all cases where a complaint was made need to be reviewed as it is within these cases that true adverse events are likely to be found. A random sample of emergency admissions within 24 hours will also be included.

No differences of note emerged in the study of caller satisfaction, the majority of whom had called to obtain advice and would not have preferred a visit from the doctor. The low response rate (39%) is acknowledged, and the results of the caller survey must be treated with caution.

12.3 The results of the trial in the light of previous work.

The literature review revealed limited evidence of the safety and effectiveness of telephone triage systems. Few studies had been undertaken in real rather than simulated situations and the lack of random assignment of patients was for Brown and Grimes (1995) one of the greatest obstacles to progress in studies concerned with the role of the nurse practitioner. Poor performance amongst health professionals during simulated telephone encounters had been observed in early USA studies (Ott *et al.* 1974; Bradley Brown, 1974; Greitzer, 1976) and in one contemporary study (Evans, 1993), though nurses tended to outperform physicians in all aspects of assessment, history taking and advice giving (Perrin and Goodman, 1978). Outcome measures in the studies reviewed were poorly defined and data collection periods were often very short.

Approaches avoiding the shortcomings in previous studies were therefore considered in developing the study design. The real, out-of-hours context made it impossible to randomise patients in advance. The adoption of a block randomised design in which periods of time rather than individuals were randomised to receive the intervention worked well in practice and generated a comparable case mix. The articulation of the concept of an 'adverse event' in relation to telephone care had not previously been described and the definition of adverse events became the basis for outcome measurement. Deaths, emergency hospital admissions and accident and emergency attendances are fairly crude measures of outcome, and further work could explore issues of the quality of care and the processes of decision making.

One approach would be to follow through the care of patients whose acute health problem would normally be managed by an agreed standard (the management of myocardial infarction for example) to see if there were deviations from the protocol between the intervention and control groups. A further qualitative study of the professional-caller interaction could identify communication skills which were helpful or unhelpful. The availability of call recordings could facilitate a study of this kind providing caller consent

was obtained.

Previous studies also often lacked detail about the nature, purpose and context of the intervention. Whilst the intervention is described in detail in this study, there is an important point to be made about the context. As researcher to the study, one develops a unique insight into the study context, its features and the impact of the relationships between individuals on service delivery. Where the location of the study site is known, as in this case, the utmost care must be taken not to expose the identity of individual staff or patients without their consent. Whilst justifiable, this nonetheless restricts the level of detail which can be reported. Episodes of patient care which if described would be illuminative could not be sufficiently disguised and still remain useful.

12.4 What the trial results do not show

It is important to be clear about what the trial results do not show, particularly as the subject of telephone helplines is on the national health policy agenda. The trial did not set out to show that a nurse telephone triage service was 'better' than the service provided by a general practitioner co-operative. Clearly it could be argued, for example, that general practitioner telephone triage would be as effective, if not more effective than the nurse intervention we tested, especially if general practitioners had been provided with further education and decision making software. The point of the trial was to establish that the nurse intervention in combination with the standard approach to care was no worse than the standard approach. There is scope for other health personnel, paramedics for example, to perform a telephone triage role and at least one such study is already in progress.

This trial did not compare individual nurse performance with individual doctor performance: it evaluated two systems of care, one which incorporated nursing and one which did not. The trial utilised individual call data to make observations about the impact of the intervention at the population level, rather than to investigate quality of care

issues within calls. The primary challenge was to develop outcome measures which would detect differences in call outcome indicative of lack of safety, or lack of effectiveness. Where individual examples of care were uncovered by this process, about which there might be cause for concern, these would be followed up by a confidential enquiry. This focus on systems, rather than on the individual performance of professionals, was helpful because it accepted the complexity and the team dynamics at work within them.

The block randomised design of the study blinded patients as well as general practitioners to whether or not the intervention would be running on a particular day. This decision to blind patients and doctors generated comparable groups within the study, but meant that it was not possible to study the impact of the intervention on demand over time. Whilst the results show an impact on call management and reduced general practitioner workload associated with the intervention, it is possible that once freely available to the public, increased demand for the service could counter the benefits for call management demonstrated during the trial.

12.5 Assessing the case for a trial effect

The randomised controlled trial is held up to be the gold standard in clinical research, but the potential for a 'trial effect' to have occurred through testing the intervention in ideal rather than in real circumstances should be explored. To what extent then, did the intervention studied in this trial achieve its impact partly because it was the subject of a trial? What were the factors which could have produced such an effect?

The intervention was 'new' both to the professional body of nursing and to the nurses that were recruited. The appointees were experienced, able and self selected for practice in a new and challenging environment. All were local people living within a 15 mile radius of the call centre and there is no reason to believe that a call centre in another area would not be able to recruit this calibre of registered nurse.

The research grant funded all the set up costs for the service including computer hardware, software, furnishings and digital tape recording facilities. This undoubtedly gave the co-operative a head start in establishing a nurse service over other local providers. In the intervening period the Health Authority has administered the out of hours development fund and other co-operatives have received financial assistance. Without additional funds it is unlikely that the co-operative would have commenced nurse triage as early as it did, though likely that it would have done so eventually.

The nurses experienced a specially designed education programme in the six weeks prior to commencing the service and their competence was assessed by the Project Nurse. Whilst no-one failed this assessment (and therefore its discriminatory power could be questioned), the nurses were constantly aware that their practice was contributing to a trial. They were aware that they had been specially selected for the role and this 'halo effect' possibly helped to engender the strong team spirit which developed through the year. Two nurses were always on duty at any one time, not necessarily the case in other services, and this possibly provided a degree of peer support not seen elsewhere. Some centres have employed nurses with less experience, without further training and without systems for support and supervision. Practice guidelines may be limited in scope, and software systems installed with little more than a one day training programme for staff.

It is therefore in the area of education and support that the greatest potential for a trial effect exists, though unfortunately patient services are being established without similar provision. In any publication of these trial results it will be important to describe and define the service model we tested. The results do not predict the safety and effectiveness of all nurse telephone consultation system.

12.6 Changing pathways to care

The development of nurse telephone consultation in out of hours primary care constitutes a further modification to the care pathways traditionally available to patients. GP co-operatives have already forced a major change in that patients are now highly unlikely to receive care from their own doctor after surgery hours. The concerns expressed by general practitioners in the survey with primary care research networks, namely that lack of continuity of care would be a major obstacle; that patients would frequently seek second opinions and that 'poaching of patients' would result, have not been borne out with experience. Concerns have been expressed about the continuity of care of patients who are terminally ill, (Barclay, 1997) but it appears that when patients are unwell they are concerned less about which doctor attends them than that a doctor attends them at all (Salisbury, 1997).

Nurse telephone consultation intervenes at the point of access to primary care. For almost half the patients in the intervention arm of this trial, their care was undertaken and completed by the nurse. Service protocol required that all callers were asked whether they understood and were happy with the advice received and were enabled to speak to a doctor if they wished. Nonetheless it is this capacity for the nurse to take responsibility for closing a call which should make a minimum level of education, assessment and supervision a requirement. Callers could not have known in advance that a nurse would be available and so it was not possible to describe variation in demand in relation to the intervention. It will be useful to examine this question as the service develops over the next year.

The clinical team aimed to provide the best care possible for patients and not to 'see how many calls nurses can manage'. It is vital that nurses are not placed in competition with themselves, with other nurses in their team, or with any published standard rate of call management. In the final analysis, reduced GP workload when on duty is only of value if patients receive better care, or if the same standard of care is provided at reduced cost to

the NHS and at acceptable cost to patients.

Providing that a caller regards the availability of a nurse as an asset, the advantage over the standard GP co-operative is that the caller speaks to a health professional within minutes, if not straight away. At peak times it could take up to two hours for a GP to be able to return a call.

12.7 Implications for the expansion of nurse telephone consultation

The model of nurse telephone consultation developed and tested in the trial is being reproduced elsewhere even before evidence from the trial is published. Even in the absence of an economic analysis, the general practitioners in the co-operative voted unanimously in October 1997 to retain the system and to pay an additional personal fee of £800 per year in order to do so, such was their enthusiasm for the service. The geographical features of the study co-operative required that two general practitioners were on duty with two on standby. Larger co-operatives in more urban areas currently employing two or more general practitioners on call per shift might find it possible to replace one of the doctors with a telephone triage nurse. Research funding has now been obtained to continue with an economic analysis.

Alongside the replication of this service model in other primary care settings, the concept of telephone helplines is being embraced by national health policy. The report of the Chief Medical Officer (Emergency Care in the Community, 1997) responded to a recognition that something needed to be done to manage emergency out of hours demand. The report centred on three principles; that the provision of emergency care should be co-ordinated, and accessible to people 24 hours a day; that people should be helped to recognise and deal with emergencies themselves where possible and that further research should be conducted into the viability of alternative models of access to emergency care. A national telephone helpline was proposed in addition to 999, amongst other initiatives, to guide people where to seek help.

The white paper 'The New NHS' (1998) aims to replace the internal market with 'integrated care'. New Primary Care Groups comprising local general practitioners and community nurses will shape services for patients, 'concentrating on the things which really count - prompt, accessible, seamless care delivered to a high standard' (p11). The new 'modern and dependable' NHS will capture developments in modern medicine and information technology, providing in the home 'easier and faster advice and information for people about health, illness and the NHS so that they are better able to care for themselves and their families (p2).'

A new advice and information service referred to as NHS Direct will provide a 24 hour service and is to be staffed by nurses. Three pilot lines commenced in March 1998 and the whole country is to be covered by 2000. This commitment to a full roll-out of the service means that the evaluation of the pilot sites will have a critical role to play in the further development of the service.

NHS Direct may build on 'Developing Emergency Services in the Community' (1997) but differs from it in one major respect. The initial emphasis was on managing emergency demand, but NHS Direct aspires to offer 'clinical advice to support self-care and appropriate self-referral to NHS services, as well as access to more general advice and information, such as provided by the Health Information Service' (NHSE, 1998, p1). The publicity campaign for NHS Direct intends to capture what the NHSE (1998) describe as 'an elusive concept' namely, '*now knowing what to do when you don't know what to do*' ie calling 0845 1888' (p2).

The challenge for NHS Direct will be to find the balance between managing the public need for information and stimulating new demand. At the launch of one of the helpline sites, the Minister for Health is reported to have 'admitted that while it may deflect some minor problems away from accident and emergency departments as hoped, it could attract more people who would not have bothered calling 999 or their GP and should get treatment straight away - there will be a lot of swings and roundabouts' (Guardian

Newspaper, 24th March 1998, p8).

One advantage of the model of nurse telephone consultation tested in this study was its integration within primary care. All care, including advice, was regarded as an intervention in the patient's primary care and a summary of the episode was returned to the patient's own general practitioner by 8 am the following morning except where the patient had called in confidence. It is difficult to imagine how the goal of 'seamless care' can be achieved without service integration at the local level. The interface between the pilot helpline sites and local health services may benefit from further development.

12.8 Conclusion

In this trial, the effectiveness and safety of nurse telephone triage was tested. The intervention reduced general practitioner workload substantially without increasing the number of deaths or emergency hospital admissions, and the fractional increase in accident and emergency attendances observed is unlikely to be of clinical importance. Further work should focus on reviewing the quality of decision making and advice giving as poor care decisions may not always culminate in observable adverse events.

Telephone consultation is becoming an increasingly accepted approach to providing patient care and at the time of writing, its profile is high in the UK through the plans for 'NHS Direct'. Though the potential for a 'missed case' will remain whoever provides care, this has to be weighed against the merits of providing organised and much improved public access to medical information and advice. Excellence in training, practice and supervision were all features of the tested model and the trial results do not appear to discourage its replication.

Appendix A

Questionnaire used in the pilot GP survey

UNIVERSITY OF SOUTHAMPTON

FACULTY OF MEDICINE

PROJECT: Emergency Services in Primary Care

Questionnaire

The questionnaire is in three parts. Please tick the boxes or insert a number as appropriate. Thank you.

Part 1

First, some background questions.

1. Sex Male ☐ Female ☐
(Please tick)
2. Age group <35 ☐ 35-44 ☐ 45-54 ☐ 55-64 ☐ 65+ ☐
(Please tick)
3. Years in this Practice <5 ☐ 5-9 ☐ 10-19 ☐ 20-29 ☐ 30+ ☐
(Please tick)
4. Number of GP's with whom you share an on call rota ☐
(Please insert a number)
5. Please briefly describe the arrangements for on-call in your Practice:

Part 2

Next, some questions which ask you to think back to your last three nights on-call.

1. Approximately how many patients did you

visit in their homes

☐

advise on the telephone

☐

see at the surgery

☐

(Please insert a number)

2. In your judgement, how many patients needed the out of hours attention of a G.P.

☐

(Please insert a number)

3. Over the three nights, did the majority of consultations occur

before 22.00

☐

between 22.00 and 24.00

☐

after 24.00

☐

(Please tick)

4. Emergency Centres may in the future provide most out of hours emergency primary care. From your recent on call experience,

What percentage of patients could have attended an Emergency Centre had one existed?

None ☐ <25% ☐ 26-50% ☐ 51-75% ☐ 76% + ☐

What percentage of calls could have been dealt with on the telephone?

None ☐ <25% ☐ 26-50% ☐ 51-75% ☐ 76%+ ☐

(please tick)

part 3

Finally, some questions which ask your views on the future provision of emergency primary care.

1. In your view, is there a need for a telephone helpline service in emergency primary care?

Yes ☐ Possibly ☐ No ☐

(please tick)

Please comment if you wish:

2. Which of the following health care personnel do you think could staff a primary care telephone helpline service ?

General Practitioners ☐

Nurses ☐

Health Visitors ☐

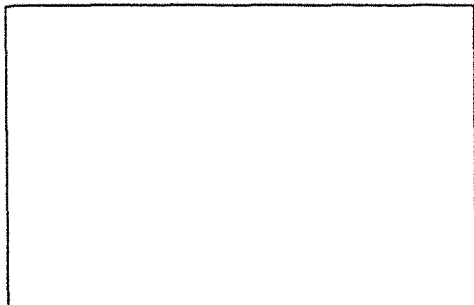
Paramedics ☐

Other ☐

(please tick)

If 'other' please list below:

3. In your view, are there particular groups of clients and/or carers who would find a telephone helpline service beneficial? Please list below:



Finally, we would welcome any comments you might have on this subject:

THANK YOU VERY MUCH FOR COMPLETING THIS QUESTIONNAIRE

Appendix B

Results of the pilot GP survey

Pilot survey of general practitioners

Results

Ten questionnaires (100%) were returned without reminder. Two questionnaires were partially completed. The characteristics of the respondents are set out in Table 1.

Arrangements for on call (Table 2)

There was only one single handed practice in the sample. This GP covered all on call for the practice except during holidays and for an occasional weekend. Excluding this unusual example, the range of nights on call reported was from 2 in 5 nights to 2 in 11 nights. None of the practices used a commercial deputising service or had joined a co-operative. Two practices were sharing on call.

Retrospective recording of three nights on call (Tables 3 and 4)

A total of 92 calls to GP's were recorded by the study population. The number of calls per GP ranged from 0 - 26 over three nights on call. For the total number of calls, 38 of the 92 calls (41.3%) were retrospectively rated as needing the out of hours attention of a GP. Over the three nights, the majority of calls were reported to have occurred before 22.00h.

Three respondents indicated that less than 50% of patients could have attended an emergency centre had one existed. However, five respondents indicated that more than 50% could have attended a centre and three of the five respondents indicated that more than 76% of patients could have attended a primary care emergency centre. In interpreting these results it should be noted that the level of knowledge of the respondents about the proposed centres was not known.

In response to what percentage of calls could have been dealt with on the telephone, there was wide variation. Two respondents indicated that less than 25% of calls could have been dealt with in this way, two respondents indicated that more than 76% of calls could have been managed on the telephone. Personal preference for telephone encounters was not investigated. Of the total number of calls recorded, 55 (59.8%) were managed by telephone. Marsh et al (1987) in a study of telephone advice in managing out of hours calls report that over a year, 59% of calls were managed by telephone advice which they considered to be an unexpectedly high proportion. The three respondents who indicated that more than 53% of calls could have been managed by

telephone recorded greater numbers of telephone consultations to home visits over the three nights on call. The ratio of home visits to telephone consultations for the two respondents who indicated that fewer than 25% of calls could have been managed over the telephone were 4:1 and 3:1 respectively.

The need for a telephone helpline service

Four GPs indicated there was a need for a telephone helpline service, one GP indicated there was a possible need and four GPs indicated there was no need. One GP indicated that GPs, Health Visitors, Nurses and Paramedics could staff a telephone helpline service and one respondent indicated that GPs only could do this. The most appropriate groups of staff were GPs (5) and Nurses (3). One respondent added that a nurse could staff the service providing there was GP back up. In the view of one GP a telephone helpline service would be beneficial for elderly people and mothers with young children.

Other Comments

Six GPs made additional comments which together with follow up interviews have informed the next stage of the study. Three respondents wrote specifically about their concerns regarding primary care emergency centres. These and a fourth respondent commented on the financial implications of any changes, in particular the potential loss of income should primary care emergency centres be established.

Amendments to the questionnaire

Amendments have been made in order to:

- differentiate between those calls not needing the attention of a G.P. at any time of day or night and those calls which needed the attention of a G.P. but which could have waited until the next surgery or could have been helped by appropriate health information.
- ask G.P.'s about arrangements for on call at the weekends as well as during the week and to ask at what time on call is considered to start in their practice.
- ask G.P.'s if they would support a helpline, if they would welcome a telephone triage service. if

they would welcome a telephone call out service, what times of the day they would want the service to operate (ie. day, night or both) and if they would pay for the service.

-ask what the respondents understand by 'appropriateness' - a frequently used concept with reference to calls and call outs which needs further investigation.

A telephone helpline service in primary care could in providing health information and advice also have a direct effect on access to primary care services and herein lies an area of great sensitivity for professionals in the Primary Health Care Team. Some G.P.'s will be of the view that only a G.P. should advise a patient over the telephone, some G.P's might not employ a deputising service in order that patients have continuity of care from their own doctor. Others might readily envisage alternative services and wish to be part of any new service development.

Table 1 Characteristics of Respondents
n=10

Gender	
M	9
F	1
Age Group	
<35	0
35-44	3
45-54	6
55-64	1
65+	0
Years in this practice	
<5	0
5-9	3
10-19	7
20-29	0
30+	0

Table 2 Arrangements for on call (n=10)

Respondent	Arrangements for on call
A	Single handed practitioner. No deputising arrangements except for holiday week and occasional weekend.
B	Two in seven rota-three full time partners and one part timer sharing on call. We look after our patients only. There is no obvious other practice with whom to share because of our very extended practice area.
C	We have three partners and work a one in three rota unless one of us is on holiday and then it is a one in two rota.
D	Two nights in every eleven nights
E	Do nights and weekends on a one in three rota between the three partners. Have just commenced sharing weekend on call with another practice of similar size. So from midday Saturday until 8 a.m. Monday, one doctor will cover both practices.
F	All in house in the practice. We do not have any locums. There are two full timers and one part timer in the practice. The total rota over a year is 1 in 2.5 for full timers and 1 in 4 for the part timer. Weekends are 1 in 3.
G	Practice covers its own calls
H	Shared on call including trainee with shared weekends with another practice.
I	On call rota in proportion to 1) Dr's time commitment to practice 2) practice call out rate (ie. our practice is more demanding so we do more on call. On call system from 6 p.m. to 8 a.m. weekdays, then Saturday 10.30 a.m. to Monday 8 a.m.
J	Two male partners do two nights each a week. All three partners do one weekend in three Friday to Sunday nights.

Table 3 Retrospective evaluation by G.P.'s of out of hours calls during three nights on call (n=10) A-J = respondents.

	A	B	C	D	E	F	G	H	I	J
Total number of calls	0	5	10	11	9	4	26	9	18	4
No. viewed as requiring the out of hours attention of a G.P.	0	4	2	1	6	3	12	2	8	2
No. visited at home	0	4	2	3	4	3	6	4	10	3
No. advised on the telephone	0	1	8	8	5	1	20	3	8	1
No. seen at the surgery	0	0	0	0	0	0	0	1	0	0

Table 4 Responses to question asking G.P.s for numbers and percentages of calls dealt with on the telephone; for estimates of the percentage of calls which could have been dealt with on the telephone and for estimates of the percentage of patients that could have attended an Emergency Centre.

Number (%) of calls which were dealt with on the telephone	The % of calls which could have been dealt with on the telephone	The % of patients that could have attended an emergency centre	Respondent
0 (0)	0	0	A
1 (20)	<25	<25	B
8 (80)	76+	76+	C
8 (73)	76+	76+	D
5 (56)	26-50	51-75	E
1 (25)	<25	0	F
20 (77)	51-75	76+	G
3 (38)	26-50	51-75	H
8 (44)	51-75	26-50	I
1 (25)	incomplete	incomplete	J

Appendix C

Final version of the GP questionnaire

UNIVERSITY OF SOUTHAMPTON
INSTITUTE OF PUBLIC HEALTH MEDICINE
WESSEX RESEARCH NETWORK (WReN)
and
NORTHERN PRIMARY CARE RESEARCH NETWORK (NoReN)

The Provision of Out of Hours Care in General Practice

A Multi-Centre Survey of General Practitioners

Enquiries to:

Institute of Public Health Medicine
Level B, South Academic Block
Southampton General Hospital
Tremona Road
Southampton
Hants
SO16 6YD

Telephone: (0703) 794773

October 1994

INSTRUCTIONS FOR COMPLETING THE QUESTIONNAIRE

Most questions can be answered by ticking a box or inserting a number. There are questions which ask you for a more detailed answer - please write as fully as you can in the box provided. If you feel constrained by the boxes, please feel free to expand your comments at the end of the section.

Section One can be completed by your Practice Manager.

If you have any queries, please contact Val Lattimer on (0703) 794473.

Please return this questionnaire in the envelope provided by **Friday 25 November 1994**. For every completed questionnaire returned, a donation will be made to NoReN.

I would be interested to take part in the next stage of the study which will research G.P. out of hours workload.

Yes

☐

No

☐

Address label:

SECTION ONE

THE PRACTICE

For Office
use only

(You may wish to ask your Practice Manager to complete this section)

1. How many full time partners are there in the practice?

 1

2. How many part time partners are there in the practice?

 2

3. How many patients does the practice have?

 3

4. What is the age/sex profile of the patients in your practice in terms of:

Number of children 0-5 yrs

 4

Number of children 6-16 yrs

 5

Number of adults 17-75 yrs

 6

Number of adults 75 yrs +

 7

5. Please tell us about the kind of community your practice serves:

 8

SECTION 2
ABOUT YOURSELF

For Office
use only

1. How many years have you practised as a G.P. Principal?

☐ 9

2. Are you: part time

☐☐ 10

full-time

☐

3. How old are you?

☐ 11

Under 35 yrs

☐

35-44 yrs

☐

45-54 yrs

☐

55-64 yrs

☐

65 yrs or over

☐

4. Are you: Female

☐☐ 12

Male

☐

5. How is on call arranged in your practice? (Please describe including how often you are on call and whether you link with other practices).

☐ 13

For Office
use only

6. Do you ever utilise a commercial deputising service?

☐ 14

Yes ☐

No ☐

(b) IF YES, please outline the service you currently purchase eg nights and weekends, holidays only, telephone exchange facility.

☐ 15

7. Do you hope to reduce your on call commitment?

☐ 16

Yes ☐

No ☐

(b) Do you hope to opt out of your on call commitment completely?

☐ 17

Yes ☐

No ☐

8. Prior to the recent announcement about Primary Care Emergency Centres, did you have plans for the future provision of out of hours care in your practice?

☐ 18

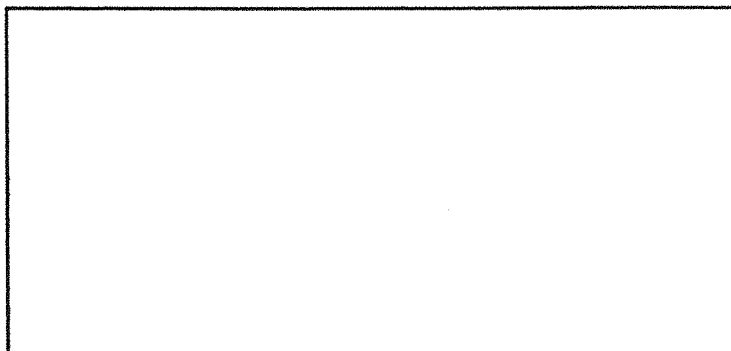
Yes ☐

No ☐

For Office
use only

9. IF YES, please could you outline below.

☐ 19



10. In your view, what are the three most important changes that should be made to the current arrangements for out of hours Primary Medical Care?

☐ 20

(i)

☐ 21

(ii)

☐ 22

(iii)

☐ 23

For Office
use only

11. 'Inappropriate' out of hours calls to G.P.s are reportedly increasing, but we know very little about how G.P.s judge a call to be appropriate or inappropriate. From your experience, please jot down some words and phrases which for you capture the meanings of appropriateness and inappropriateness:

☐ 24

Appropriateness is about ...

☐ 25

Inappropriateness is about ...

SECTION THREE

For Office
use only

THE FUTURE PROVISION OUT OF HOURS CARE

We would value your views on three approaches to providing out of hours care and whether they would be of interest to G.P.s namely, Primary Care Emergency Centres, a Telephone Helpline Service and Co-operatives. We describe each service then ask some questions.

Primary Care Emergency Centres

A Primary Care Emergency Centre would be established in a practice or health centre and would serve a number of practices during out of hours periods. It would be staffed by G.P.s on rota and would provide emergency out of hours care to patients who had been invited to attend the centre by their on call doctor. The centres would be equipped to deal with most emergencies.

1. In your view what are the **strengths** of this service?

☐ 26

2. What do you consider to be the **limitations** of this service?

☐ 27

3. Would you be willing to try this service for your own practice?

☐ 28

Yes

☐

No

☐

Your further comments about Primary Care Emergency
Centres would be most helpful.

For Office
use only

29

Telephone Helpline Service

A Centralised Telephone Helpline Service would serve a number of practices during out of hours periods. It would be staffed by nurses specially trained in telephone consultation. Patients calling their G.P. would first speak to a nurse who would receive and assess calls based on the history given by the caller and would establish whether contact with a G.P. was necessary either during the out of hours period or the next day. The nurse would be able to give health advice based on previously agreed medical protocols to those patients for whom G.P. contact was not indicated. Where a 999 response was needed, the nurse would activate this on the caller's behalf.

For Office
use only

1. In your view what are the strengths of this service?

☐ 30

2. What do you consider to be the limitations of this service?

☐ 31

3. Would you be willing to try this service for your own practice?

☐ 32

Yes

☐

No

☐

For Office
use only

4. IF YES, how much might your practice be willing to pay for this service, per 1,000 patients per annum (Health Call costs approximately £2,000 per 1000 patients per annum).

☐ 33

£1000 - £1500

☐

£1500 - £2000

☐

£2000 - £2500

☐

£2500 - £3000

☐

Your further comments about a Telephone Helpline Service would be most helpful.

☐ 34

Co-operatives

Co-operatives enable G.P.s to join together to share on call. They are formally constituted and members pay a subscription fee. A co-operative of forty or more G.P.s is normally viable although co-operatives vary in size from 15 - 200 G.P.s. Surgery premises are sometimes used for evening appointments.

For Office
use only

1. In your view, what are the **strengths** of this service?

☐ 35

2. What do you consider to be the **limitations** of this service?

☐ 36

3. Would you welcome the opportunity to subscribe to a co-operative?

☐ 37

Yes ☐ No ☐ Already a member ☐

Your further comments about Co-operatives would be most helpful.

Please remember to complete the tear-off slip on the front page and return in the separate envelope provided.

Thank you for completing this questionnaire.

For Office
use only

38

Appendix D

Questionnaire used in the household survey of the acceptability of nurse telephone triage

Serial Number
FOR OFFICE USE ONLY

A survey of patient views on after surgery hours services



2

They will be able to help by:

- c) The nurse will always be available, even if the doctor is busy on visits.

Patients requesting to speak to the duty doctor will always be able to do so.

QS

Would this service be acceptable to you? (PLEASE MARK ONE BOX)

YES

NO

☐

Appendix E

Questionnaires used in the caller satisfaction survey following the pilot study

Study number

--	--	--

Three Swans Surgery
and Bemerton Heath Surgery
Follow-up study of out of hours calls

Dear

You recently called our emergency out of hours number for help. In the interests of improving our service we would like to know what you thought of the service you received, whether that was by means of telephone advice from a nurse or doctor, or by means of a home visit. We would be grateful if you would answer the questions on this form, which are about your recent experience. On testing we have found that the questionnaire takes no longer than ten minutes to complete. All responses will be anonymised before analysis, and you can be assured that no individual person will be identifiable from the results.

(Tick one box only for each question)

Office use only

1 Was the problem which prompted you to telephone the surgery:

- | | | | | | |
|---|--|-----|--------------------------|----|--------------------------|
| a | a medical emergency? | yes | <input type="checkbox"/> | no | <input type="checkbox"/> |
| b | not an emergency but could not have waited until the next surgery? | yes | <input type="checkbox"/> | no | <input type="checkbox"/> |
| c | a problem about which you wanted only advice or reassurance? | yes | <input type="checkbox"/> | no | <input type="checkbox"/> |

2 How long did you have to wait before your telephone call was answered?

- | | | | | | |
|---|--|-----|--------------------------|----|--------------------------|
| a | My call was answered quickly | yes | <input type="checkbox"/> | no | <input type="checkbox"/> |
| b | I had to wait a little while before my call was answered | yes | <input type="checkbox"/> | no | <input type="checkbox"/> |
| c | I had to wait a long time before my call was answered | yes | <input type="checkbox"/> | no | <input type="checkbox"/> |

- 3 When you called, you spoke to the nurse. In general, were you happy to receive advice from a nurse? Yes ☐ No ☐

- | 4 | What did you think of the following: | very satisfied | satisfied | somewhat dissatisfied | very dissatisfied | not applicable |
|---|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a | the way the nurse spoke with you | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| b | the questions the nurse asked you in order to assess the situation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| c | any advice the nurse gave you | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Please feel free to write down any thoughts you might have about your experience

Thank you very much for completing this questionnaire. Please return it in the pre-paid envelope provided. If there is anything else you would like to say, please jot it down in the space below. Alternatively, Mrs Val Lattimer who is working on the project with us can be contacted on 01703 794773.

Study number

--	--	--

Three Swans Surgery
and Bemerton Heath Surgery
Follow-up study of out of hours calls

Dear

You recently called our emergency out of hours number for help. In the interests of improving our service we would very much like to know what you thought of our response. We would be grateful if you would answer the questions on this form, which are about your recent experience. On testing we have found that the questionnaire takes no longer than ten minutes to complete. All responses will be analysed anonymously, and you can be assured that no individual person will be identifiable from the results.

PLEASE MARK THE BOXES WITH A CROSS LIKE THIS ☒

Office use

1	Was the problem which prompted you to telephone the surgery:				
a	a medical emergency?	yes	<input type="checkbox"/>	no	<input type="checkbox"/>
b	not an emergency but could not have waited until the next surgery?	yes	<input type="checkbox"/>	no	<input type="checkbox"/>
c	a problem about which you wanted only advice or reassurance?	yes	<input type="checkbox"/>	no	<input type="checkbox"/>
2	How long did you have to wait before your telephone call was answered?				
a	My call was answered quickly	yes	<input type="checkbox"/>	no	<input type="checkbox"/>
b	I had to wait a little while before my call was answered	yes	<input type="checkbox"/>	no	<input type="checkbox"/>
c	I had to wait a long time before my call was answered	yes	<input type="checkbox"/>	no	<input type="checkbox"/>

3	When you called, you spoke to the doctor. What did you think of the following:	very satisfied	satisfied	somewhat dissatisfied	very dissatisfied	not applicable	
a	the way the doctor spoke with you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
b	the questions the doctor asked you in order to assess the situation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
c	any advice the doctor gave you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	any examination or treatment you received	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Would you have been happy to speak to a nurse initially, who would have assessed your call and either offered you advice or transferred you to the GP on call?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>		<input type="checkbox"/>

Please feel free to write down any thoughts you might have about your experience

Thank you very much for completing this questionnaire. Please return it in the pre-paid envelope provided. If there is anything else you would like to say, please write it on a separate sheet of paper and return it in the envelope. Alternatively, Mrs Val Lattimer who is working on the project with us can be contacted on 01703 794773.

Study number

--	--	--

Three Swans Surgery
and Bemerton Heath Surgery
Follow-up study of out of hours calls

Dear

You recently called our emergency out of hours number for help. In the interests of improving our service we would very much like to know what you thought of our response. We would be grateful if you would answer the questions on this form, which are about your recent experience. On testing we have found that the questionnaire takes no longer than ten minutes to complete. All responses will be analysed anonymously, and you can be assured that no individual person will be identifiable from the results.

PLEASE MARK THE BOXES WITH A CROSS LIKE THIS ☒

Office use

1	Was the problem which prompted you to telephone the surgery:					
a	a medical emergency?	yes	<input type="checkbox"/>	no	<input type="checkbox"/>	<input type="checkbox"/>
b	not an emergency but could not have waited until the next surgery?	yes	<input type="checkbox"/>	no	<input type="checkbox"/>	<input type="checkbox"/>
c	a problem about which you wanted only advice or reassurance?	yes	<input type="checkbox"/>	no	<input type="checkbox"/>	<input type="checkbox"/>
2	How long did you have to wait before your telephone call was answered?					
a	My call was answered quickly	yes	<input type="checkbox"/>	no	<input type="checkbox"/>	<input type="checkbox"/>
b	I had to wait a little while before my call was answered	yes	<input type="checkbox"/>	no	<input type="checkbox"/>	<input type="checkbox"/>
c	I had to wait a long time before my call was answered	yes	<input type="checkbox"/>	no	<input type="checkbox"/>	<input type="checkbox"/>

3	When you called, you spoke to ambulance control. What did you think of the following:	very satisfied	satisfied	somewhat dissatisfied	very dissatisfied	not applicable	
a	the way the person spoke with you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
b	the questions you were asked in order to assess the situation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
c	any advice you were given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please feel free to write down any thoughts you might have about your experience

Thank you very much for completing this questionnaire. Please return it in the pre-paid envelope provided. If there is anything else you would like to say, please write it on a separate sheet of paper and return it in the envelope. Alternatively, Mrs Val Lattimer who is working on the project with us can be contacted on 01703 794773.

Study number

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Three Swans Surgery
and Bemerton Heath Surgery
Follow-up study of out of hours calls

Dear

You recently called our emergency out of hours number for help. In the interests of improving our service we would very much like to know what you thought of our response. We would be grateful if you would answer the questions on this form, which are about your recent experience. On testing we have found that the questionnaire takes no longer than ten minutes to complete. All responses will be analysed anonymously, and you can be assured that no individual person will be identifiable from the results.

PLEASE MARK THE BOXES WITH A CROSS LIKE THIS



Office use

1 Was the problem which prompted you to telephone the surgery:

- | | | | | | | |
|---|--|-----|--------------------------|----|--------------------------|--------------------------|
| a | a medical emergency? | yes | <input type="checkbox"/> | no | <input type="checkbox"/> | <input type="checkbox"/> |
| b | not an emergency but could not have waited until the next surgery? | yes | <input type="checkbox"/> | no | <input type="checkbox"/> | <input type="checkbox"/> |
| c | a problem about which you wanted only advice or reassurance? | yes | <input type="checkbox"/> | no | <input type="checkbox"/> | <input type="checkbox"/> |

2 How long did you have to wait before your telephone call was answered?

- | | | | | | | |
|---|--|-----|--------------------------|----|--------------------------|--------------------------|
| a | My call was answered quickly | yes | <input type="checkbox"/> | no | <input type="checkbox"/> | <input type="checkbox"/> |
| b | I had to wait a little while before my call was answered | yes | <input type="checkbox"/> | no | <input type="checkbox"/> | <input type="checkbox"/> |
| c | I had to wait a long time before my call was answered | yes | <input type="checkbox"/> | no | <input type="checkbox"/> | <input type="checkbox"/> |

3	When you called, you spoke to the nurse and the doctor. What did you think of the following:	very satisfied	satisfied	somewhat dissatisfied	very dissatisfied	not applicable
a	the way the nurse spoke with you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b	the questions the nurse asked you in order to assess the situation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c	any advice the nurse gave you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d	the way the doctor spoke with you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e	any advice the doctor gave you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f	any treatment the doctor gave you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Please indicate how strongly you agree or disagree with the following statements:	strongly agree	agree	disagree	strongly disagree
g	I was happy to speak to the nurse first	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h	The doctor seemed to have a good understanding of the problem by the time he spoke to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i	I would have preferred to talk to the doctor directly, even if this meant a delay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j	I had the impression that the nurse and doctor were working as a team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please feel free to write down any thoughts you might have about your experience

Thank you very much for completing this questionnaire. Please return it in the pre-paid envelope provided. If there is anything else you would like to say, please write it on a separate sheet of paper and return it in the envelope. Alternatively, Mrs Val Lattimer who is working on the project with us can be contacted on 01703 794773.

Appendix F

Person specification and job description developed for the telephone triage nurses

UNIVERSITY OF SOUTHAMPTON

POST: Telephone Triage Nurse - South Wiltshire Out-of-Hours Project

DEPARTMENT: Wessex Institute of Public Health Medicine

Person Specification

SKILLS AND KNOWLEDGE
Essential
Up to date knowledge of primary healthcare in the UK
Good hearing and clear diction
Ability to communicate effectively in written and oral form ie: face to face and on the telephone
Keyboard skills
Desirable
An understanding of out-of-hours issues and the developing role of nurses and nurse practitioners
Motivated towards further professional development

PROFESSIONAL/TECHNICAL & OCCUPATIONAL TRAINING
Essential
Registration with UKCC - as Registered General Nurse
Desirable
Post basic qualifications in community nursing eg health visiting, district nursing, practice nursing

EXPERIENCE
Essential Minimum five years post registration Experience in primary healthcare
Desirable Experience in a wide range of specialities, including primary care. Management of people, resources and administration

PERSONAL ATTRIBUTES
Essential Flexible approach to work times (differing commitment week to week) Ability to get on well with others and to work alone Good team member

SOUTH WILTSHIRE OUT OF HOURS PROJECT

JOB DESCRIPTION

Job Title: Telephone Triage Nurse, WILCO.Doc

Reports to: Project Nurse

Responsible to: The Research Team and Wiltshire Doctors Co-operative (WILCO.Doc)
The Research Team is drawn from the University of Southampton Wessex Institute for Health Research & Development, the University of Southampton Departments of Primary Medical Care & Nursing, and the Wiltshire Doctors Co-operative.

Location: Based in Amesbury, Wiltshire. The post holder will be required to travel to other centres as required.

Main functions of the job:

To provide an out-of-hours telephone triage service in primary care as part of a team of nurses and general practitioners collaborating in a funded research project.

Main tasks:

Project:

- * Triaging calls from patients and managing situations by appropriate referral or nurse advice.

The nurse will receive incoming calls to the general practice cooperative. After gathering initial patient details, the nurse will assess the call and decide whether the patient needs to be referred to a GP (and how urgently) and/or whether telephone advice with reference to agreed computerised protocols would be helpful. In an emergency, the nurse will be able to contact the ambulance service directly and stay on the telephone to assist the caller. The nurse's role is not to reach a medical diagnosis but to manage the situation appropriately.

In the event that, on the basis of the nurses' judgement, the decision is made to offer advice to the caller, such will be based on the expert knowledge of the nurse supported by the protocols. It is expected that the post holder will be familiar and confident in the use of basic computerised systems. In addition the nature of the work requires the ability to work independently but also to function as part of a team.

In common with current out of hours provision, the service is available for patients of all ages. Nurses will therefore need to have core knowledge and skills in the care of children and adults, referring those calls which need the attention of a GP and those which are outside the nurse's experience and competence. Nurses will search for evidence that, when callers present minor complaints, there are no other significant signs and symptoms. Eliciting these will require significant interpersonal skills.

Child health queries which the nurse will encounter are likely to include coughs and colds, problems related to asthma, earache, chickenpox, sticky eyes, fever, feeding problems, vomiting, diarrhoea/constipation. Adult health queries are likely to include: headache/migraine, abdominal pain, back pain, pv bleeding, colds and flu, diarrhoea and vomiting.

Professional matters

The appointee will:

- * Maintain professional registration with the UKCC
- * Ensure up to date knowledge in all relevant professional matters

Internal Matters

The appointee will:

- * Maintain appropriate records as required by the project director
- * Participate in educational programmes as appropriate
- * Attend meetings as required
- * Promote the project to external organisations as appropriate

Special requirements:

A flexible approach to working patterns is required by the research design. The post holder must be committed to the aims and values of the Institute and be prepared to carry out other duties which may arise that are consistent with the post.

The nurse will demonstrate unconditional positive regard for patients and callers at all times maintaining records of all calls. In addition, the UKCC code of Professional Practice will be adhered to.

Appendix G

Nurse education programme

SOUTH WILTSHIRE OUT-OF-HOURS PROJECT

Telephone Triage In-Service Training Programme November 15 - December 16 1996

AIM

The aim of the programme is to prepare staff for a probationary period of supervised telephone triage practice. There are six themes within the programme:

- Organisation of out-of-hours primary care**
- Clinical skills**
- Personal development**
- Research**
- Computer skills**
- Telephone consultation**

The programme comprises group and individual tutorials and will be followed by fortnightly study sessions and clinical supervision.

LEARNING OPPORTUNITIES

During the programme, participants will have the opportunity to:

Organisation of out-of-hours primary care

- 1 Learn about the development of SWOOP in the context of developments in primary care
- 2 Discuss the objectives of WILCODOC's nurse telephone triage service and its quality standards
- 3 Become familiar with the co-operative, their workplace and meet key staff.
- 4 Become aware of local resources to which callers might be appropriately referred.

Clinical Skills

- 5 Explore the management of adult and child health problems
- 6 Draw on their own and others experiences of primary care
- 7 Review aspects of pharmacology

- 8 Adopt a reflective method of debriefing for use in the clinical situation

Personal development

- 9 Identify individual learning needs and make plans to meet these
- 10 Compile and/or maintain a professional profile

Research

- 11 Read and discuss relevant texts
- 12 Discuss the research methods within the trial and contribute to data collection

Computer skills

- 13 Gain confidence in the use of a mouse and keyboard
- 14 Practice using the TAS computer system

Telephone consultation

- 15 Discuss the professional and medico-legal dimensions of nurse telephone triage
- 16 Discuss the strengths and limitations of telephone consultation
- 17 Refine skills in responding to callers in different phases of a telephone encounter
- 18 Develop the assessment and decision making skills required for telephone triage
- 19 Explore their own attitudes and stance towards callers
- 20 Experiment with different approaches to managing situations on the telephone
- 21 Practice telephone triage under supervision and review calls
- 22 Adopt strategies for handling difficult calls

SOUTH WILTSHIRE OUT-OF-HOURS PROJECT

Telephone Triage In-Service Training Programme November 15 - December 16 1996

PROGRAMME

(This programme comprises a taught component and 20 hours individual practical work and assessment)

Friday 15 November Three Swans Surgery, Salisbury

- | | |
|------|--|
| 7.00 | Welcome and introductions
Meet the team
The South Wiltshire Out of Hours Project |
| 7.45 | Supper |
| 8.30 | An overview of the in-service training programme and individual learning plans |

Saturday 16 November 1996 Room AB51 Wessex Institute for Health Research and Development

- | | |
|-------|--|
| 9.00 | Telephone Triage: a review of its history, development and potential
<i>Val Lattimer</i> |
| 9.45 | Nurse telephone triage in the context of developments in primary care nursing.
<i>Val Lattimer</i>

Legal and professional aspects
<i>Val Lattimer</i> |
| 10.30 | Coffee |
| 11.00 | A randomised controlled trial of nurse telephone triage:
The research design and findings of a pilot study to test feasibility and acceptability
<i>Val Lattimer</i> |

- 11.45 Objectives of WILCODOC's nurse telephone triage service
Quality standards and the UKCC Scope of Professional Practice
Felicity Thompson
- 12.30 Lunch
- 13.30 TAS(1) Introduction
Felicity Thompson / Val Lattimer
- 15.15 Tea
- 15.30 TAS(1) Practice
- 16.30 Discussion

Tuesday 19 November St Melor House, Amesbury

- 6.00 Characteristics of the population and local health needs
Hugh Bond
- 6.45 Orientation and introduction to the work of Wiltshire's Cooperating Doctors.
Hugh Bond
- 7.45 Break
Tour of the building and facilities
Pennie Scoble
- 8.30 The patients' perspective
Brian Burton, Salisbury and District Community Health Council
- 9.30 Pharmacology
Felicity Thompson

Tuesday 26 November Wessex Institute Room AB51

- 6.00 Telephone consultation (1): Working with the limitations of a telephone encounter
Garth Long/Val Lattimer
- 7.30 Confidentiality
- 8.00 Break
- 8.30 TAS(2) Primary Care Scenarios
Felicity Thompson / Val Lattimer / Helen Smith

Tuesday 3 December Three Swans Surgery, Salisbury

- 6.00 Team meeting
- 6.30 Managing out of hours primary care problems (1) Children
Hugh Bond
- 8.00 Break
- 8.30 A model for debriefing and supervision
Val Lattimer/Felicity Thompspon

Tuesday 10 December Three Swans Surgery

- 6.00 Introduction
- 6.15 Experiences of using TAS in A&E and Primary Care Settings
Rob Crouch
- 7.30 Break
- 8.15 Advanced TAS Workshop
Tim Morris
- 9.45 Discussion

Tuesday 16 December Three Swans Surgery, Salisbury

- 6.00 Team meeting
- 6.30 Managing out of hours primary care problems (2)
Michael Moore
- 8.00 Break
- 8.30 Telephone consultation (2): Handling calls we find difficult
Garth Long/Val Lattimer

Contributors to the Programme:

Dr Hugh Bond	General Practitioner, Three Swans Surgery and Chairman of WILCODOC (Salisbury Practices)
Mr Brian Burton	Chief Officer, Salisbury Community Health Council
Mr Robert Crouch	Research Fellow, Kings Health Care.
Dr Steve George	Senior Lecturer in Public Health Medicine, University of Southampton
Dr Alan Glasper	Professor of Nursing, University of Southampton School of Nursing and Midwifery
Dr Peter Jenkins	General Practitioner and Chairman of WILCODOC (Salisbury Plain Practices)
Mrs Val Lattimer	Senior Research Fellow, University of Southampton
Mr Garth Long	Director of Curriculum, University of Southampton School of Nursing and Midwifery
Dr Michael Moore	General Practitioner, Three Swans Surgery
Mr Tim Morris	Plain Software Company
Mrs Pennie Scoble	Co-operative Manager
Dr Helen Smith	Director, The Wessex Primary Care Research Network
Mrs Eileen Thomas	Principal in Primary Care Nursing
Mrs Felicity Thompson	Swoop Project Nurse

SOUTH WILTSHIRE OUT OF HOURS PROJECT

Nurse Telephone Triage: Guidelines for Debriefing and Supervision

Introduction

Nurse telephone triage refers to a system in which experienced and specially trained nurses receive, assess and manage calls from patients or their carers. Whilst telephone contact with patients is commonplace in the work of health professionals, the concentrated use of telephone consultation is unusual and you have therefore received particular prior training in this area. Ongoing, fortnightly in service training and/or team meetings will include development activities and a forum to discuss experiences, but we intend to strengthen support through individual monthly supervision with the Project Nurse and in one to one debriefing between triage nurses at the end of each shift.

Supervision

The aim of supervision is to review practice experiences, to identify points of learning and to make short and long term action plans. You will be encouraged identify items for discussion in advance and to make notes during supervision (see the blue form in your training pack).

Debriefing

Debriefing will be a routine function of ending a period of time on duty. It refers to a one-to-one discussion in which you will

- (a) share and learn from events which occurred during the shift, including 'tricky' calls
- (b) talk through the management of calls (especially those about which you may have lingering thoughts)

in order that you leave the work area feeling that work is finished.

A simple model for running a debriefing session is set out below and summarised on the key note cards attached. You should keep the key cards with you as you will be using them regularly! At the end of the shift you will be keen to make your way home and so we have devised a model which can be completed in ten minutes.

- 1 After speaking with the GPs on duty about any nurse advice calls, shutting down the computer and handing over to the receptionist, go to a quiet place with your colleague and sit down together.
- 2 You have ten minutes: five minutes each - so use a watch to time yourselves. Person A talks for three minutes about their experiences during the shift; especially tricky situations and how they tried to resolve them. B listens to A's account and responds (2 mins) by reflecting back what appeared to go well and discussing with A what could be done differently next time. The process is then reversed.

TEN MINUTE DEBRIEFING

Person A: Talk for 3 mins about your experiences during the shift. Include any tricky situations and how you tried to resolve them.

Person B: Listen to A and then respond for 2 mins by reflecting back what appeared to go well and discussing with A what could be done differently next time.

Reverse the process.

SWOOP
FORMATIVE CASE ASSESSMENT OF A TELEPHONE CONSULTATION

Telephone Triage Nurse:

Assessment summary

	Comment
Establishing and maintaining a relationship with the caller	
Obtaining a history	
Questioning	
Triage decision making and referral	
Nurse advice	
Documenting the call	

Further observations

Signed ----- Project Nurse

Date -----

Signed ----- Triage Nurse

Date -----

SWOOP

CASE ASSESSMENT OF THREE TELEPHONE CONSULTATIONS

Introduction

We have considered the first three months of the service to be probationary and dependent upon practitioners being assessed as competent. The assessment process for measuring competence will be through the discussion of three consultations, one at each monthly supervision meeting with Felicity Thompson (Project Nurse). The first case assessment will be formative, the second and third will be summative.

Assessment guidelines

The aim of the assessment is to measure the adequacy and safety of the telephone consultations. In the sense that there is no 'perfect' consultation, credit will be awarded for thoughtful reflection on how the handling of the call could have been improved.

Assessment criteria

Evidence will be sought for adequacy and safety in

- (a) establishing and maintaining a relationship with the caller
- (b) obtaining a history
- (c) questioning
- (d) triage decision making and referral
- (e) nurse advice
- (f) documenting the call

1 Selecting a consultation

On the shift prior to your supervision session, select one consultation for review. You should exclude calls where communication constraints interfered with decision making and calls in which the decision was not made exclusively by you. One summative assessment should concern the care of a child, the other the care of an adult. All should be calls in which you offered the caller advice, with or without subsequent referral to the GP.

2 Writing about the call

As soon as possible after the call, write down your experiences using the think sheet attached for guidance. Summarise the call and give reasons for your decisions. Keep this account in a safe place and bring to your supervision session.

3 Revisiting the call in detail

During supervision you will be able to listen in to the tape recording of the call, revisit the TAS screens used and talk through the call in detail. The project nurse will decide whether the review of the consultation meets the criteria for assessment and will help you to identify points of learning and areas for further development.

Appendix H

Letter and questionnaire used in the non critical events survey

SWOOP
SUMMATIVE CASE ASSESSMENT OF A TELEPHONE CONSULTATION

Telephone Triage Nurse:

Assessment summary

	Pass	Refer	Comment
Establishing and maintaining a relationship with the caller			
Obtaining a history			
Questioning			
Triage decision making and referral			
Nurse advice			
Documenting the call			

Further observations

Assessment decision Pass ☐ Refer ☐

Signed ----- Project Nurse

Date -----

Signed ----- Triage Nurse

Date -----

**The Wessex Institute
for Health Research and
Development**

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Southampton
SO16 6YD

Telephone 01703 79
01703 796530
Fax 01703 796529
Email wi@soton.ac.uk

val@soton.ac.uk
Extension 4773

«Title» «FirstName» «LastName»
«Address1»
«Address2»
«Address3»
«County» «Postcode»

1 August 1997

Dear «Title» «LastName»

South Wiltshire Out of Hours Project (SWOOP): Evaluating WILCODOC services by monitoring feedback to practice managers

We are currently evaluating the Wilcodoc service by sending questionnaires to callers. However, we are aware that practice managers also receive comments about the service from time to time, either directly from patients or from general practitioners. In some situations, the practice may have to take further action in the light of comments for example, providing time for the person to discuss their experience or contacting the co-op office to follow up a situation. These 'non-critical events' may include expressions of satisfaction or dissatisfaction and may include informal and formal complaints. Whilst any formal complaints would be known about by the co-op manager, we still need to record these systematically alongside other feedback.

We would therefore like to ask for your help in recording these events directly for the months of September, October and November 1997, by completing a form. The form has space to record the date and time of the event; whether the event concerned contact with the receptionist, the nurse or the doctor and a brief description of what happened.

We do not wish to know the names of any individuals involved, nor will we intervene in any way, but this information will give us a better feel for levels of satisfaction with the service. If there were no events concerning Wilcodoc during the month, please indicate this and return the forms in the pre-paid envelope provided.

If you have any concerns or queries regarding this request, please contact me directly on the above number. I am sending a copy of this letter to «Dr» for information as you may wish to ask the partners in the practice to let you know of events. In the meantime, thank you very much for your help, we do appreciate it.

Yours sincerely

Mrs Valerie Lattimer
Senior Research Fellow (Nursing) and
member of SWOOP

Dr M Moore
General Practitioner and member of SWOOP

cc «Dr»

Non critical events reporting about Wilcodoc services

OCTOBER 1997

PRACTICE NAME:	
-----------------------	--

Date of event :	Did the event concern the	Brief description of the event
Time:	<ul style="list-style-type: none"> • receptionist • nurse • doctor • other (state.....) (please ✓ all that apply) 	

Date of event:	Did the event concern the	Brief description of the event
Time:	<ul style="list-style-type: none"> • receptionist • nurse • doctor <p>(please ✓ all that apply)</p>	

There are no events to report this month (please ✓)

If you had any positive feedback about Wilcodoc this month, please note:

Appendix I

Questionnaire developed by McKinley *et al.*, (1997).

This section contains a list of questions. They are about what happened a few days ago when you rang for a doctor when the surgery was shut. We want to find out how satisfied you were with the visit or advice you received. Your answers will be kept entirely confidential and will not be shown to your doctor so please say what you really think.

For this section, please tick the box next to the most appropriate answer.

A1. Who was the patient?

- Myself
- Parent
- Husband/Wife/Partner
- Child
- Other relative
- Neighbour
- Some other person

☐
☐
☐
☐
☐
☐
☐

☐

A2. Where was the patient seen?

- At home
- At relative's home
- At the doctor's surgery
- Given advice over telephone
- Told to go directly to hospital without seeing the doctor
- Other (please specify).....

☐
☐
☐
☐
☐
☐

☐

A3. When the doctor was contacted, which of the following was originally wanted:

- To ask for a visit
- To ask for advice or reassurance on the telephone
- Not sure of the reason
- Other reason (please specify).....

☐
☐
☐
☐

☐

A4. How often had the patient seen this doctor before?

- Never
- Occasionally
- Often
- Is the patient's usual doctor
- Not sure

☐
☐
☐
☐
☐

☐

Please answer the following questions by circling the answer that is closest to what you think.
For example:

I was pleased with how quickly the doctor arrived Strongly agree. Agree. Neutral. Disagree. Strongly disagree

for office
use only

These questions ask about how important it is that you know the doctor who visits or gives you advice.

- | | | |
|---|---|--------------------------|
| 1. I would have been completely happy to see any doctor | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |
| 2. It did not matter whether I saw my own doctor | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |
| 3. I would have preferred to see my own doctor if possible | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |
| 4. Generally, it does not matter at all whether I see my own doctor | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |

These questions ask about the telephone arrangements for contacting the duty doctor

- | | | |
|--|---|--------------------------|
| 5. It was difficult to get through on the telephone | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |
| 6. The person who answered the telephone gave all the necessary advice | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |
| 7. The person who took the message seemed to completely understand the problem | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |
| 8. The arrangements for contacting a doctor when the surgery is closed could be improved | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |
| 9. I did not have any problems contacting a doctor when the surgery was closed | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |

for office
use only

These questions ask about how good the doctor was at explaining

- | | | |
|---|--|--------------------------|
| 22. I am totally satisfied with the explanation the doctor gave me | Strongly agree.Agree.Neutral.Disagree.Strongly disagree | <input type="checkbox"/> |
| 23. The doctor gave me very clear advice about when to get more help | Strongly agree.Agree.Neutral.Disagree.Strongly disagree | <input type="checkbox"/> |
| 24. I understand my problem much better after talking to the doctor | Strongly agree.Agree.Neutral.Disagree.Strongly disagree | <input type="checkbox"/> |
| 25. I would have liked the doctor to tell me a little more about my treatment | Strongly agree.Agree.Neutral.Disagree.Strongly disagree
Doesn't apply (I received no treatment) | <input type="checkbox"/> |

These questions ask about your feelings after you had talked with the doctor

- | | | |
|---|--|--------------------------|
| 26. The treatment the doctor recommended has helped me get better | Strongly agree.Agree.Neutral.Disagree.Strongly disagree
Doesn't apply (I received no treatment) | <input type="checkbox"/> |
| 27. I felt very much better after talking to the doctor | Strongly agree.Agree.Neutral.Disagree.Strongly disagree | <input type="checkbox"/> |
| 28. If possible, I would prefer to see a different doctor next time | Strongly agree.Agree.Neutral.Disagree.Strongly disagree | <input type="checkbox"/> |
| 29. I intend to follow every detail of this doctor's advice | Strongly agree.Agree.Neutral.Disagree.Strongly disagree | <input type="checkbox"/> |

These questions ask about your overall satisfaction

- | | | |
|--|---|--------------------------|
| 30. Overall, I was delighted with everything about the care I received | Strongly agree.Agree.Neutral.Disagree.Strongly disagree | <input type="checkbox"/> |
| 31. I am not completely happy with the care I received | Strongly agree.Agree.Neutral.Disagree.Strongly disagree | <input type="checkbox"/> |
| 32. The out of hours service I received could not be improved | Strongly agree.Agree.Neutral.Disagree.Strongly disagree | <input type="checkbox"/> |

Did you actually see the doctor? YES / NO

If 'YES', carry on with question 10. If 'NO' go to question 15.

for office
use only

- | | | |
|---|--|--------------------------|
| 10. I did not know how long it would be before the doctor arrived | Strongly agree. Agree. Neutral. Disagree. Strongly disagree
Doesn't apply (I went to see the doctor at a surgery) | <input type="checkbox"/> |
| 11. I would have preferred the doctor to have come sooner | Strongly agree. Agree. Neutral. Disagree. Strongly disagree
Doesn't apply (I went to see the doctor at a surgery) | <input type="checkbox"/> |
| 12. I was worried because the doctor took a long time to arrive | Strongly agree. Agree. Neutral. Disagree. Strongly disagree
Doesn't apply (I went to see the doctor at a surgery) | <input type="checkbox"/> |
| 13. I thought the doctor was reluctant to visit | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |
| 14. I think the doctor could have examined me a little more carefully | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |

Answer from question 15 onwards if you did NOT see the doctor. Answer from question 19 onwards if you did see the doctor.

- | | | |
|---|---|--------------------------|
| 15. It was very easy to get advice from the doctor on the telephone | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |
| 16. If possible, I would have preferred to have had a visit from the doctor | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |
| 17. I thought the doctor was right to give me advice on the telephone | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |
| 18. I was a little unhappy with the telephone advice I received | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |

PLEASE ANSWER ALL THE REMAINING QUESTIONS WHETHER OR NOT YOU SAW THE DOCTOR

These questions ask you about the doctor's manner

- | | | |
|--|---|--------------------------|
| 19. I thought the doctor made me feel guilty about contacting him /her | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |
| 20. The doctor made me feel that I was wasting his/her time | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |
| 21. I think the doctor was a little rushed | Strongly agree. Agree. Neutral. Disagree. Strongly disagree | <input type="checkbox"/> |

Appendix J

Questionnaires used in the caller survey during the trial

SALISBURY & District Community Health Council



95 Crane Street, Salisbury, Wilts, SP1 2PU Tel: [01722] 324736 Fax: [01722] 410276 E-Mail salisburychc@msn.com

Chairman: Brigadier Terry White
Vice Chair: Mrs Jackie Avery
Vice Chair: Mrs Gill Prior

Chief Officer: Brian Burton
Personal Assistant: Linda Holland
Research Officer: Sarah Bealey
Research Assistant: Eileen Kavanagh

Autumn 1997

Dear Caller

SURVEY OF THE WILTSHIRE DOCTORS OUT OF HOURS' SERVICE

You recently called a Doctor outside normal surgery hours about yourself, a child or another person. The questionnaire enclosed with this letter has been sent to you by Salisbury & District Community Health Council (CHC) and it asks you to tell us about your experience of the 'Out of Hours' Service. The CHC is providing the independent monitoring of this service on behalf of the Wessex Institute of Health Research & Development at the University of Southampton and our joint aim is to improve the service where necessary.

We would be grateful if you would answer the questions on this form - on testing we found that the questionnaire takes approximately 5 minutes to complete. All answers will be treated as confidential and, although your comments will be fed back to staff, individuals cannot be recognised from the results. Please feel free to say what you really think.

Lots of people have trouble filling in questionnaires and if you prefer, we would be happy at your request to telephone you and go through the questions with you. If you would rather give us your views face to face, that can also be arranged. Please fill in the reply slip below and make sure you give us all the details about where you want us to contact you and the best time. You can send us your slip in the pre-paid envelope enclosed with this letter.

One of the CHC's roles is to assist patients and their relatives who have questions, comments or complaints about local medical services provided by family doctors (including this 'out of hours' service). We do the same for services provided at your local hospitals and health centres.

If you have any questions about the survey, please do contact us. We also welcome any suggestions or advice about the CHC's work in the community. We are based at the above address and if you would like more information, then please call into the office or ring us on Salisbury 01722 324736.

Thank you very much for helping us with our survey.

Chairman

Salisbury and District Community Health Council are registered for research purposes under the Data Protection Act 1984

I would prefer to take part in the survey by telephone or during a visit.

Name

Phone ☐ (give dialling code & number)

Visit ☐ (give your full address & postcode on the back of this tear off slip)

Time (please tick all suitable) Mon-Fri 9 am - 5 pm ☐ Mon-Fri 6-8 pm ☐ Sat 9 am - 12 noon ☐

SALISBURY & DISTRICT COMMUNITY HEALTH COUNCIL
--

**PROTECTION OF YOUR CONFIDENTIALITY
AND YOUR RIGHTS TO CONFIDENTIALITY
UNDER THE DATA PROTECTION ACT**

- The Community Health Council will prepare sealed envelopes containing the survey questionnaire, which will then be sent in bulk to WILCODOC for distribution.
- When the WILCODOC receptionist takes a telephone call from you, or a caller on behalf of the patient, she will address the sealed envelope, which will then be posted.
- The person who completes the questionnaire can then return it, in the FREEPOST envelope, to the CHC, where their views on the service will be included in the research.
- This deliberate separation of dispatch and receipt of questionnaires totally ensures your confidentiality. The CHC does not know to whom a questionnaire was sent and WILCODOC does not know who returned a questionnaire.
- The only exception being, when a patient or caller by completing the request form requires the assistance of the CHC in completing the questionnaire, by telephone or a home visit. YOU have our assurance that the questionnaire in either of the above cases will be completed without any identification being included of the caller or patient.
- YOUR right to confidentiality is also protected under the Data Protection Act which gives you the right to check if the CHC holds any information on its computer system which could identify you as an individual in connection with this research. We would be happy to provide you with the Data Protection Act leaflet that states your full rights under the Act.

Brian Burton, Chief Officer

For Office use only

Study Number

SALISBURY & DISTRICT COMMUNITY HEALTH COUNCIL

in conjunction with the Wessex Institute of Health Research and Development, University of Southampton

GP OUT OF HOURS SERVICE PATIENT SURVEY

You recently called the out of hours number for help. We would very much like to know what you thought of the response you received so that the service can be improved. We would be grateful if you would answer all the questions on this form. On testing we have found that it takes about 5 minutes to complete. Your answers will be treated confidentially so please say what you really think.

PLEASE ANSWER THE QUESTIONS THAT ARE APPLICABLE IN EACH SECTION AND MARK THE BOXES WITH A CROSS LIKE THIS ☒

SECTION 1

First, some questions about yourself, where you live and the reason you called.

Q1 How old are you?

16-24 years

☐

25-44 years

☐

45-54 years

☐

55-64 years

☐

65-74 years

☐

75 years & over

☐

Q2 What is the nearest town to your home?

Salisbury

☐

Wilton

☐

Amesbury

☐

Pewsey

☐

Durrington

☐

Warminster

☐

Ludgershall

☐

N. Tidworth

☐

Andover

☐

Marlborough

☐

Q3 Are you male or female?

Male

☐

Female

☐

Q4 What was the main reason for contacting the service?

To get medical assistance in an emergency ☐

To ask doctor to visit ☐

To ask for advice ☐

Other reason

(please give details in the box below)



SECTION 2

Now some questions about what happened.

Q5 Can you remember at what time did you first call the service?

H	H	:	M	M

 before midnight

H	H	:	M	M

 after midnight

Q6 Did you use a public call box?

Yes ☐

No ☐

Q7 This question asks about your first impressions of the service. The first person you spoke to was the receptionist. From your experience, please show how you feel about the three comments below by marking the box that seems closest to your view.

	Strongly agree	Agree	Not sure	Disagree	Strongly Disagree
a) It was difficult to get through on the telephone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) I think the receptionist was polite	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) I think the receptionist was rushed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q8 After speaking to the receptionist, you would have spoken to a nurse or a doctor.

Which of the following happened? *(Please mark all that apply)*

I received telephone advice ☐

An ambulance took me to hospital ☐

A home visit was arranged ☐

An appointment was arranged at an out of hours surgery ☐

Other (Please give details below)



If a home visit was arranged, please answer question 9, if not please go to question 10

Q9 If you received a home visit from a doctor:

What time did the doctor visit?

H	H	:	M	M
<input type="text"/>	<input type="text"/>	:	<input type="text"/>	<input type="text"/>

before midnight

H	H	:	M	M
<input type="text"/>	<input type="text"/>	:	<input type="text"/>	<input type="text"/>

after midnight

How long did the doctor spend with you?

<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------

minutes

If you are not sure about either of the above please mark this box ☐

Q10 Since this call, have you received further medical help from any of the following?
(Please mark all that apply)

Your own GP

☐

The out of hours service

☐

An accident & emergency department

☐

Other

(Please give details below)

<input type="text"/>

*If you received telephone advice, please answer the questions in Section 3.
If you did not receive telephone advice, please go straight to Section 4.*

SECTION 3

These questions are about the telephone advice you received.

Q11 Who gave you advice?

(Please mark all that apply)

A nurse

☐

A doctor

☐

Not sure

☐

Q12 Below are ten comments showing how people might feel about the telephone advice they received. From your experience of the service, please mark the boxes that seem closest to your views.

	<i>Strongly agree</i>	<i>Agree</i>	<i>Not sure</i>	<i>Disagree</i>	<i>Strongly disagree</i>
(a) I got exactly the right amount of advice I needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) I understood all the advice I was given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) The advice I was given worked well for me in practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) I was unhappy with the telephone advice I received	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) I am satisfied with the explanation I was given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f) I was given clear advice about when to get more help	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g) I understand my problem much better after being given advice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(h) I would have liked to have been told more about my treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(i) The treatment I was recommended has helped me to get better	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(j) I felt much better after talking through the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q13 Would you have preferred a visit from a doctor rather than the advice received?

Yes

☐

No

☐

Don't know

☐


SECTION 4

Finally, some questions about your overall impressions of calling the out of hours service.

Q14 Below are four comments about how you might feel about the service generally. For each statement please mark the box which seems closest to your view.

	<i>Strongly agree</i>	<i>Agree</i>	<i>Not sure</i>	<i>Disagree</i>	<i>Strongly disagree</i>
(a) I was generally satisfied with the out of hours service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) I was made to feel I was wasting everyone's time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) I am not completely happy with the call	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) The out of hours service I received could not be improved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

We are interested to know if you have any general comments or suggestions. Please use the following space to let us know.

If you have any comments, complaints or suggestions for improvement, please do contact the Manager for Wiltshire Doctors on Call, Mrs Penny Scoble on 01980 626446. Alternatively, Salisbury & District Community Health Council are here to help you with any questions you may have about this survey and all health services locally. You can contact us on 01722 324736, fax 01722 410276 or by calling into our office at 95 Crane St, Salisbury SP1 2PU. We are open Monday to Friday 9.00 am to 4pm and we have a 24 hour answerphone.

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE.
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Study Number

SALISBURY & DISTRICT COMMUNITY HEALTH COUNCIL

in conjunction with the Wessex Institute of Health Research and Development, University of Southampton

GP OUT OF HOURS SERVICE CARER SURVEY

You recently called the out of hours number for help on behalf of a child for whom you are the carer. We would like to know what you thought of the response you received so that the service can be improved. We would be grateful if you would answer all the questions on this form. On testing we have found that it takes about 5 minutes to complete. Your answers will be treated confidentially so please say what you really think.

PLEASE ANSWER THE QUESTIONS THAT ARE APPLICABLE IN EACH SECTION AND MARK THE BOXES WITH A CROSS LIKE THIS ☒

SECTION 1

First, some questions about the child, where you live and the reason you called.

Q1 How old is the child?

Under 1 year
1-5 years
6-10 years
11-15 years
16-18 years

☐
☐
☐
☐
☐

Q3 Is the child male or female?

Male ☐ Female ☐

Q2 What is the nearest town to your home?

Salisbury	<input type="checkbox"/>	Wilton	<input type="checkbox"/>
Amesbury	<input type="checkbox"/>	Pewsey	<input type="checkbox"/>
Durrington	<input type="checkbox"/>	Warminster	<input type="checkbox"/>
Ludgershall	<input type="checkbox"/>	N. Tidworth	<input type="checkbox"/>
Andover	<input type="checkbox"/>	Marlborough	<input type="checkbox"/>

Q4 What was the main reason for contacting the service?

To get medical assistance in an emergency ☐

To ask doctor to visit ☐

To ask for advice ☐

Other reason
(please give details in the box below)



SECTION 2

Now some questions about what happened.

Q5 Can you remember at what time did you first call the service?

H	H	:	M	M

 before midnight

H	H	:	M	M

 after midnight

Q6 Did you use a public call box?

Yes ☐

No ☐

Q7 This question asks about your first impressions of the service. The first person you spoke to was the receptionist. From your experience, please show how you feel about the three comments below by marking the box that seems closest to your view.

	Strongly agree	Agree	Not sure	Disagree	Strongly Disagree
a) It was difficult to get through on the telephone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) I think the receptionist was polite	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) I think the receptionist was rushed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q8 After speaking to the receptionist, you would have spoken to a nurse or a doctor.

Which of the following happened? *(Please mark all that apply)*

You received telephone advice ☐

An ambulance took the child to hospital ☐

An appointment was arranged at an out of hours surgery ☐

A home visit was Arranged ☐

Don't know ☐



If a home visit was arranged, please answer question 9, if not please go to question 10

Q9 If the child received a home visit from a doctor:

What time did the doctor visit?

H H
[] [] : M M
[] []

before midnight

H H
[] [] : M M
[] []

after midnight

How long did the doctor spend with the child?

[] [] [] minutes

If you are not sure about either of the above please mark this box

☐

Q10 Has the child received further medical help from any of the following about this problem?
(Please mark all that apply)

The child's own GP

☐

The out of hours service

☐

An accident & emergency department

☐

Other

(Please give details below)

[]

*If you received telephone advice, please answer the questions in Section 3.
If you did not receive telephone advice, you can go straight to Section 4.*

SECTION 3

These questions are about the telephone advice you received.

Q11 Who gave you advice?

(Please mark all that apply)

A nurse

☐

A doctor

☐

Not sure

☐



Q12 Below are ten comments showing how people might feel about the telephone advice they received. From your experience of the service, please mark the boxes that seem closest to your views.

	<i>Strongly agree</i>	<i>Agree</i>	<i>Not sure</i>	<i>Disagree</i>	<i>Strongly disagree</i>
(a) I got exactly the right amount of advice I needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) I understood all the advice I was given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) The advice I was given worked well for my child in practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) I was unhappy with the telephone advice I received	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) I am satisfied with the explanation I was given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f) I was given clear advice about when to get more help	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(g) I understand the problem much better after being given advice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(h) I would have liked to have been told more about the treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(i) The treatment I was recommended has helped the child to get better	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(j) I felt much better after talking through the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q13 Would you have preferred a visit from a doctor rather than the advice received?

Yes ☐ No ☐ Don't know ☐



SECTION 4

Finally, some questions about your overall impressions of calling the out of hours service.

Q14 Below are four comments about how you might feel about the service generally. From your experience of the service, please mark the boxes that seem closest to your view.

	<i>Strongly agree</i>	<i>Agree</i>	<i>Not sure</i>	<i>Disagree</i>	<i>Strongly disagree</i>
(a) I was generally satisfied with the out of hours service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) I was made to feel I was wasting everyone's time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) I am not completely happy with the call	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) The out of hours service I received could not be improved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

We are interested to know if you have any general comments or suggestions. Please use the following space to let us know.

If you have any comments, complaints or suggestions for improvement, please do contact the Manager for Wiltshire Doctors on Call, Mrs Pennie Scoble on 01980 626446. Alternatively, Salisbury & District Community Health Council are here to help you with any questions you may have about this survey and all health services locally. You can contact us on 01722 324736, fax 01722 410276 or by calling into our office at 95 Crane St, Salisbury SP1 2PU. We are open Monday to Friday 9.00 am to 4pm and we have a 24 hour answerphone.

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Study Number

SALISBURY & DISTRICT COMMUNITY HEALTH COUNCIL

in conjunction with the Wessex Institute of Health Research and Development, University of Southampton

GP OUT OF HOURS SERVICE CALLER SURVEY

You recently called the out of hours number for help on behalf of someone else. We would very much like to know what you thought of the response you received so that the service can be improved. We would be grateful if you would answer all the questions on this form. On testing we have found that it takes about 5 minutes to complete. Your answers will be treated confidentially so please say what you really think.

PLEASE ANSWER THE QUESTIONS THAT ARE APPLICABLE IN EACH SECTION AND MARK THE BOXES WITH A CROSS LIKE THIS ☒

SECTION 1

First, some questions about the patient and the situation which prompted you to call.

Q1 Who is the patient?

My partner/spouse

My parent

Another relative

A friend

A neighbour

A resident(e.g. of a nursing home)

Other (please write below)

Q2 Is the patient male or female?

Male ☐

Female ☐

Q3 How old is the patient?

16-24 years

25-44 years

45-54 years

55-64 years

65-74 years

75 years or over

Don't know ☐

Q4 What is the nearest town to the patients home?

Salisbury

☐

Wilton

☐

Durrington

☐

Warminster

☐

Amesbury

☐

Pewsey

☐

Ludgershall

☐

N. Tidworth

☐

Andover

☐

Marlborough

☐

Q5 Does the patient live alone?

Yes

☐

No

☐

Don't know

☐

Q6 What was the main reason for contacting the service?

To get medical assistance in an emergency

☐

To ask doctor to visit

☐

To ask for advice

☐

Other reason (please write in the box below)

Survey : 740



Page : 1



Salisbury & District Community Health Council

SECTION 2

Now some questions about what happened.

Q7 Can you remember at what time did you first call the service?

H	H	:	M	M

 before midnight

H	H	:	M	M

 after midnight

Q8 Did you use a public call box?

Yes ☐

No ☐

Q9 This question asks about your first impressions of the service. The first person you spoke to was the receptionist. From your experience, please show how you feel about the three comments below by marking the box that seems closest to your view.

	Strongly agree	Agree	Not sure	Disagree	Strongly Disagree
a) It was difficult to get through on the telephone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) I think the receptionist was polite	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) I think the receptionist was rushed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q10 After speaking to the receptionist, you would have spoken to a nurse or a doctor.

Which of the following happened? *(Please mark all that apply)*

You received telephone advice ☐

An ambulance took the patient to hospital ☐

Don't know ☐

An appointment was arranged at an out of hours surgery ☐

A home visit by a doctor was arranged ☐

If a home visit was arranged, please answer question 11, if not please go to question 12.



SECTION 4

Finally, some questions about your overall impressions of calling the out of hours service.

Q15 Below are four statements about how you might feel about the service generally. From your experience of the service, please mark the box which seems closest to your view.

	<i>Strongly agree</i>	<i>Agree</i>	<i>Not sure</i>	<i>Disagree</i>	<i>Strongly disagree</i>
(a) I was generally satisfied with the out of hours service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) I was made to feel I was wasting everyone's time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) I am not completely happy with the call	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) The out of hours service I received could not be improved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

We are interested to know if you have any general comments or suggestions. Please use the following space to let us know.

If you have any comments, complaints or suggestions for improvement, please do contact the Manager for Wiltshire Doctors on Call, Mrs Pennie Scoble on 01980 626446. Alternatively, Salisbury & District Community Health Council are here to help you with any questions you may have about this survey and all health services locally. You can contact us on 01722 324736, fax 01722 410276 or by calling into our office at 95 Crane St, Salisbury SP1 2PU. We are open Monday to Friday 9.00 am to 4pm and we have a 24 hour answerphone.

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Q11 If the patient received a home visit from a doctor as a result of your call:

What time did the doctor visit?

H	H	M	M

before midnight

H	H	M	M

after midnight

How long did the doctor spend with the patient?

--	--	--

minutes

If you are not sure about either of the above please mark this box

☐

Q12 Has the patient received further medical help about this problem from any of the following?

(Please mark all that apply)

Their own GP

☐

The out of hours service

☐

An accident & emergency department

☐

Don't know

☐

Other (Please give details below)

--

If you received telephone advice, please answer the questions in Section 3.

If you did not receive telephone advice, please go straight to Section 4.

SECTION 3

These questions are about the telephone advice you received.

Q13 Who gave you advice?

(Please mark all that apply)

A nurse

☐

A doctor

☐

Not sure

☐

Q14 Below are ten comments showing how people might feel about the telephone advice they received.

From your experience of the service, please mark the boxes that seem closest to your views.

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
(a) I was given exactly the right amount of advice needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) I understood all the advice I was given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) The advice I was given worked well for the patient in practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) I was unhappy with the telephone advice I received	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) I am satisfied with the explanation I was given	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f) I was given clear advice about when to get more help	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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