A Multi-Centre Community Intervention Trial to Evaluate the Clinical and Cost Effectiveness of Emergency Care Practitioners

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Glossary

CAD Computer aided dispatch; A computer based system for recording and dispatching responses for callers to the 999 ambulance.

CPD Continuing Professional Development: Process whereby health professionals affirm and update their knowledge, skills and competence on an ongoing basis throughout their career.

ECP Emergency Care Practitioner; A new health care professional role developed to work within emergency and unscheduled care settings in the UK National Health Service.

ED Emergency Department; hospital department where patients with emergency and unscheduled illnesses or injuries are taken for initial assessment and treatment.

GMS General Medical Services Contract; A new contract governing GP working in the NHS agreed between the NHS Confederation and the General Practioners Committee (GPC) of the British Medical Association (BMA) in 2003.

HSR Health Services Research; Refers to research methodologies developed specifically for implementing in health service settings.

MAU Medical Assessment Unit; Department within a hospital where patients are assessed prior to a decision regarding admittance to a hospital ward.

MIU Minor Injury Unit; A primary care or secondary care clinic either stand-alone or based within a hospital which provides care on a non-appointment basis for people with minor injuries.

MREC Multi-Centre Research Ethics Committee; A regional committee which has statutory powers to approve the carrying out of research studies across different UK National Health Service trusts.

NP Nurse Practitioner; a nurse with extended skills to assess and treat patients autonomously with certain minor conditions according to protocols

OHP Other health professionals; generic term for all non-ECP health professionals working in the emergency and unscheduled care settings included in our study.

OOH Out of hours; Time period when the majority of primary care health services in the UK are closed. Usually refers to the time period between 6pm and 8am.

OSCE Objective Structured Clinical Examination is an examination often used in medicine to test skills such as clinical examination, communication, medical procedures, prescribing and interpretation of results.

PCT Primary Care Trust; A local statutory UK National Health Service body which is responsible for the provision and management of primary care services within its locality.

PGD Patient Group Directions; documents which allow health professionals to legally prescribe drugs to patients.

PP Paramedic practitioner; An extended paramedic role developed to operate in ambulance service trusts

R&D Research and Development Approval; Approval given by National Health Service trusts allowing research activities to take place which involve staff and or patients from their trust.

WIC Walk-in-centre; is a primary care service providing treatment on a non-appointment basis for people with minor illnesses and injuries.

The Report

1 Introduction and Background to the Study

The Emergency Care Practitioner (ECP) role is a new extended role created in order to contribute a more appropriate response to patient needs in emergency and urgent care settings (Department of Health, 2005) and meet the workforce challenges facing the health service (Department of Health, 2000a). ECPs are specially trained and educated with knowledge and skills that could be utilised in the community in order to assess and treat minor illness and injury in primary or secondary care without necessarily referring the patient to other services (Joint Royal Colleges Ambulance Liaison Committee 2000).

The evaluation of new roles such as the ECP is challenging and requires new ways of measuring their effect. Research has to take into account the 'whole system effects' of a changing workforce innovation in the settings in question. This includes taking into account the effects on patients, services and the workforce themselves. This study has developed a 'whole systems' approach by applying established HSR methods of survey, interview and observation, utilising validated instruments to collect data from a range of role and organisational perspectives, integrated into a coherent mixed methodology framework unified around measuring the impact of the ECP role, and the generalisation of these results to the wider NHS.

The evaluation comprised 5 studies which used a combination of quantitative and qualitative methods which were integrated within a mixed methods framework.

The studies were as follows;

- A pragmatic quasi experimental multi-centre community intervention trial of patient and clinical outcomes in five matched pairs of ECP and non-ECP sites. The pragmatic trial examined the effectiveness of ECPs on patient and clinical outcomes (Section 5).
- An evaluation of the cost-effectiveness of ECPs on patient and clinical outcomes (Section 6).
- A notes review study to evaluate the quality and safety of care provided by ECPs in the five pairs of sites (Section 7).
- A survey of staff in the five matched pairs of sites in order to compare the experiences of ECPs with non-ECPs (Section 8).
- Qualitative interviews with ECP staff, other stakeholders working alongside or involved with ECPs, to explore the impact of ECP working on the practitioners and on service delivery (Section 9) and interviews with ECPs, non-ECPs and patients to compare how these different health professionals and patients perceive quality of care using repertory grid techniques (Section 10).

2 Policy Context and Literature Review

2.1 The need for developing new roles within the NHS

As demand for health care in the UK rises, the challenges become those of trying to meet demands in a patient-centred way whilst managing changes in the delivery of health care to improve the effectiveness and efficiency of services. This requires an increased level of understanding and cooperation between different health care professionals, provider organisations and patients. The changes mean reconsidering traditional roles and where appropriate, redefining professional roles, areas of responsibility and team structures, and renegotiating the boundaries between acute and community care.

Through the NHS 'Improving Working Lives' initiative the Department of Health aims to improve staff attitudes to their work by encouraging employing organisations to improve communication, implement flexible working patterns, and enhance career progression (Department of Health, 2000a). One example is a flexible approach to service delivery and patient care achieved by employing existing staff with extended roles to work within primary care, Emergency Departments (EDs), and the ambulance service. In this way, it is hoped that an enhanced career structure and opportunities will encourage experienced staff to remain within the NHS through developing their existing skills around delivering patient-focused care. The challenges around reconfiguration and implementation of new ways of working are especially present in the area of emergency and unscheduled health care where a demand-driven service has to be sufficiently flexible to adjust to an increased workload and limited resources whilst ensuring safe, effective and efficient delivery of care in a high profile service.

The NHS has faced increasing demand for emergency care in recent years; emergency calls to ambulance services have been rising steadily for a decade and in England increased by 6.3% from 2005-06 to 2006-07 (The Information Centre, 2007) and attendances at EDs rose by 5% between 2004-05 to 2006-07 (Department of Health, 2008). Emergency calls to the ambulance service in England in 2006-07 resulted in 80% of them receiving an emergency response arriving at the scene of the incident. Arrival on scene was achieved within 14-19 minutes 87.8% of the time. However, the need for this level of response for each call given that only 70 patients were conveyed to hospital for every 100 emergency incidents attended is questionable (The Information Centre, 2007). Evidence suggests that a significant proportion of users of emergency care do so inappropriately and either do not require any care or access a higher level of care than they need (Lowry et al, 1994; Victor et al, 1999). Many of the patients arriving at the ED by ambulance are discharged without referral (Pennycook et al, 1991; Volans, 1998) and therefore may not have required the services of a fully equipped ambulance. There is also evidence that under a quarter (22%) of ambulance dispatch codes may be appropriate for a non-emergency response or referral which equates to 12% of annual emergency calls in a typical UK ambulance service (Woollard, 2003). An Audit Commission report (Audit Commission, 1998) questioned the need for a fully crewed ambulance to attend all 999 calls and has suggested that

ambulance services should be allowed to decide who should be sent to each type of emergency and treat some patients at home without transfer to hospital. The government highlighted the necessity for ambulance services to address the needs of the majority of users of 999 services, who have neither life threatening or time critical emergencies (Department of Health, 2005).

Alongside this continued increase in demand for emergency care services, there have been developments affecting service delivery in the NHS. The introduction of the European Working Time Directive and the changes introduced by the General Medical Services (GMS) contract in April 2004 has meant that fewer doctors are available to provide 24 hour emergency and urgent care cover. As a result, providers such as primary care trusts (PCTs) have had to look to different types of provision for these services (including GP collaboratives and other health professional involvement such as nurse practitioners and paramedic practitioners).

Recently government policy has emphasised the need for the NHS to provide increased patient choice, ease of access and delivery of a high quality service (Department of Health, 2000b). This is relevant to providers of out of hours primary care services and emergency care services which need to develop new ways of meeting patient needs closer to home and work environments (Department of Health, 2001). In out of hours care, the onus has been on PCTs commissioning care from a wider range of service providers and providing integrated services involving health professionals from across primary, secondary and community settings (Department of Health, 2000c). In emergency care, ambulance services have had to consider new types of responses to those usually provided. Policy initiatives have meant local NHS organisations assuming responsibility for managing and monitoring how local services respond to non-urgent 999 ambulance calls (Department of Health, 2004).

2.2 The development and integration of new roles in the health service

There is limited evidence evaluating the impact of skill mix change and extended roles in the health service (Sibbald et al, 2004). Most of the work examines doctor-nurse substitution in primary and secondary care (Horrocks, 2002; Laurant, 2005). In emergency medicine, nurse practitioners have been shown to be as good as junior doctors in relation to accuracy of examination, adequacy of treatment or planned follow-up when seeing patients with minor injuries. However this study also found the costs of a nurse practitioner minor injury service to be greater (Sakr et al, 1999). A review of the impact of nurse practitioners treating minor medical problems in emergency medicine settings reported that they could reduce waiting times, lead to high patient satisfaction and produce a quality of care comparable to a mid-grade doctor (Carter et al, 2007). An analysis of nurse doctor-substitution in primary care found no appreciable differences between doctors and nurses in health outcomes for patients, process of care resource utilisation or cost (Laurant M et al, 2005). While there is some evidence that there is greater scope for increasing the role of nurses, relatively little is known about skill mix changes involving other health professionals including new roles (Buchan & Dal Poz, 2002). A systematic review assessing the extent to which primary-secondary care substitution was possible at the interface of emergency care services found that bringing primary care professionals into the ED may present cost savings, but there

was no clear evidence of effectiveness that changes to the workforce in one setting would necessarily apply to another (Roberts and May 1998).

2.2.1 New roles in emergency services

There is increasing evidence of the development of new types of responses by emergency care services in order to provide a more flexible approach to service delivery and utilising extended practitioner skills. In the UK significant changes have occurred recently with guidance from the NHS Plan which outlined greater opportunities for NHS staff to extend their roles (Department of Health, 2000b). It has been suggested that the development of pre-hospital care pathways may represent a way in which the increasing skills of paramedics could contribute to the ever-increasing demands for health care.

Ambulance services within the UK have investigated the use of alternative responses for non-life threatening 999 calls through numerous different schemes (Snooks et al, 2000; Mason et al, 2007a; Machen et al, 2007). The majority of ambulance services operate fast response vehicles and first responder schemes aimed at a timely response to life threatening calls.

Specific initiatives have included provision of telephone triage for non-life threatening calls by either bringing medically trained staff into ambulance control (Dale et al, 2003) or use of NHS Direct as an alternative pathway (Turner at al, 2006). These two studies suggested that further consideration was needed on patient acceptability, reliability, and cost consequences of such initiatives.

There have also been studies carried out examining new ways of assessing non-urgent 999 calls on scene. Studies in the US have evaluated triage decisions for the disposition of patients involving the utilisation of protocols or guidelines by existing ambulance staff (Gratton et al, 2003; Silvestri, 2002; Hauswald, 2002; Pointer, 2001; Schaefer, 2002; Schmidt et al, 2000). These studies have produced variable evidence of effectiveness, with some studies reporting under triage rates and unacceptably high subsequent hospital attendances (Silvestri et al, 2002; Hauswald, 2002; Schmidt et al, 2000; Pointer, 2001), but others reporting safe triage by paramedics (Gratton, 2003; Schaefer, 2002).

In the UK, a study looking at ambulance crews transporting patients to a minor injury unit using a protocol to guide them found that crews were transporting patients appropriately but only partial implantation of the service limited the impact of these findings (Snooks et al, 2004). The use of ‘treat and refer’ protocols for minor conditions has also been evaluated in the UK. A brief training period introduced the use of the protocols to allow patients to be left at home by crews with referral or self-care advice. The study found that compliance by crews with protocols was low and there was no impact on conveyance rates (NHS Executive, 2001).

Studies in the US have discussed the difficulties in identification by ambulance crews of cases eligible for community treatment (Kamper et al, 2001; Bissell, 1999). The former study reported that significant expenditure would be required in order to train and equip paramedics with the skills to triage these broad clinical condition groups appropriately which may not be cost-effective (Kamper et al, 2001). With regard to certain medical conditions, studies have shown that paramedic skills can be enhanced to assess and treat certain conditions in the community such as older patients with minor injury or illness (Mason et al, 2007a) wounds (Hale et al, 2000) and hypoglycaemia (Lerner et al, 2003). In addition, the

relative merits of a pre-hospital practitioner have been discussed in certain geographical areas such as rural locations in fulfilling a broader public health and primary care outreach role in the local community (O'Meara, 2003).

2.2.2 New roles in urgent and unscheduled primary care settings

PCTs as well as ambulance services are now commissioning a range of alternative provision for out of hours care (National Audit Office, 2006) due to the changes in the GMS contract and consistent with providing more integrated services (Department of Health, 2000c). These alternatives include provision from the ambulance service, NHS Direct and commercial providers utilising a wide range of operational models consisting of General Practictioner (GP)- run services with nurses and ECPs used for specific tasks such as telephone triage or home visits. However the extent of integrated working between PCTs and other healthcare services such as the ED and the ambulance service is still limited (National Audit Office, 2006).

The changes brought about by the new GMS contract and the requirement for enhanced services in primary care has meant that traditional GP tasks may be taken on by nurses and other health professionals (Leese, 2006). Research evidence about new ways of working in primary care out of hours is still very limited. Evaluation has been carried out into telephone triage by nurses (Latimer et al, 1998; Latimer et al, 2000). Integrating a nurse triage system into GP collaboratives found that nurses managing patients in this way were as safe and effective as existing GP models. The service was associated with a reduction in the number of GP consultations over the phone and home visits. A cost analysis found associated potential cost savings of the nurse triage system as a result of reducing GP workload and reducing emergency admissions to hospital (Latimer et al, 2000). A review of out of hours care in England recommended that patients calling their general practitioner out of hours should be automatically diverted to NHS Direct for initial assessment by telephone towards providing single call access to out of hours care (Department of Health, 2000c) although there have been concerns raised about the clinical safety of nurse triage (Giesen et al, 2007; Haddow et al, 2007). An observational study examined the extent of integrated working between GP out of hours services and NHS Direct in 31 GP co-operatives. The study found that 21 (68%) sites achieved integrated services, but that only nine (29%) achieved single call access for all patients. There was also evidence of an associated increase in calls to the 999 service as a result of the new system (Latimer et al, 2005). The patient view of primary care out of hours services is also limited although a study did report that patients are unaware of how out of hours services operate (Richards et al, 2007) whilst another reported no significant differences between satisfaction with practice based or cooperative GP provision (Shipman et al, 2000).

There is currently little evidence about effectiveness, safety and appropriateness of new health professionals operating in the emergency and unscheduled care services. Clearly there is the need for new skill mix arrangements to be examined in terms of effectiveness, patient acceptability, satisfaction and safety. The costs of the new services and the impact of workforce changes on other services also need to be evaluated.

2.3 Role of Emergency Care Practitioner in delivering emergency care in the UK

Evidence from studies looking at the extended roles of paramedics outlined above informed the report of the Joint Royal Colleges Ambulance Liaison Committee on the future role of paramedics and emphasised the need to train and educate a higher level of 'Practitioner in Emergency Care' with skills that could be utilised in the community (Joint Royal Colleges Ambulance Liaison Committee, 2000). As a result the Changing Workforce Programme (CWP), part of the NHS Modernisation Agency and the Department of Health set up 17 initial Emergency Care pilot sites and subsequent ECP trials in order to fulfil this brief. To maintain consistency with other professional groups, the development of other new roles, and to reflect that this role was not just open to paramedics, the title of the role was changed from practitioner in emergency care (PEC) to emergency care practitioners (ECP).

Each trial site was expected to test the role in three environments:

- Acute setting (ED, Minor Injury Unit, Walk-in-centre)
- Pre-hospital (Ambulance response)
- Primary Care (GP out of hours, GP in hours home visits)

2.3.1 ECP skills

ECPs are able to assess and treat minor illness and injuries in the community without necessarily transferring the patient to the ED. This is because they are trained to take a patient history and make a physical examination. They are also skilled in the management of minor illness and minor injury including the ordering of further investigations such as x-rays. They can also administer and supply medication in line with Patient Group Directions (PGD). In cases where further investigation or treatment is required, the ECPs have the relevant skills and pathways open to them to refer patients to other health and social care professionals, where appropriate.

The aim was to produce a role that is generic, with national standards such as a requirement for qualification through a standard route, undertaking agreed amounts of continuing professional development, and having a core set of competences with sufficient flexibility to respond to local service and patient need (Table 1). These individuals would be either targeted to incidents in which they would be likely to utilise their skills or rotate into hospital environments where their skills could be refreshed and maintained.

Table 1. Core ECP Skills

Cardiovascular system assessment
Respiratory system assessment
Gastrointestinal system assessment
Neurological system assessment
Urological system assessment
Musculoskeletal system assessment
Dermatological system assessment
ENT system assessment
Ophthalmology system assessment
Consultation / communication skills
Assessment of minor illness
Assessment of minor injury
Assessment of the paediatric patient
Assessment of the elderly patient
Assessment of the acutely disturbed patient
Pharmacology
Legal and ethical issues
Evidence based practice
Research and audit
Paramedic skills: scene safety
Paramedic skills: recognition of death
Paramedic skills: advanced life support
Paramedic skills: driving course D1 level

2.3.2 Ongoing development of the ECP role

Since the emergence of Emergency Care Practitioners the role has expanded rapidly and currently there are 25 schemes operational in England and Wales employing over 650 ECPs, with a further 210 in training (Skills for Health, 2007). The schemes are operational in a variety of service settings depending on the providers partnered to the ECP schemes initially and also changes in the way urgent and unscheduled care services have been configured at a local level (Mason et al, 2006a). Generally, ECPs are employed through the ambulance service trust, PCT or hospital trusts.

There is limited evidence on the impact of ECPs on emergency and unscheduled care services (Mason et al, 2006a; Mason et al, 2007b; Gray and Walker, 2008; Cooper et al, 2007). Early data evaluating ECPs suggests that there is a significant impact on ambulance transport rates to the ED. Routine audit data indicated that 54% of patient contacts with the ECP service did not require a referral to another health professional or use of emergency transport (Mason et al, 2006a) while data from another audit showed ECP non-conveyance rates of 62% (Cooper et al, 2007). A controlled study of emergency care practitioners in three service settings showed high rates (72.2%) of patients discharged without immediate referral to another provider (Mason et al, 2007b).

It is currently not clear in which operational service settings ECPs are most effective, although evidence shows that differences in disposal rates to hospital between ECPs and usual providers were significantly higher in the '999' setting than in out of hours or MIU services (Mason et al, 2007b). Data from another study of ECPs in the 999 setting showed reduced rates of admission for elderly patients with falls and patients with breathing difficulties seen by ECPs compared with admission rates for similar patients attending the ED (Gray and Walker, 2008).

Currently the evidence for the impact that ECPs are having in the emergency and urgent care system is scarce. Most studies are small and make no comparisons with standard or alternative service models. In addition, the cost-effectiveness, patient acceptability, patient safety and impact on subsequent health and help-seeking behaviour as a result of the ECP schemes have not been evaluated.

There is a need therefore for more methodologically rigorous studies of the quality and safety of ECP schemes, evaluated in a range of settings against alternative models of service provision and which take into account patient outcomes such as acceptability, satisfaction, health status and health service use. The cost implications of the schemes also need to be considered.

2.4 The challenges of integrating new workforces into the health service

The ECP role clearly represents an innovative development in the changing NHS workforce. The potential benefits of new forms of work organisation, especially changes in the nature of peoples' jobs to create more fulfilling and effective work, are considerable. For example, there is increasing evidence that expanded, empowered jobs can have a number of positive effects. Research in non-health care settings has shown that broadening employees' involvement can result in increased job satisfaction, improved performance (Manz and Sims, 1993), reduced absenteeism and turnover, reduced accident rates (Goodman, 1979), enhanced commitment, improved learning and development (Leach et al, 2003), a greater propensity to use initiative and be proactive (Frese et al, 1996; Parker et al, 1997) and enhanced organisational productivity (Patterson et al, 2004). However, as well as potential benefit there is also a danger that job changes may have a detrimental impact of staff effectiveness.

It has been shown that a number of factors may influence the relative success of implementing new roles within the workforce. There is limited evidence of direct association between the influences of organisational and safety climate, teamwork and leadership and quality of care outcomes within health care. Nevertheless it is possible to identify enough evidence

to suggest that these factors have an effect on performance and outcomes in health care and would be important to take into account when studying a changing workforce. A study which sought associations between organisational practice and clinical outcomes, demonstrated a linkage between good human resources practice (such as appraisal and training) and effective teamwork with reduction in measures of patient mortality (West et al, 2003). Another study recently demonstrated, in a non-health care setting, that organisational climate (e.g., skill development, concern for employee welfare) was significantly associated with productivity and profitability across 42 organisations, and that the relationship was mediated by employee job satisfaction (Patterson et al, 2004).

Job design theory offers a guide to what may be important to consider when developing new roles in the health service. Numerous studies have shown that job design is important for a range of individual and organisational outcomes (Morgeson & Humphrey, 2006). Theories of job design are largely concerned with the characteristics of a job that optimise individual motivation, wellbeing and performance.

Motivational theories of job design have been highly influential over the past thirty years. For example, a job characteristics model identified five aspects of work that are associated with greater job satisfaction and improved performance: autonomy (freedom within the role); skill variety (use of different skills); task identity (completion of an entire piece of work); task significance (impact of the job on others); and feedback (information on performance). The model posits that these characteristics promote higher levels of work motivation through critical psychological states such as experienced meaningfulness of work. It provides a framework for examining the effects that job characteristics have on employee outcomes such as satisfaction, productivity and intention to remain with an organisation (Hackman and Oldham, 1976).

A meta-analysis recently amalgamated the results of 30 years of job design research (Humphrey et al, 2007). The authors tested the effects of the five motivational job characteristics proposed in the model of job characteristics (Hackman and Oldham, 1976) as well as considering additional motivational work characteristics such as task variety (diversity of work tasks) and job complexity (intricacy and difficulty of the job). Analysis revealed strong support for the effects of the motivational characteristics tested in terms of the impact on job satisfaction, subjective performance, and with wellbeing outcomes such as stress and anxiety. The meta analysis also found that social factors are also important influences of behavioural and attitudinal outcomes. The quality of relationships at work, such as support from peers and supervisors, are important determinants of wellbeing and perceptions of meaningful work.

2.5 Challenges of evaluating new workforces in the health service

In order to successfully evaluate the new ECP role and the challenges it represents for the health service it is necessary to explore a number of different elements:

- The characteristics of the ECP role (e.g. degree of autonomy, control, role pressure and clarity, support)
- The HR systems supporting the role (e.g. training, appraisal, rewards)

- The impact of the above on ECPs' attitudes, well-being and performance.

Good research evidence is therefore needed to:

- Develop an appropriate methodological 'toolkit' for evaluating role substitution in dynamic service settings, taking quality, safety and acceptability into consideration.
- Ensure relevant economic appraisal with particular attention to 'cost consequences' including opportunity costs, training costs and re-investments of resource savings made.

Evaluating new ways of working requires new ways of measuring their effect. Individually randomised trials are not an appropriate methodological model to capture the changing relationships in the dynamic context of an NHS changing workforce agenda because randomising some patients but not others will fail to capture the whole system effect of the changing workforce. Randomising 'clusters' could overcome this difficulty. However cluster trials are not practical for evaluating ECPs because of the timescale needed to train and introduce ECPs from scratch in randomly chosen areas and to allow their working practices to mature, and issues around finding areas to agree at random not to introduce ECPs, militates strongly against such a design. This study has developed a 'whole systems' approach by applying established HSR methods of survey, interview and observation, and validated instruments to collect data from a range of role and organisational perspectives, integrated into a coherent mixed methodology framework unified around measuring the impact of the ECP role, and the generalisation of these results to the wider NHS.

3 Aims and Objectives

3.1 Introduction

This study aimed to use a mixture of quantitative and qualitative approaches to provide a comprehensive picture of the dynamics of the ECP in a real world setting. Quantitative data collected from patients and from health care professionals in intervention and the control sites allows statistical relationships to be established based on standardised variables that the ECP intervention has had a measurable impact in the areas where the new service is available. Our aim in using a qualitative approach is to complement the quantitative findings and contribute to the understanding of the underlying processes which may enable or impede the integration of the ECPs into the local health economy.

Primary data were collected from 1) the ECPs themselves, 2) Users of the ECP service and 3) other stakeholders, defined as the range of other professional groups involved through working contacts or affected by strategic or workforce changes brought about by the implementation of the ECP service. Additionally, routine clinical data on patient and service outcomes were analysed.

3.2 Aims

- To measure the effectiveness and cost effectiveness of Emergency Care Practitioner (ECP) schemes
- To measure patient satisfaction with care received from ECPs, as well as acceptability of the service
- To measure the appropriateness and safety of care received from ECPs
- To assess the impact of the new role on ECPs and other health care providers in emergency and urgent care settings
- To inform decisions about the management of change strategies and the integration of new roles within the wider NHS.

3.3 Objectives

To conduct a pragmatic quasi experimental multi-centre community intervention trial in five pairs of sites (ECP and non ECP) to compare the effectiveness of ECPs with matched standard non-ECP health professionals in emergency and urgent care settings. Including;

- An evaluation of the patient management and clinical outcomes of emergency and acute illness episodes by analysing data on clinical care outcomes extracted from clinical records
- A survey of patients to measure satisfaction with the care they received, their health status and their use of healthcare services following the acute illness episode
- To carry out a notes review study of a selection of the clinical notes in order to evaluate quality and safety of care

- To evaluate the service impact, including the cost implications of ECPs on emergency and urgent care services by collection and analysis of routine service data.

To assess the role of ECPs in terms of key workforce outcomes such as characteristics of the role, opportunity for skill use, role clarity and job satisfaction using;

- A survey of all ECPs and a matched control group of non-ECP health professionals in each pair of ECP and non-ECP sites.

To carry out an in depth assessment of the underlying experiences of ECPs and the processes which affect the integration of ECPs into the emergency and urgent care workforce by;

- Carrying out face to face interviews with ECPs to investigate key workforce components such as working relationships with other health professionals, integration with other health providers, satisfaction, confidence in the role and future career progression
- Telephone interviews with other health professionals and stakeholders to investigate triggers and barriers in integrating the role into emergency and urgent care settings.

To investigate the key components of quality of care from the perspective of ECPs, other health professionals and users by:

- Conducting repertory group interviews with selected ECPs, other health professionals and users.

4 Overview

4.1 Introduction

This section represents an overview of the study methods used in the evaluation. The evaluation comprised a number of discrete studies that were integrated within a mixed methods framework to yield a multi-factorial perspective of ECP working. Each subsequent section in the report will address the specific methodology applied to the discrete studies in more detail. A summary of the component studies is summarised in Table 2 below.

Table 2. Component studies of evaluation

Component study	Main features
Pragmatic quasi experimental multi-centre community intervention trial of patient and clinical outcomes	• A patient satisfaction survey • Analysis of patient management and clinical outcomes using routine data and clinical records
Cost effectiveness study	• A cost analysis using routine and patient survey data
Notes review of quality and safety of care	• Random sample of clinical records rated for quality and safety by emergency physicians
Survey of staff	• Survey of ECP and non-ECP staff to measure experiences in their role quantitatively
Qualitative studies	• Interviews with ECPs, OHPs, and also with strategic leads • Repertory grid interviews with staff and patients to compare the two groups' perceptions of quality of care

4.2 Sites included in the study

All 17 geographical areas known to be hosting ECP schemes in the country were contacted by letter or email by the research team inviting expressions of interest. Thirteen schemes expressed an interest in the study and were recontacted to collect details about the scheme via a questionnaire. Nine sites subsequently returned the questionnaire and visits were carried out with all sites in order to determine suitability for inclusion in the study as an intervention site. The ECP sites were selected based on the following criteria:

- Ability to provide the required data for the study
- Ability to suggest suitable matched control sites where ECP schemes were not operational
- A willingness on behalf of the proposed intervention site to assist the research team in recruiting these control sites for the study
- Represented ECPs working across a range of service settings

Six pairs of sites were initially recruited for inclusion in the study (six intervention or ECP sites and six control or non-ECP sites). One intervention site was subsequently unable to return sufficient data to be included in the analysis and this site and its paired control had to be removed from the study. Thus five pairs of sites were included in the final analysis and results (five ECP sites and five non-ECP sites). There were a variety of models of service delivery within the ECP sites included in the study which, along with the non-ECP sites are summarised in Table 3. For a more detailed description of the ECP sites including background of staff, management and support structure please see Appendix 1.

Table 3. Pairs of sites included in the study

Pair	Intervention site (ECP Site)	Services included in scheme	Matched control site (non-ECP site)	Identified matched services
1	Site 1a Urban	ECPs working as single responder to 999 calls	Site 1b Urban	Ambulances crewed by standard paramedic/technician response responding to 999 calls
2	Site 2a Urban	ECPs responding to direct calls to service from nursing and residential homes	Site 2b Urban/rural	Ambulance crewed by standard paramedic/technician response responding to 999 calls from nursing and residential homes
		ECPs working in a minor injury unit based in a shopping centre		Emergency nurse practitioners working in minor injury unit based in community hospital
3	Site 3a Urban	ECPs working in a GP led primary care out of hours (OOHs) service	Site 3b Urban	GPs led out of hours (OOHs) primary care service
4	Site 4a Mainly rural Pop.	ECP led 24 hour Urgent Care Centre based in a community hospital	Site 4b Mainly rural	Nurse led 24 hour casualty based in a small infirmary
5	Site 5a Urban/rural	ECPs working alongside nurse practitioners in a walk-in-centre (WIC)	Site 5b Urban/rural	Nurse practitioner led walk-in-centre (WIC)
		ECPs working alongside nurse practitioner in minors clinic in an emergency department (ED)		Nurse practitioner led minors clinic within an emergency department (ED)
		ECPs working as single responder to 999 calls (NOT evaluated)		Standard paramedic / technician ambulance responding to 999 calls (NOT evaluated)

4.3 Ethical and Research Governance approval

The research team applied through the Multi-centre Research Ethics Committee (MREC) for ethical approval and this was granted following

review by Scottish MREC (06/MRE00/20). Research Governance (R&D) applications proceeded with each of the organisations consenting to participate in the study. As ECPs were frequently working across more than one healthcare setting in each site, data were collected across several provider organisations.

4.4 Inclusion of cases

The participants were:

1) Patients
2) ECPs
3) Other health professionals
3) Other 'key' stakeholders (strategic leads).

Patients were those seeking emergency or urgent healthcare and who were eligible to be seen by ECPs. ECPs were all those operational in the ECP sites. Other health professionals were those working alongside ECPs in the ECP sites and those working in the non-ECP sites. 'Other stakeholders' were local and national professionals who had a strategic stake in ECP scheme development or management.

4.5 Pragmatic quasi experimental multi centre community intervention trial of patient and clinical outcomes

4.5.1 Overview

We carried out a pragmatic quasi experimental multi-centre community intervention trial of ECPs. Data on patient management, clinical and service outcomes were collected from routine data and clinical records. Patient satisfaction, health status and health service use was collected from questionnaire surveys of patients. The costs of integrating ECP services into the health economy were collected from both routine data and patient questionnaire surveys. The above data were collected from the five matched pairs of sites.

4.5.2 Inclusion of patients

Within each participating matched pair of sites all patients with an acute health episode that were eligible to be seen by ECPs 'in their routine practice' in the ECP paired site AND who presented to our eligible study services were included. Eligible ECP patients were identified from routine data collected by each site prior to the study commencing and following discussions with local and national ECP leads. These patients were recruited from the five pairs of sites during selected sample periods over 15 months, from May 2006 to August 2007.

4.5.3 Recruitment and consent of patients

Eligible patients were identified as soon as possible after they had presented to participating services in each pair of sites. All eligible patients were included in the analysis of anonymised patient management and clinical data. Informed consent was required from patients prior to recruitment into the questionnaire surveys of patients. Ethical approval to contact patients

from the University of Sheffield for recruitment into the patient questionnaire survey was obtained from Scottish MREC (06/MRE00/20).

4.5.4 Patient management, clinical and service outcomes data collection

Anonymised patient management, clinical and service level data relating to the acute health episode was collected from the five pairs of matched sites. Data collected relating to the emergency or acute episode included the following; demographic details of the patient (age and sex), mode of presentation to services, presenting complaint, patient times, all investigations and treatments provided, diagnosis and disposition of patients.

4.5.5 Patient survey data collection

Patients were surveyed using a self administered postal questionnaire sent to all eligible patients at seven and 28 days after the acute health episode. The questionnaires used in this study were adapted from ones used previously in surveying patients in contact with emergency care services (Mason et al, 2007a). They included a number of data items on patient satisfaction and acceptability in relation to services (seven day questionnaire) and items to capture subsequent related health service use (28 day questionnaire). Both questionnaires included the well validated EQ-5D (The Euroquol Group, 1990) to measure health status of patients both at seven and 28 days after the acute health episode.

4.5.6 Economic Evaluation

An economic analysis estimated the total costs to the NHS of the provision of the ECP service(s) in each location relative to the non-ECP service(s) and the consequences of the scheme on the wider NHS (e.g. in the form of subsequent health care contacts related to the initial episode). Data on the use of the health service was collected for each patient using patient-completed 28 day questionnaires. Costs were calculated using routine data collected from the five pairs of sites and unit costs from national sources, including NHS Reference Costs (Department of Health, 2007), local unit costs obtained from trial locations and using health outcomes data from the EQ-5D, a generic preference based measure of health related quality of life, administered using the 28 day questionnaire (The Euroquol Group, 1990).

4.6 Notes review of quality and safety of care

Patient quality and safety of care was assessed by a review of a sample of the clinical records of patients included in the pragmatic multi-centre community intervention trial. The methods used in the notes review were adapted from a national methodological study of this approach to evaluating quality and safety (Hutchinson et al, 2008a).

A random sample of clinical records of patients receiving emergency and unscheduled care by an ECP (ECP sites), or whose presenting health problem, against defined criteria would have been eligible to be attended by an ECP (non-ECP sites) were selected in each of the five matched pairs of sites. A total of 480 clinical records were randomly selected from the five

pairs of sites and the quality and safety of care provided by ECPs was compared with non-ECPs. The clinical notes were reviewed and rated for quality by seven emergency medicine physicians trained in the methods of notes review and blinded to the nature of the study. Using an electronic 'Access' review form, the reviewers rated the quality of care actually provided on three key aspects of care (assessment of the clinical problem; investigations performed; patient management) and overall care on a numerical scale (1=unsatisfactory, 6=very best care). Reviewers were provided with guidance to aid consistency in the interpretation of the numerical quality of care scales (Hutchinson et al, 2008b). In addition, reviewers were asked to provide textual comments regarding the quality of care received by the patient overall.

4.7 Staff survey

A questionnaire survey of ECP staff and non-ECP health professionals in the five pairs of sites was conducted in order to evaluate role characteristics and workforce outcomes such as satisfaction and well-being. All ECPs and non-ECPs who were working in matched emergency and unscheduled care services in the five pairs were invited to participate. Staff were contacted by post and sent a letter inviting them to participate in the study. An information leaflet explaining the study, a consent form and the questionnaire were enclosed. Staff returning a completed consent form and questionnaire were included in the analysis of staff data. The questionnaire measure was designed with reference to job design theory (Morgeson & Humphrey 2006), by a member of the research team with expertise in the psychological aspects of designing new roles in healthcare settings. The aim of the survey was to provide an understanding of the potential differences in job perceptions and attitudes that existed between ECPs and non-ECPs on key motivational aspects of working in their roles.

4.8 Qualitative studies

Three qualitative studies were undertaken to evaluate the workforce issues perceived to be enabling or impeding the integration of ECPs into the local health provider economy, to elicit how staff and patients of health services perceived the quality of patient care, and to place the results within the context of local and national policy.

The methods of data collection used were: 1) semi-structured face-to-face 2) telephone interviews, and 3) structured interviews using repertory grid techniques.

4.8.1 Interviews with ECPs and OHPs

Interviews with ECPs and other health professionals (OHPs) from each of the five ECP sites were conducted. The interviews with ECPs were conducted face to face. Participants were recruited opportunistically from the respondents to the staff survey. The ECP interview schedule was designed to elicit their experiences of the role in terms of impact on their personal and professional development, integration and impact on the health economy.

The interviews with OHPs were conducted by telephone. Potential OHP participants were identified opportunistically through study contacts in the sites. The achieved dataset included views from the range of other

professional groups working closely with ECPs or whose own role had been influenced in some way by ECP working. The schedule used in the telephone interviews focused on working relationships between themselves and ECPs, integration into urgent and emergency care settings and the future direction for the ECP role.

4.8.2 Repertory grid interviews with staff and recent users

Repertory grid face to face interviews with staff (ECPs and other health professionals) and users of ECP services from three pairs of sites were conducted. Staff and users were sampled opportunistically from respondents to the staff survey and the patient survey respectively. The repertory grid method was used to compare how the different staff and users perceived quality of care. The interview method specifically explored the similarities and differences between ECPs, other health professionals and patients, in what factors they associate with 'superior' and 'inferior' quality of care.

4.8.3 Telephone Interviews with national strategic leads

A small number of telephone interviews were undertaken with individuals at a local and national level who had a strategic influence in the current and future direction of the ECP role. The strategic leads were identified opportunistically through the national ECP lead who was a member of the study steering committee. The interviews were conducted after preliminary analysis of the study data had been undertaken. A semi structured interview schedule was designed to elicit opinion on how the role was incorporated into the strategic planning of local and national services. The schedule was also designed to feed back some of the preliminary findings of the study and to discuss their implications for the future development of the role.

4.9 Statistical Issues

4.9.1 Sample Size

The proposed study was designed to evaluate the impact of ECP schemes for patients, professionals and services. There is no primary outcome by which the 'success' of the new role could be determined. Rather this was a multi-dimensional assessment using several quantitative indicators as well as qualitative assessments integrated within a coherent methodological framework. Nevertheless, if major changes existed in satisfaction, the design was sufficiently sensitive to detect them. Consequently we collected information on n=600 ECP and n=600 non-ECP patients in total across the participating pairs of sites which gave 90% power at p=0.01 to detect effect sizes of 0.3SD assuming a response rate to the questionnaires of 50% and adjusting for case-mix differences in potential confounders such as age and sex.

4.9.2 Data Analysis

Outcome measures will be compared between individual ECP patients and non-ECP controls in matched sites. This will be done as an overall

comparison and then as a within-pair comparison. The risk difference of the outcome occurring will be measured using a random effects analysis. This difference describes the absolute change in risk that is attributable to the intervention sites when compared with the control sites. A measure of heterogeneity across the five pairs of sites provides an ability to comment on whether the overall results for each outcome are meaningful. Results are displayed graphically and as a percentage difference (with 95% confidence intervals) in the outcome occurring in the intervention sites when compared with the control sites. In all the analyses, significance was taken as $p<0.05$.

4.9.3 Notes review of safety and quality of care

Data were analysed using the SPSS Version 14 statistical package. Mean scores were calculated for overall quality of care and the three key aspects of care (assessment of the clinical problem; investigations performed; patient management) and the scores compared for ECP and non-ECP records. The extent of reliability between reviewers was assessed by examining inter-rater reliability and intra-rater consistency (whether reviewers were internally consistent in their ratings) using Intraclass Correlation Coefficients and Pearson Correlation Coefficients respectively.

4.9.4 Staff survey

An average measure (usually the mean) was used to compare the outcomes between ECPs and non-ECPs for the different job characteristics and work related outcomes included in the questionnaire. Mean (or median) scores were taken across each subset of items to give a single measure for each respondent on job characteristics and work related outcomes. Scores on the outcomes were then compared between ECPs and non-ECPs using independent group t tests. Investigation of the effect of the pairs of sites on outcomes was also carried out. Examination of the effect of differences in key outcome variables between ECPs and non-ECP in the five paired sites was analysed controlling for potentially mediating job characteristic variables.

4.9.5 Qualitative interviews

The interviews with ECPs and other health and stakeholder professionals were recorded with the consent of the participants. The files were transcribed and the subsequent analyses followed a simple thematic approach conducted in accordance with the principles of framework for applied policy research (Ritchie and Spencer, 1995) using appropriate manual coding techniques and software.

The data collection sheets from the repertory grid interviews conducted with ECP and non-ECP staff, and recent users of ECP services, were coded thematically enabling a template of the emergent themes to be developed. The themes were categorised further and data were analysed at both group (ECP and non-ECP) and aggregate level.

4.10 Main Outputs

There were a range of different outcomes which we used for this study, as the different components of the study were integrated within a mixed methods framework in order to provide a multi-dimensional perspective of ECP schemes.

Patient Outcomes:

- Patient experiences and satisfaction with their illness episode using the seven and 28 day follow-up questionnaires.
- Patient management and clinical outcomes at the time of their acute illness episode using routine clinical data.
- Patient health status measured at seven days and 28 days using the EQ-5D (The Euroquol Group 1990).
- Quality and safety of care from a review of medical notes.

Workforce Outcomes:

- Impact of the role on the ECPs themselves.
- Impact of the ECP role on levels of well-being, job satisfaction, attitudes about teamworking and organisational culture of other health professionals involved in the delivery of emergency and unscheduled care.

Service Outcomes:

- Strategic impact of the role in terms of its development and the future delivery of emergency and unscheduled care.
- Economic evaluation of the ECP service by recording and costing all relevant resource use and measuring effectiveness in accordance with established economic methods.

Research Outcomes

- Identification of methodologies for evaluating role substitution in health care, economic appraisal and system level impact.
- Recommendations for future research into role substitution in health care.

4.11 Pilot data collection

4.11.1Aims and objectives

A pilot study was undertaken in pair one of our study sites to test the practicality of our intended methods for identifying and recruiting eligible patients to the pragmatic multi-centre community intervention trial. The study also piloted the methods of contacting and consenting patients to the questionnaire survey. Finally the acceptability of the study questionnaire to patients was assessed.

4.11.2Methods

Following confirmation of ethical and R&D approval approximately 50 ECP and 50 non-ECP patients were recruited from the site pair. The matched services in which ECPs and non-ECPs were operational within the pair, were 999 ambulance services. The ECP and non-ECP sites were within the same ambulance service but drawn from different but comparable localities within the service.

A sample period of two consecutive days was selected for the pilot data collection in June 2006. An electronic patient activity log was obtained from

the ambulance service that contained all patient activity for this period for both sites in the pair.

Within the matched site pair all patients with an acute health episode that were eligible to be seen by ECPs 'in their routine practice' in the ECP paired site were included. Eligible ECP calls were identified from the ECP site by reference to ECP response identifiers (known as ECP calls signs) contained in the activity data. The control calls from the non-ECP site were identified by selecting all calls responded to by the non-ECP providers, excluding those patients not eligible to be seen by ECPs.

In order to test the feasibility of the proposed methods for the patient survey a letter of invitation, study information leaflet, consent form and pilot questionnaire was sent to each of the eligible patients.

4.11.3Results

Overall, 116 eligible patients were identified for the pilot study (see Table 4). Identification of the ECP and non-ECP pilot sample was successful and demonstrated that a comprehensive, consecutive sample of ECP patients and a matched control sample could be collected using routine service data.

While the response rate to the questionnaire survey was low at 22%, the questionnaires returned were all completed correctly and there were no amendments required for the study proper.

Table 4. Included pilot study cases

Pair	Intervention site (ECP Scheme)	Patients recruited (N)	Response rate to seven day questionnaire	Matched control site	Patients recruited (N)	Response rate to seven day questionnaire
1	Site 1a ECPs working as single responder to 999 calls	66	22%	Site 1b Ambulances crewed by standard paramedic response responding to 999 calls	50	22%

5 Pragmatic quasi experimental multi-centre community intervention trial of patient and clinical outcomes.

5.1 Introduction

Currently the evidence for the impact that ECPs are having in the emergency and urgent care system is scarce. Most studies are small and make no comparisons with standard or alternative service models. In addition, the cost-effectiveness, patient acceptability, patient safety and impact on subsequent health and help-seeking behaviour as a result of the ECP schemes have not been evaluated.

There is a need therefore for more methodologically rigorous studies of the quality and safety of ECP schemes, evaluated in a range of settings against alternative models of service provision and which take into account patient outcomes such as acceptability, satisfaction, health status and health service use. The cost implications of the schemes also need to be considered.

5.2 Aims and objectives

This was a pragmatic quasi experimental multi-site community intervention trial of Emergency Care Practitioner schemes (ECPs). Data on patient management and clinical outcomes, patient satisfaction, health status and health service use were collected from the five pairs of sites. This part of the study was undertaken in order to evaluate:

- Effectiveness and cost effectiveness of ECP care by analysing patient management and clinical outcomes relating to an acute health episode
- Patient satisfaction with and acceptability of ECP services following the acute health episode
- Health status and health and social care use after initial contact with the emergency or unscheduled care services for the original acute health episode.

5.3 Methods

Patient management and clinical data were collected from routine data sources and clinical records. Patient satisfaction with services, health outcomes and use of services was collected through postal questionnaires at seven and 28 days. Information on the costs of integrating ECP services into existing emergency and urgent care settings was collected from a combination of the above data sources.

5.3.1 Ethical and Research Governance approval

The research team applied through the Multi-centre Research Ethics Committee (MREC) for ethical approval and this was granted following

review by Scottish MREC (06/MRE00/20). Ethical approval was obtained to collect anonymised patient management and clinical outcomes data relating to all trial acute health episodes. Approval was also given to the University of Sheffield to obtain the identifiable details of all eligible patients in the participating paired sites and to contact the patients regarding participation in the questionnaire patient survey directly from the research team at the University. Identification and consent of eligible patients centrally by the University of Sheffield research team was considered crucial to the validity of the study, as the paired sites included a range of services from the emergency and urgent care setting and a consistent approach to identification, contact and recruitment of eligible patients was especially challenging in this study design.

Research Governance (R&D) applications proceeded within each of the trusts responsible for governance of research in the matched services within the paired sites. As ECPs were frequently working across more than one healthcare setting in each site there was sometimes the need for multiple research governance applications within the site pairs. Overall R&D approval was given by all 18 healthcare trusts approached in the ten sites. There were significant challenges and delays in gaining R&D approval in two sites and approval was granted on the proviso that the original methods of data collection detailed in the ethics application were amended. This is discussed in more detail later in this section.

5.3.2 Included services

Each of the five participating ECP sites in the study were configured differently and within each site, the ECP service was comprised of different individual services such as 999, MIU, OOH etc (see Table 5). Some of these individual services comprised only a very small part of the overall ECP service. For example, in pair one, ECPs occasionally rotated through an MIU on an ad-hoc basis. As a result, the number of patients ECPs saw in the MIU was only a very small proportion of the monthly patient caseload of this ECP service as a whole.

As this was a pragmatic community intervention trial to evaluate the impact of ECP working on urgent and emergency care services, individual ECP services, where ECPs saw a very small proportion of their monthly caseload, were not included in the trial. In such individual services, the ECPs were unlikely to have a discernible impact on that particular setting. Instead, in each site, a process of selection of individual ECP services for inclusion in the trial was undertaken. The individual ECP services we included were called ‘study eligible services’.

In order for individual ECP services to be included in the trial, as ‘study eligible services,’ a pragmatic decision was made that they needed to comprise at least 25% of the total ECP service monthly patient caseload in each site. We set this minimum proportion at 25%, as this would produce a total of at least 150 patients from each included service towards the initial sample size target of n=600 for each ECP site. Eligible services were selected prior to commencement of data collection using current audit data routinely produced by each service.

Across the five ECP sites, ECPs were operational in a total of 16 services. (See table 5). Ten individual ECP services met our criteria and comprised at least 25% of total patients seen within their ECP service as a whole. In one of these 10 ECP services however (999 service in pair 3a), the ECPs were primarily being used as paramedic first responders and therefore did not utilise their ECP skills. This individual service was therefore excluded from

the trial. Six individual services did not fulfil the inclusion criteria, by failing to reach the 25% threshold proportion of total patients seen within their ECP service as a whole and were excluded. (See Table 5).

For final inclusion in the trial, the remaining nine 'study eligible' ECP services required a control service, where ECPs were not operational, identified and recruited from the matched non-ECP sites. In two ECP sites, matched control services where ECPs were not operational could not be recruited and thus the eligible ECP services were not included in the trial (GP In-hours home visits in pair 2a, and 999 service in pair 5a). Thus, seven individual ECP services within the five participating sites were ultimately included (See table 5).

Table 5. : Selection of eligible ECP services for study

Pair	Site	Services	'Study eligible' service (Threshold of 25% monthly total patients seen in service)	Control service found	Service included in evaluation
1	1a	999	Yes	Yes	Yes
		OOHs	No	N/A	No
		MIU	No	N/A	No
2	2a	Care direct	Yes	Yes	Yes
		GP home visits (In hours)	Yes	No	No
		GP home visits (OOHs)	No	N/A	No
		MIU	Yes	Yes	Yes
		Custody suites	No	No	No
3	3a	OOHs	Yes	Yes	Yes
		999	N/A	N/A	No
		MIU	No	N/A	No
		ED	No	N/A	No
4	4a	Urgent Care	Yes	Yes	Yes
5	5a	999	Yes	No	No
		ED	Yes	Yes	Yes
		MIU	Yes	Yes	Yes

5.3.3 Inclusion of eligible cases

Within each participating pair of sites all patients with emergency or urgent presenting complaints that were eligible to be seen by ECPs 'in their routine practice' in the ECP site AND who presented to our eligible study services were included. Eligible ECP patients were identified from routine data

collected by each site prior to the study commencing and following discussions with local and national ECP leads.

5.3.4 Exclusion of cases

In each matched pair of sites, cases which were not eligible to be seen by an ECP were excluded from the study. In the non-ECP sites patients eligible to be seen by ECPs but who presented at times when the ECP service was not operational in the ECP site were also excluded.

5.3.5 Sample periods

Following receipt of research governance approval, the matched paired sites commenced patient recruitment at the same time with the aim of continuing recruitment until the required sample size had been achieved in both sites. Eligible services within the ECP and non-ECP site were sampled over the same time period. Sampling within matched services was based on the times the ECP service was active in that setting. Wherever possible, identical sample periods were selected in the matched pairs for recruitment of patients to the trial and each day when ECP services were operational was sampled. The total patient sample was recruited from the five pairs of sites during the selected sample periods over 15 months, from May 2006 to August 2007.

In some of the paired sites there was a large disparity in terms of the numbers of patients seen between eligible services in the ECP and non-ECP sites (Pairs three, four and five). This was due to issues such as smaller numbers of ECPs relative to non-ECPs operating in the services or differences in the relative sizes of the services. To have identical sampling from such sites would have inevitably led to wide divergence between the numbers of patients recruited to the ECP and non-ECP pairs. In these instances, in the busier services, 'eligible days' were selected when patient sampling took place. These 'eligible days' were selected to ensure a representative spread of weekdays and weekend days were sampled across the sample period. The selection of study eligible days in services with a much higher throughput of patients ensured that there was reasonable equity in the numbers of patients recruited to the ECP and non-ECP arms of the trial.

5.3.6 Identification of cases

Eligible patients were identified as soon as possible after they had presented to participating services in each of the five matched pairs of sites. Where possible patients were identified from electronic activity data collected by participating services that contained details of all patients presenting to those services during the relevant sample periods. Details of the sample data sources, patient eligibility criteria and sample periods can be found in Table 6 below. To identify eligible patients we required data on key variables:

- demographic data – including name, address, date of birth
- mode of presentation (e.g self present, 999 calls, GP referral)
- Date of presentation
- presenting complaint

Staff in the participating services uploaded the patient activity data during our study sample periods and sent it by post via a secure courier service or emailed it using password protected files on a twice weekly basis.

In some services in the matched paired sites electronic activity data were not routinely collected by the provider organisations.. In these instances the research team designed a paper activity proforma that included the key data fields outlined above. A member of staff either already working in the relevant service or a temporary member of staff employed locally but funded by the study manually recorded the key data and then forwarded it by secure courier to the research team on a twice weekly basis. Weekly checks were made of the activity proforma by the study team and study contacts to ensure that all eligible patients were being identified and contacted correctly.

Table 6. Details of sampling in included services

Pair	ECP Intervention Services	Identified matched Control services	Sample data source		Patient eligibility criteria	Sample period	Sample period details	
	a	b	a	b			a	b
1	999	999	999 CAD	999 CAD	All 999 calls	22/6/06 – 10/07/06	Consecutive calls for each paired site	
2	Care direct	999	Paper activity record	999 CAD	All ECP calls All 999 calls from nursing homes	13/12/06 – 14/4/07	Consecutive calls for each paired site	
	MIU	MIU	Paper activity record	Paper activity record	All calls	1/1/07 – 14/4/07	Consecutive calls in ECP MIU working hours (Mon – Fri 9am-5pm)	
3	GP OOHs	GP OOHs	Paper activity record	Electronic service record	All calls excluding children under 18 months, mental health & gynaecology	1/12/06 – 17/3/07	Consecutive calls	1 day sampled per week
4	24/7 Urgent care centre	24/7 hospital 'casualty'	Paper activity record	Electronic service record	All attendances	18/5/07 – 5/6/07	Consecutive calls	5 days sampled in total
5	WIC	WIC	Paper activity record	Paper activity record	All attendances	18/6/07 – 22/8/07	Consecutive calls	1 day sampled per week
	ED	ED	Paper activity record	Electronic service record	All attendances	18/6/07 – 22/8/07	Consecutive calls	1 day sampled per week

5.3.7 Recruitment of patients

Patient management and clinical outcomes study

All patients who were identified by the study team as eligible for the study were included for the study of patient management clinical outcomes. Within the matched site pair all patients with an acute health episode that were eligible to be seen by ECPs 'in their routine practice' in the ECP site were included.

Patient questionnaire study

The questionnaire study consisted of two parts, a seven day questionnaire of patient satisfaction with the service and a 28 day follow up questionnaire of subsequent use of health services. Contact and consent of eligible patients to the questionnaire study was undertaken centrally from the University of Sheffield. Eligible study patients were contacted by the research team as soon as possible after their acute health episode, to ensure that their memory of the episode was clear. Patients were sent a letter inviting them to participate in the questionnaire study, along with a consent form, information leaflet and the seven day patient satisfaction questionnaire (Copies of the letter of invitation to patients, patient information leaflet, consent form and questionnaires can be found in Appendices 2-4).

All eligible patients were contacted except:

- those under the age of 16 when the consent forms and questionnaire were addressed to the parent or guardian of the named child
- if the presenting complaint showed the patient to be suffering from a serious illness or where there were issues apparently of a sensitive nature, then the patient was not recruited to the questionnaire part of the study.

The information leaflet explained the purpose of the questionnaire study and detailed how patients would be surveyed twice, at seven days for their views on satisfaction and acceptability of the service and at 28 days about their subsequent use of health services. The information leaflet and consent form included assurances to the patient that taking part in the study was voluntary and would not affect the future care they received. Those patients who did not want to take part in the patient survey study were asked to return the blank questionnaire and forms in an enclosed pre-paid envelope provided.

Patients who returned the completed questionnaire and consent form were considered as consenting to take part in the questionnaire study. Patients who notified the research team that they did not want to take part in the study by either returning a blank questionnaire or by phoning the project officer were excluded from the patient questionnaire survey and were not subsequently sent a follow up questionnaire. If after a period of two weeks we did not receive either a completed or blank questionnaire (or any other form of contact such as a telephone call) one reminder seven day questionnaire was sent.

The 28 day follow up questionnaire was sent to all patients eligible to receive a questionnaire who had not withdrawn from the study during administration of the seven day questionnaire. One reminder questionnaire was sent to these patients if no form of reply had been received after two weeks. Those patients who had not replied to the original seven day

questionnaire were still sent a follow up questionnaire at 28 days and the reminder if necessary.

5.3.8 Alternative identification and recruitment of patients

As mentioned previously, R&D organisations from two sites objected to the research team receiving patient identifiable information for the purpose of contacting and consenting patients to the questionnaire study. For these sites identification of eligible patients and the contact and consent of patients into the questionnaire survey was carried out by local service staff or by locally employed temporary staff paid for by the study as outlined above.

5.3.9 Information recorded

a) Clinical outcomes study

Comprehensive details of the management and clinical outcomes at the time of the patient acute health episode were collected in order to evaluate clinical effectiveness of ECPs. In some instances the required data on patient outcomes could be provided entirely from electronic routine service sources. If sufficient data could not be provided electronically then we obtained a copy of the paper clinical record. The details we required for all patients in the study were as follows;

- mode of presentation (how the patient presented to the service, such as 999 call, self present, GP referral)
- incident location (e.g home, public place etc)
- comprehensive details of the clinical assessment (presenting complaint, all investigations performed, all treatments given, disposal and discharge diagnosis)

b) Service level data collection

Analysis of routinely collected data submitted from each of the paired sites compared performance amongst eligible patients at a service level over the study periods in relation to:

- times relating to the incident
- treatments provided
- investigations undertaken
- patient disposal

c) Seven day self administered postal patient questionnaire

The seven day questionnaire was developed based on a measure used in a previous study (Mason et al, 2007a). The questionnaire was primarily developed to measure acceptability of services to patients and satisfaction. It contains nine statements relating to the patient experience of the service to which respondents rated their agreement on a five point Likert scale ranging from ‘strongly agree’ to ‘strongly disagree’. There was an item on overall satisfaction with the service they received, also rated on a five point scale ranging from ‘very satisfied’ to ‘not satisfied at all’. In addition descriptive items on the incident such as how the patient accessed the service, place of residence and what happened to them after the initial

contact episode were included. Finally a well validated measure of patient health status the EQ-5D was included. The EQ-5D measure is applicable to a wide range of health conditions and treatments, it provides a simple descriptive profile and a single index value for health status and can be used as a 'stand alone' measure.

d) 28 day self administered postal patient questionnaire

A follow up questionnaire was designed, adapted from previous studies involving the research team (Mason et al, 2007a). The questionnaire was designed to collect a record of all related health service contacts experienced by the patient since the initial acute health episode to allow a comparison of health contacts with services between ECP patients and patients seen by non-ECP providers. The questionnaire included a section for each type of service accessed (GP, district nurse/health visitor, ED etc) and asked the patient if they had contacted that service about the same initial acute health episode and the number of times they had done so. This follow up questionnaire also included a repeated EQ-5D measure of health status.

5.3.10 Data handling

Databases were designed by the research team for storing all data relating to the acute health episode using Access 2000 software. A trial log database was designed to record details of all recruited patients and to administer the patient survey. Each patient was assigned a research study ID and details inputted included the name, address, presenting complaint, incident date and service used (MIU, 999 etc). This database contained automatically generated queries which notified the research team of the dates when patient survey mailings were due. The trial log was also used to update details on issues such as patients withdrawing from the study or changing address.

Clinical databases were set up to store and handle the patient clinical outcomes data, also using Access 2000. A template clinical database design was created which was used to create a database for each of the five pairs of sites. Clinical information was inputted by the project officer from anonymised copies of clinical records or in the case of anonymised electronic data updated directly into these databases.

Accuracy of the data inputted was checked on a regular basis by researchers. Samples of clinical records were examined against the data inputted by the research team and any inaccuracies in the data identified and rectified. Where there was uncertainty in the interpretation of clinical data from the clinical records, these records were referred to the principal investigator, an expert in emergency medicine, who interpreted the clinical records in these instances and made a decision on the appropriateness of including such data. These examples of unambiguous records were rare and usually applied to the interpretation of medical shorthand for treatments, investigations and disposal of patients.

When all the data had been inputted the databases were amalgamated to create a single database. The database was then checked and cleaned to ensure that all variables were coded consistently and correctly. An additional stage of coding was then carried out to create quantitative categories for variables that were recorded in text format, such as presenting complaint, disposal and diagnosis. On completion of coding and cleaning of the database the data were inputted into the SPSS Version 14

statistical software package and then into STATA Version 9.0 for further analyses.

5.4 Data analysis

Outcome measures in the patient clinical data were analysed using STATA v. 9.0. The metan command in STATA provides methods for the meta-analysis of studies with two groups. It was decided that this approach to analysing the matched pairs of sites would be taken. With binary data the effect measure can be the difference between proportions (sometimes called the risk difference or absolute risk reduction). With continuous data both observed differences in means or standardised differences in means can be used. A random effects model was fitted. The output shows, for each study, the treatment effect (here, the risk difference) together with the corresponding 95% confidence interval and the percentage weight contributed to the overall meta-analysis. The summary (pooled) treatment effect (with 95% CI and p value) and the heterogeneity test are also shown. The test of heterogeneity across the five pairs of sites provide an ability to comment on whether the overall results for each outcome are meaningful.

The metan command also automatically produces a forest plot. In a forest plot the contribution of each pair of sites within this study to the overall finding (its weight) is represented by the area of a box whose centre represents the size of the treatment effect estimated from that study (point estimate). The confidence interval for the treatment effect from each pair is also shown. The summary treatment effect is shown by the middle of a diamond whose left and right extremes represent the corresponding confidence interval.

5.5 Results

Table 7 is a reminder of the service settings evaluated in the five pairs of sites.

Table 7. Pairs of sites included in the study

Pair	Intervention service setting(s)	Control service setting(s)
1	ECPs working as single responder to 999 calls	Standard paramedic/technician ambulance responding to 999 calls
2	ECPs responding to direct calls to service from nursing and residential homes	Standard paramedic/technician ambulance responding to 999 calls from nursing and residential homes
	ECPs working in a minor injury unit	ENPs working in minor injury unit
3	ECPs working alongside GP-led primary care out of hours service	GP-led out of hours primary care service
4	ECP-led 24 hour Urgent Care Centre based in a community hospital	Nurse-led 24 hour 'casualty' based in a small infirmary
5	ECPs working alongside ENPs in a walk-in-centre	ENP-led walk-in-centre
	ECPs working alongside ENPs in minors clinic in an emergency department	ENP-led minors clinic in an emergency department
	ECPs working as single responder to 999 calls (NOT evaluated)	Standard paramedic / technician ambulance responding to 999 calls (NOT evaluated)

A total of 5970 patients were identified across the five pairs of sites as being eligible for the study (n=3520, 59.0% control; n=2450, 41.0% intervention). Figure 3 describes the trial profile of the eligible patients. Routine clinical data were available on all the patients identified. However, these patients were also contacted for postal follow up at seven and 28 days following their initial episode in order to complete a questionnaire about subsequent events.

5.5.1 Response rates

The response rates to the seven and 28 day questionnaires are given in Figure 3, and where known, reasons for attrition are also stated. Response rates overall to the seven day questionnaire were 37.6% and to the 28 day questionnaire were 30.6%. These rates were low, but can partly be explained by the fact that in the majority of sites, patients were not made aware of the study prior to receiving a questionnaire. The study design and resources available prevented prior consent from being obtained from each patient. Thus patients would not necessarily have been inclined to complete and return the requested information. Where reasons for non-completion were identified, these are stated in Figure 3. Adjustment to response rates was made where patients were known to have died in the follow up period.

The patients were identified and distributed as shown in Table 8 across the pairs of sites.

5.5.2 Non-responder analysis

Patients responding to the seven day and the 28 day questionnaire were compared with those not responding in order to identify possible sources of bias in the returned data. Baseline information was compared such as patient age, sex and presenting complaint. Those patients responding to the seven day questionnaire were significantly more likely to have sustained an injury than those not responding ($X^2=10.9$, df=1, $p<0.01$). Otherwise, there were no significant differences between the responders and non-responders. Patients responding to the 28 day questionnaire were not significantly different in any of the baseline characteristics from the non-responders.

Table 8. Distribution of patients cross each pair of sites

Pair	Intervention (n,%)	Control (n,%)	Total (n,%)
1 (999)	607 (24.8)	550 (15.6)	1157 (19.4)
2 (Care direct/MIU)	503 (20.5)	959 (27.2)	1462 (24.5)
3 OOH	727 (29.7)	889 (25.3)	1616 (27.1)
4 Urgent Care Centre	526 (21.5)	764 (21.7)	1290 (21.6)
5 WIC/ED	87 (3.6)	358 (10.2)	445 (7.5)
TOTAL	**2450**	**3520**	**5970 (100.0)**

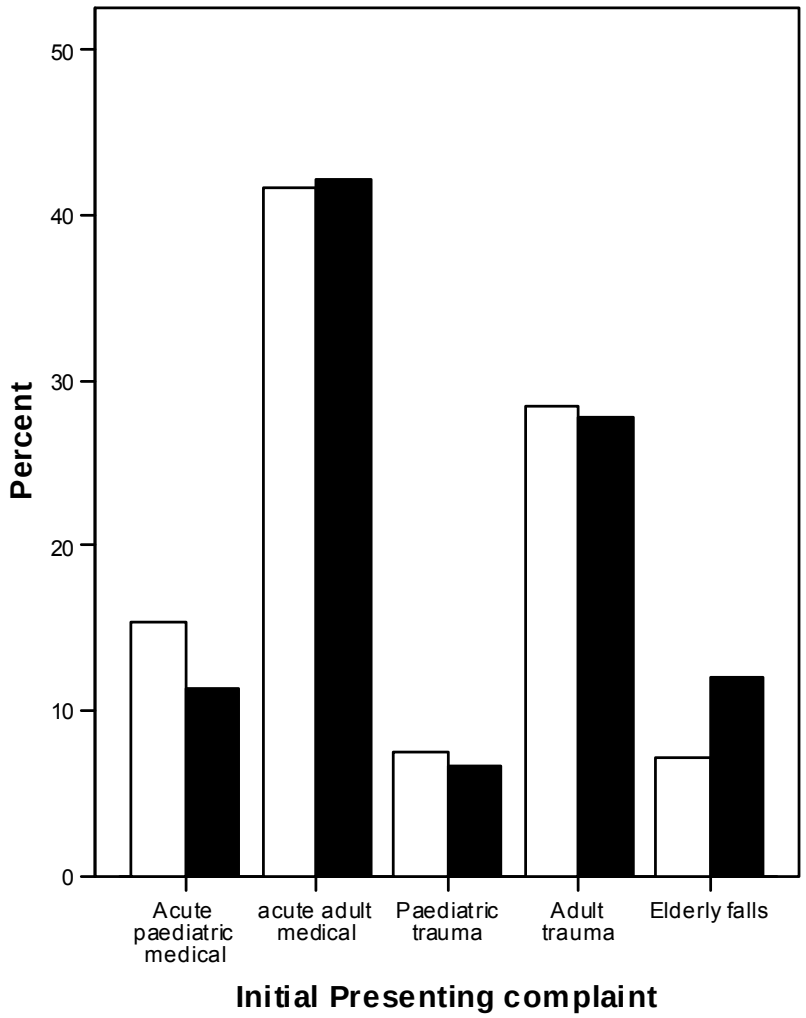
5.5.3 Patient Demographics

Table 9 presents the demographics and presenting complaint of the patients by intervention and control sites. Patients in the intervention sites were older and less likely to be male. The presenting complaint distributions were similar. This can also be seen in Figure 1.

Table 9. Baseline patient data by intervention and control sites

	Overall	
	Intervention N=2450	**Control N=3520**
Mean age (yrs) (SD)	48.9 (30.7)	42.1 (28.8)
Male (n,%)	1022 (42.0)	1711 (48.7)
Presenting Complaint		
Paediatric medical (n,%)	273 (11.3)	532 (15.3)
Paediatric trauma (n,%)	159 (6.6)	261 (7.5)
Adult medical (n,%)	1020 (42.3)	1447 (41.6)
Adult trauma (n,%)	672 (27.8)	990 (28.5)
Elderly falls (n,%)	289 (12.0)	246 (7.1)

Figure 1. Distribution of presenting complaint by intervention and control



Demographics and presenting complaint have also been presented by pair of sites in Table 10. This shows distinct variation between pairs in the patient profiles which might be expected given the different models of service delivery represented by each pair of sites. The mean age of patients seen within the mobile services, such as ambulance (e.g. pairs one and two) is higher than that of patients seen within static services such as the urgent care and walk-in centres (e.g. pairs four and five).

Equally, as Figure 2 shows, the presenting complaints of patients vary by site. Pair one was seeing predominantly adult medical and elderly falls, pair two, adult trauma and medical cases, pair three adult and paediatric medical cases, pair four a wider range of adult medical and trauma, and paediatric medical cases, and pair five adult medical and trauma cases.

Figure 2. Distribution of presenting complaint by pair of sites.

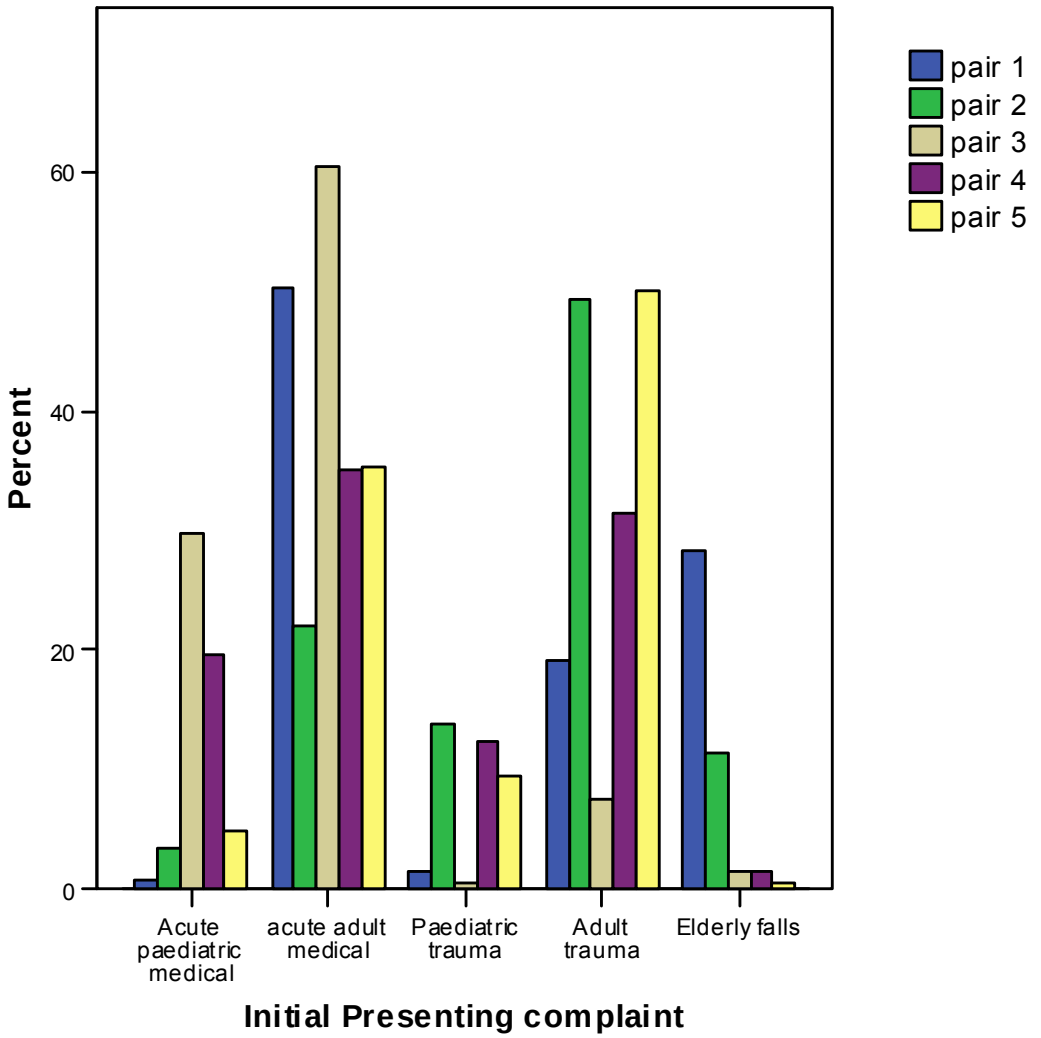


Table 10. Baseline patient data by intervention and control within pairs of sites and overall

	Pair one		Pair two		Pair three		Pair four		Pair five	
	Intervention N=607	Control N=550	Intervention N=503	Control N=959	Intervention N=727	Control N=889	Intervention N=526	Control N=764	Intervention N=87	Control N=358
Mean age (yrs) (SD)	69.2 (23.2)	62.5 (24.3)	56.8 (31.8)	47.4 (29.0)	42.9 (29.3)	32.5 (28.8)	28.4 (22.5)	34.6 (25.1)	35.0 (20.4)	36.7 (22.9)
Male (n,%)	232 (38.3)	265 (48.2)	218 (43.5)	511 (53.6)	288 (39.6)	358 (40.3)	243 (46.2)	398 (52.1)	41 (53.9)	179 (50.0)
Presenting Complaint										
Paediatric medical (n,%)	0 (0.0)	8 (1.5)	7 (1.4)	41 (4.3)	136 (18.7)	346 (38.9)	123 (23.7)	123 (16.9)	7 (9.2)	14 (3.9)
Paediatric trauma (n,%)	8 (1.3)	10 (1.8)	76 (15.4)	123 (12.9)	6 (0.8)	3 (0.3)	64 (12.4)	89 (12.2)	5 (6.6)	36 (10.1)
Adult medical (n,%)	270 (45.0)	310 (56.4)	91 (18.5)	227 (23.9)	467 (64.2)	511 (57.5)	178 (34.4)	260 (35.7)	14 (18.4)	139 (38.8)
Adult trauma (n,%)	119 (19.8)	100 (18.2)	259 (52.6)	453 (47.6)	96 (13.1)	28 (3.1)	151 (29.2)	240 (33.0)	48 (63.2)	169 (47.2)
Elderly falls (n,%)	203 (33.8)	122 (22.2)	59 (12.0)	107 (11.3)	23 (3.2)	1 (0.1)	2 (0.4)	16 (2.2)	2 (2.6)	0 (0.0)

Figure 3. The trial profile of eligible patients.

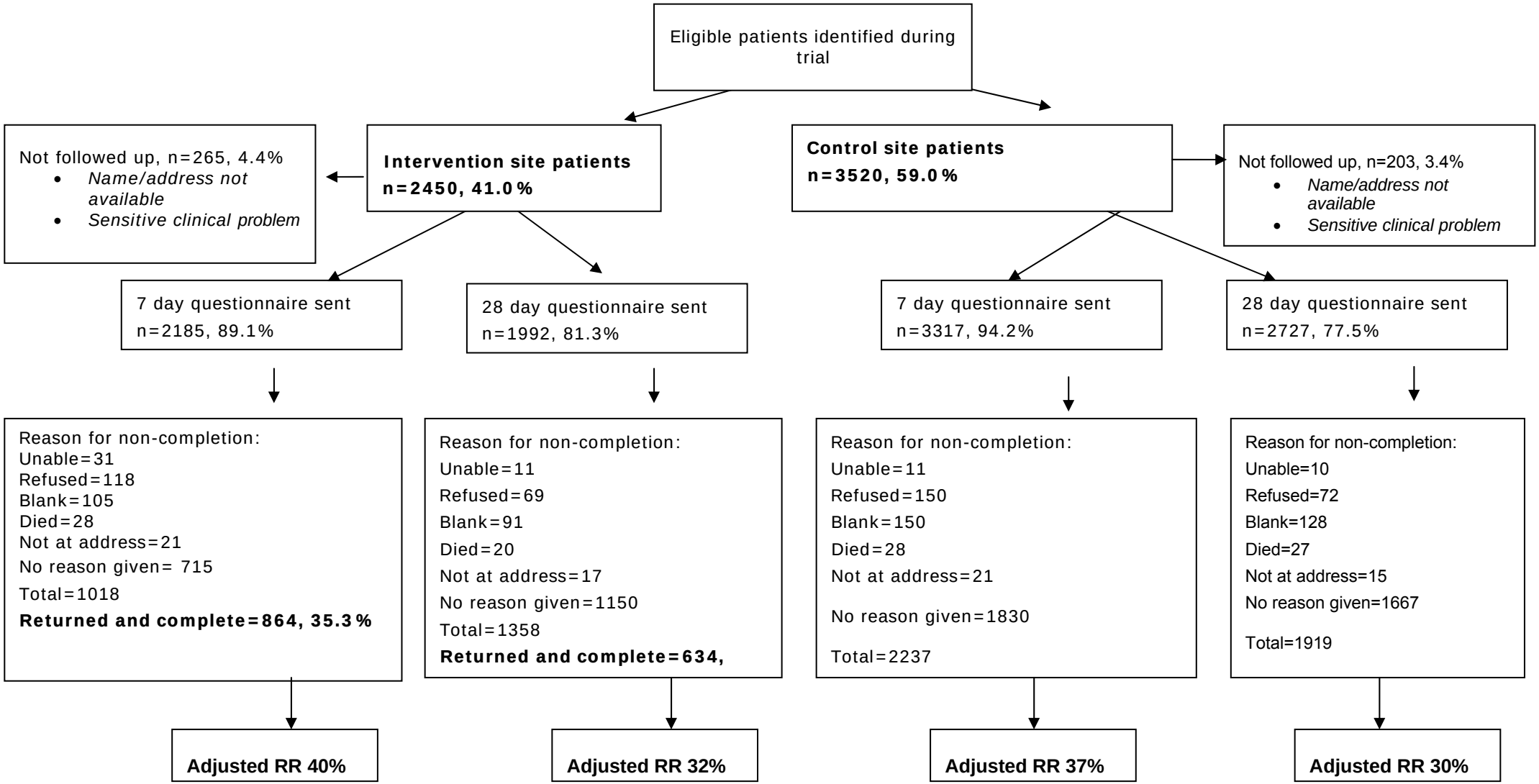


Table 11. Primary and secondary patient outcomes by intervention and control within pairs of sites and overall

	Pair 1		Pair 2		Pair 3		Pair 4		Pair 5		Overall	
	Intervention N=607 (%)	Control N=550 (%)	Intervention N=503 (%)	Control N=959 (%)	Intervention N=727 (%)	Control N=889 (%)	Intervention N=526 (%)	Control N=764 (%)	Intervention N=87 (%)	Control N=358 (%)	Intervention N=2450 (%)	Control N=3520 (%)
Primary outcomes												
Patients discharged	257 (43.3)	34 (6.6)	245 (50.8)	415 (45.1)	506 (71.0)	778 (88.9)	345 (70.4)	585 (81.9)	55 (71.4)	209 (59.2)	1408 (59.8)	2021 (59.9)
Patients highly satisfied	188 (84.3)	113 (67.7)	136 (88.3)	240 (73.4)	189 (78.8)	147 (56.1)	142 (75.9)	230 (68.2)	23 (63.9)	97 (70.3)	678 (80.7)	827 (67.2))
Secondary outcomes												
Mean episode time (mins)	74.2 (39.9)	51.7 (28.5)	55.9 (105.3)	51.1 (94.0)	102.4 (94.1)	168.2 (92.9)	53.6 (140.4)	52.4 (42.3)	65.8 (37.4)	96.4 (66.9)	74.9 (98.9)	84.4 (86.2)
Any investigation	44 (9.3)	1 (0.2)	6 (1.2)	274 (29.1)	123 (16.9)	63 (7.1)	83 (15.8)	151 (19.8)	27 (34.2)	68 (19.0)	283 (12.4)	557 (15.9)
Any treatment	188 (39.9)	4 (0.8)	161 (33.1)	349 (37.0)	423 (58.2)	498 (56.0)	242 (26.0)	543 (71.1)	30 (38.0)	115 (32.1)	1044 (45.6)	1509 (43.5)
Any follow up	96 (60.4)	75 (63.0)	37 (36.6)	109 (40.5)	102 (53.7)	125 (54.8)	63 (39.4)	34 (41.2)	9 (39.1)	47 (42.7)	307 (48.5)	390 (48.3)
Worse health at follow up	40 (25.8)	35 (30.1)	23 (24.5)	110 (42.0)	111 (60.0)	116 (53.7)	75 (48.1)	41 (52.6)	7 (30.4)	46 (42.6)	256 (41.8)	348 (44.6)

5.6 Trial Outcomes

Patient outcomes are presented in Table 11 which shows the distribution by intervention and control by pair of site and overall.

5.6.1 Primary outcomes

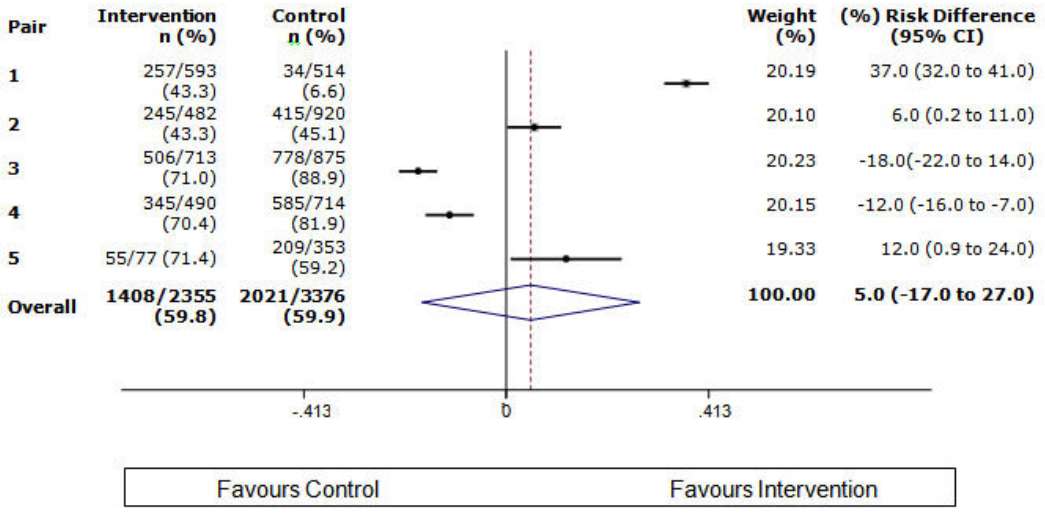
Patient Disposition

The study recorded disposal destination of patients in the trial. A number of options were available depending on the services that were under study. The main sources of referral overall were to the emergency department (n=1092, 19.2%), primary care (n=495, 8.7%), or other outpatient services (n=224, 3.9%). Patients seen in this range of settings were referred directly for hospital admission in 4.9% of cases (n=281). Those patients discharged with no specific referral on for further assessment or management (n=3429, 57.4% overall) were identified separately from the remainder who were referred on for immediate or delayed follow up.

The proportion of patients being discharged is significantly greater for the intervention sites (ECP) in pairs one, two and five. This is most marked for pair one which is purely an ambulance service setting. For pairs three and four the proportion discharged is significantly greater in the control sites (non-ECP).

Overall there is no significant difference in the proportions being discharged from either intervention or control services. The probability of being discharged between the intervention and control sites for each pair and overall are shown in Figure 4. The figure shows whether the intervention or control sites discharge more patients, with the zero line indicating no difference between the two. Significantly more patients are discharged by ECPs in pairs one, two and five. In pairs three and four significantly more patients are discharged by the non-ECP control staff.

Figure 4. Patient disposition by intervention and control site



Heterogeneity chi-squared = 358.71 (d.f. = 4) p = 0.000
Overall (I-squared = 98.9%, p = 0.000)
NOTE: Weights are from random effects analysis

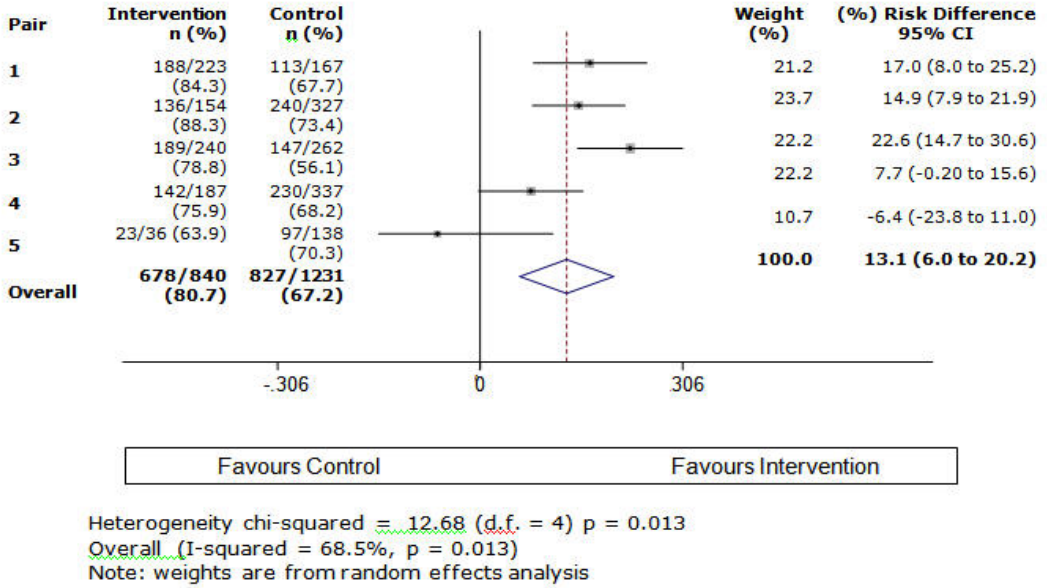
Patient Satisfaction

Patients responding to the seven day questionnaire were asked about their levels of satisfaction with the service they received and those patients reporting that they were highly satisfied were differentiated from the remainder. Overall, 72.7% (n=1505) patient reported being highly satisfied with the care they had received.

When asked about preference for future treatment for a similar complaint, 31.4% (n=652) patients expressed no preference. However, 35.0% (n=725) stated they would prefer treatment by a doctor, 14.6% (n=302) stated a specially trained professional (such as an ECP), and 8.2% (n=171) would prefer treatment by a nurse.

The proportion of patients reporting that they were highly satisfied with the service they received significantly favoured the intervention services in pairs one, two and three. In pairs four and five there were no significant differences found in the proportion highly satisfied between intervention and control services. The overall finding was that the proportion of patients highly satisfied with the service received was significantly greater for intervention services (ECP) than control services (non-ECP). These results can be seen in Figure 5 which graphically illustrates proportions and risk difference of patients highly satisfied with care by pairs of sites and overall. Significant differences favouring ECPs were found in pairs one to four. In pair five, there was no differences between ECP and non-ECP staff.

Figure 5. Patients reporting being highly satisfied with care received



5.7 Secondary Outcomes

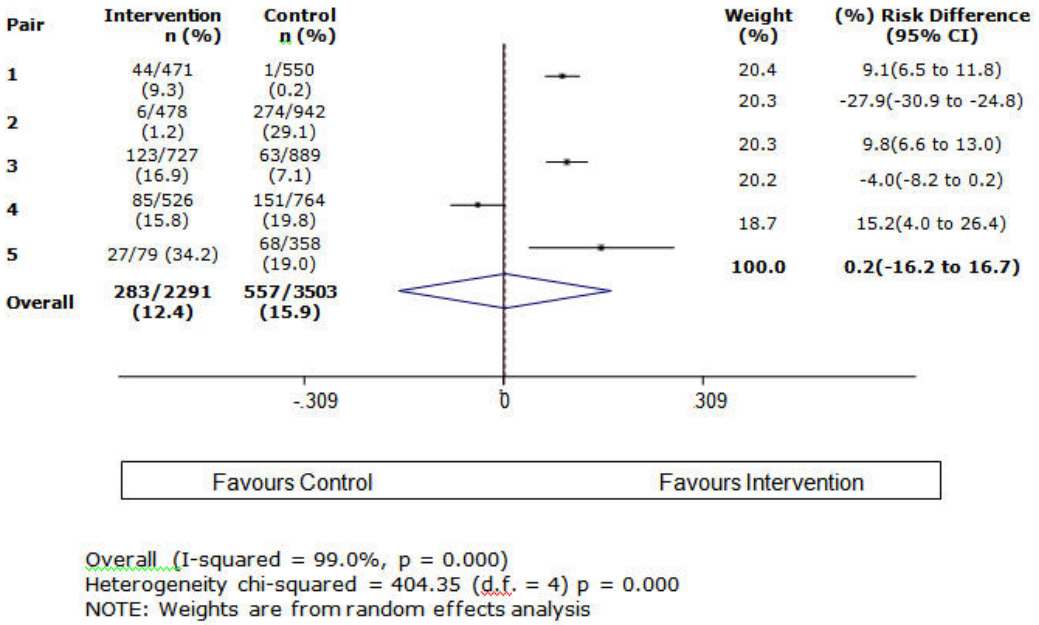
5.7.1 Patient Management

Investigation

The clinical information received on patient care was used to extract information about which and how many investigations patients received at their initial care episode. Investigation included tests such as ECG, urine testing, blood tests and radiology. Those receiving any investigation were defined against those receiving none. Overall, only 14.5% of patients seen in the study (n=840) received an investigation. Of these, n=422 (7.3%) received an X-ray.

The proportion of patients receiving any investigation was higher in the intervention sites (ECP) rather than control sites (non-ECP) in pairs one, three and five. In pairs two and four the proportion receiving investigations was higher in the control sites. Overall the proportion of patients receiving investigation was not significantly different between intervention and control site pairs. Figure 6 show the distribution of the probability of receiving investigations within each pair if sites and overall.

Figure 6. Patient investigation



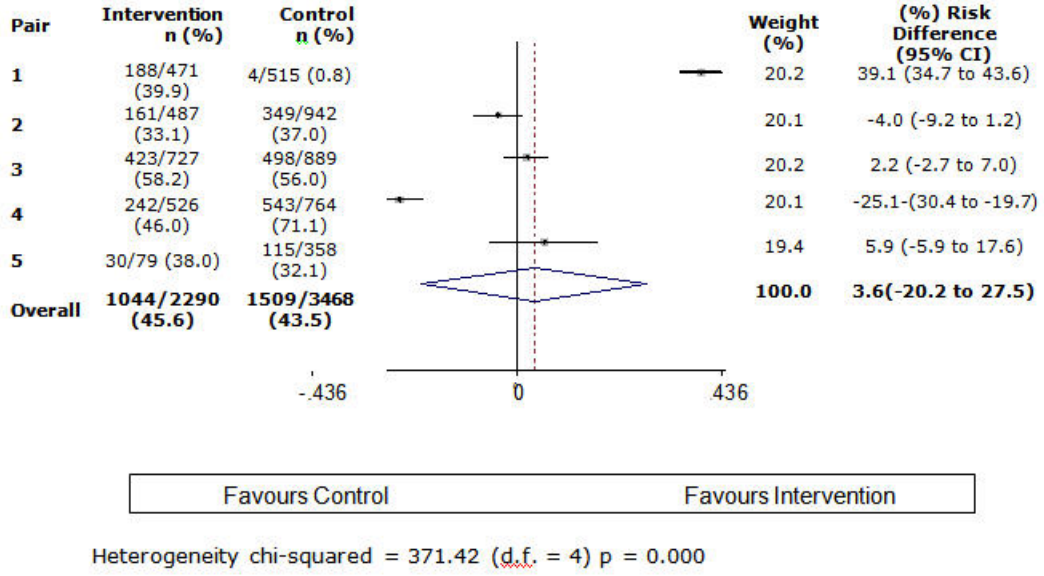
Overall (I-squared = 99.0%, p = 0.000)
Heterogeneity chi-squared = 404.35 (d.f. = 4) p = 0.000
NOTE: Weights are from random effects analysis

Treatment

The clinical information received on patient care was used to extract information about which and how many treatments patients received at their initial care episode. The types of treatments might include dispensing drugs such as antibiotics or analgesia, insertion of sutures, applications of dressings and giving written or verbal advice. Overall, 42.8% of patients (n=2553) received some treatment for their complaint, with a further 16.8% (n=968) being given advice alone.

Those receiving any treatment (excluding advice alone) were defined against those receiving none. The proportion of patients receiving a treatment was significantly higher in the intervention site (ECP) in pair one. In pair four the proportion of patients receiving treatment was significantly higher in the control site (non-ECP). There were no significant differences between the remaining pairs. Overall there was no significant difference in the proportion of patients receiving a treatment between intervention and control sites. Figure 7 present and illustrate the risk differences for each pair and overall.

Figure 7. Patients receiving treatments

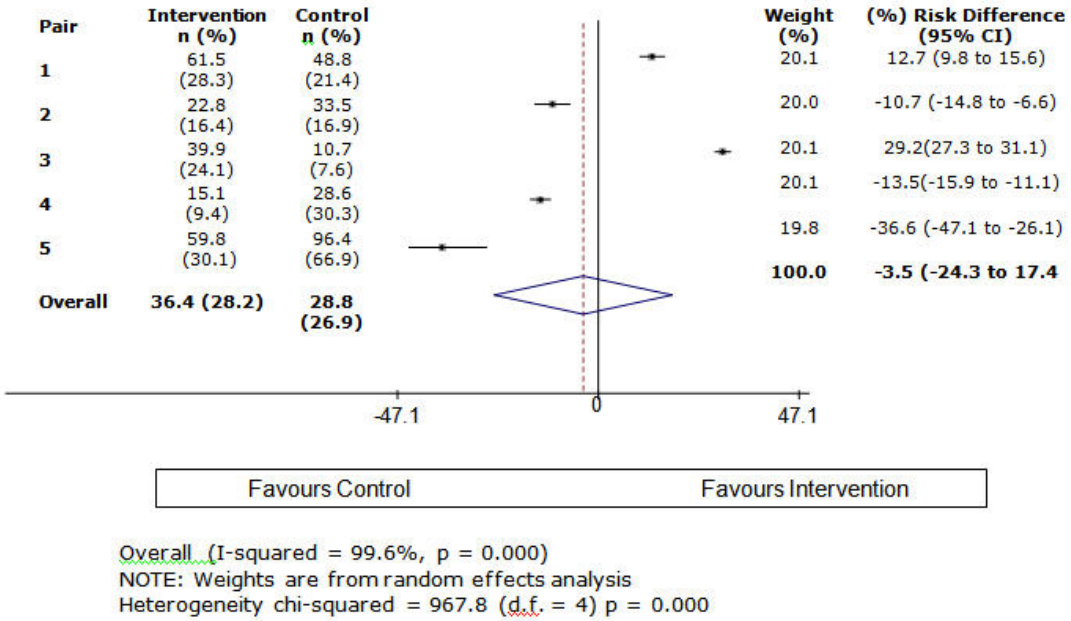


Patient Time

Total clinician contact time of the care episode was recorded from routine data submitted by each site. Clinician contact time was defined as the time from the patient seeing a decision making clinician to the end of that consultation. This time did not include that incurred as a result of accessing the service in question, or being referred onto other services following the initial consultation. Time was recorded in minutes.

The difference in mean clinician time was significant for all pairs of sites. In pairs one and three, the mean time spent with patients was significantly longer for the intervention services. In pairs two, four and five mean time was longer for the control services. In pairs one and three, control services are staffed by paramedics and GPs. Therefore is may not be surprising that the times for ECP intervention service staff would be longer given that in pair one, less patient management is happening, and in pair three, GPs are probably highly experienced at timely patient management. In the remaining pairs, control services spent longer with patients. These were broadly static services (with some ambulatory element in pair two), where roles between ECP and non-ECP staff are very similar. Therefore time with patient cannot be explained by difference in tasks undertaken or expertise, but maybe related to staff in post. In pairs two, four and five, all the control staff are nurses with a varying range of experience. Overall, there were no significant differences in mean time with patient.

Figure 8. Mean clinician time spent with patients



Overall (I-squared = 99.6%, p = 0.000)
NOTE: Weights are from random effects analysis
Heterogeneity chi-squared = 967.8 (d.f. = 4) p = 0.000

5.7.2 Subsequent Patient Health Outcomes

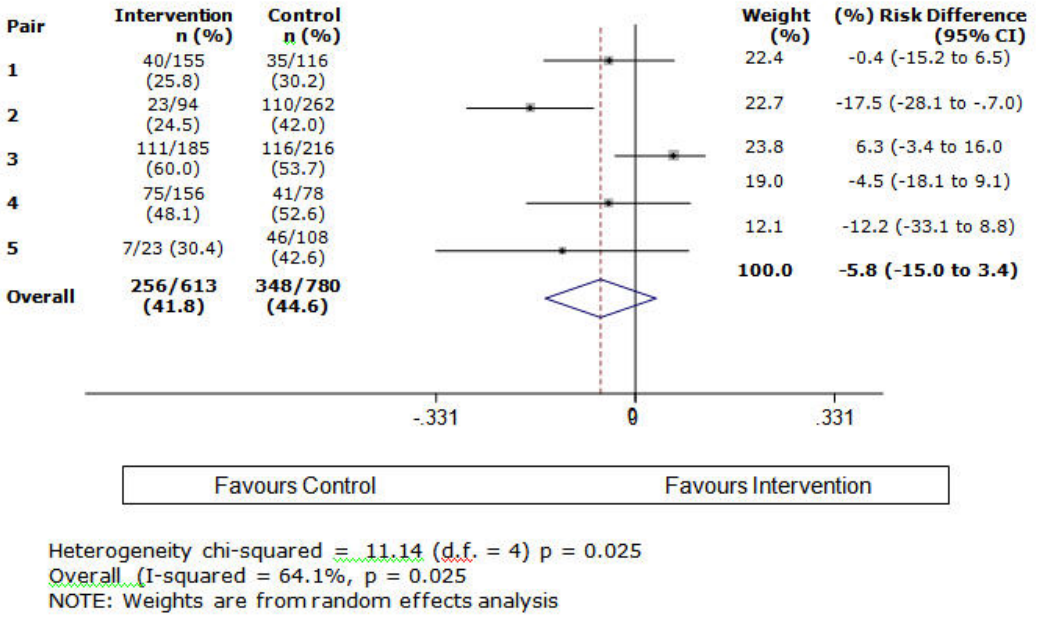
Overall Health

Patients responding to the 28 day questionnaire were asked about their health status following their acute illness episode. Those reporting their health to be worse were differentiated from the remainder. Overall, 56.7% of patients (n=789) reported their health to be the same or better than before their acute illness episode.

The proportion of patients reporting their health as being worse was significantly greater in the intervention site (ECP) of pair three and significantly greater in the control site (non-ECP) in pair two. In the remaining pairs of sites, no significant differences were found.

Overall the proportions of those patients reporting health to be worse was not significantly different between intervention and control sites. This is shown in Figure 9

Figure 9. Patients reporting health to be worse following acute illness episode



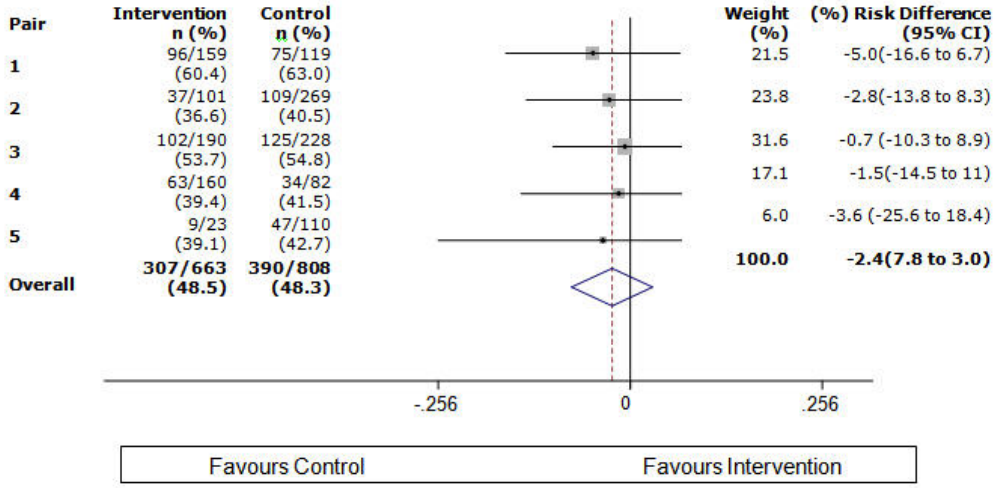
Heterogeneity chi-squared = 11.14 (d.f. = 4) p = 0.025
Overall (I-squared = 64.1%, p = 0.025
NOTE: Weights are from random effects analysis

Subsequent use of Health Services

Patients responding to the 28 day questionnaire were asked about whether they accessed a health service for related care following their acute illness episode. Overall, 48.4% of respondents (n=697/1441) reported that they had accessed care for a related problem in the 28 day period. Of these, the majority had accessed their GP (n=558/1386, 40.3%) with a further proportion being admitted to hospital (n=188/1397, 13.5%) or attending the ED (n=139/1397, 9.9%). Those patients who reported they did access some services were distinguished from those reporting they did not.

There were no overall significant differences detected between intervention and control site patients by pair of sites or overall.

Figure 10. Subsequent use of health services following the acute healthcare episode



NOTE: Weights are from random effects analysis
Heterogeneity chi-squared = 0.34 (d.f. = 4) p = 0.987
Overall (I-squared = 0.0%, p = 0.987)

5.8 Discussion

5.8.1 Principal findings

The five pairs of sites in this study were selected on the basis of their heterogeneity in terms of models of service delivery of ECP care. It is not surprising therefore that the results from analysis of the clinical data are also very heterogeneous. However, this is both interesting and important if lessons are to be learnt about how ECPs integrate into local health care systems and deliver care to patients.

ECPs are having a differential impact when compared with their non-ECP counterparts and this is dependent on the sites and settings they are working in.

Overall there were no differences between ECPs and non-ECPs in the five pairs of participating sites in respect of investigations, treatments, mean clinician time spent with patients, discharge, or contact with other services within 28 days of the original episode of care. Within the 28 day period, there was no difference between ECP and non-ECPs care in the self-reported health status of patients. In spite of this, patients overall were significantly more likely to report being 'highly satisfied' with ECP care than non-ECP care.

However, differences between ECPs and non-ECPs within the five pairs of sites were found.

In pair one, ECPs carried out more investigations, gave more treatments, spent a longer time with patients, and were much more likely than non-ECPs to discharge patients. ECPs in pair two were also more likely than non-ECPs to discharge patients, but spent less time with patients, performed fewer investigations and provided fewer treatments. Patients in this pair seen by non-ECPs were also more likely to report a worsening health status. In pair three ECPs carried out more investigations and spent longer with patients than non-ECPs. ECP patients were more likely to report a worsening health status. However, non-ECPs were more likely to discharge patients. In pair four non-ECPs were more likely to perform an investigation, provide a treatment, spent more time with the patient on average and discharge patients. In pair five ECPs carried out more investigations and were more likely to discharge patients than non-ECPs. Patients in pairs one, two, three and four were 'highly satisfied' with ECP care. In pair five, patients were satisfied with ECP and non-ECP care equally. Table 12 summarises these findings.

Table 12. Summary of main findings from analysis of clinical data

Outcome	Pair one	Pair two	Pair three	Pair four	Pair five
↑ discharge	ECP	ECP	Non-ECP	Non-ECP	ECP
↑ highly satisfied	ECP	ECP	ECP	ECP	
↓ mean clinician time	Non-ECP	ECP	Non-ECP	ECP	ECP
↑ any investigation	ECP	Non-ECP	ECP	Non-ECP	ECP
↑ any treatment	ECP	Non-ECP		Non-ECP	
↓ any follow up					
↓ health at follow up		Non-ECP	ECP		

Limitations

This part of the study utilised quantitative data from routine clinical records and databases held within each of the services involved in the study. For the information extracted from these sources, completeness of data is good, and data quality high. It must be remembered that although 10 sites were involved in this study, in many cases one pair of sites represented a model of service delivery not replicated in the other sites. The findings for each of these models may not be generalisable to other similar settings. The nuances of local systems of care delivery may mean that the findings from comparing a particular ECP service with a non-ECP matched service may not necessarily be applicable. However, these sites were not considered atypical in any way, apart from the fact that half of them had developed an ECP service. The ECP and non-ECP services included in this study were volunteers, and were not coerced into participation.

The findings are also limited to an extent by the poor follow up rates that were obtained from patients. Response rates of between 30-40% are barely adequate for the responses to be considered generalisable. It is reassuring that only one difference was identified between the baseline characteristics of the responders and non-responders when the seven day questionnaire responses were considered. For the 28 day questionnaire, no differences in baseline characteristics were found. However, the sample responses may have been influenced by other factors such as patient outcome. Those patients admitted to hospital or in residential care following their initial episode may have been less likely to respond to the questionnaire. Therefore the interpretation of these findings must be treated with some caution.

6 Health economics

6.1 Introduction

The use of emergency care practitioners (ECPs) within emergency medical services could have several important effects on costs and outcomes. Most obviously, ECPs have different salaries to other health care practitioners, for example, higher than paramedics. Also, relative to other practitioners, ECP contacts may have a different duration, may involve different treatments, result in different referrals and impact on subsequent use of health services. Each of these different facets of the patient's care pathway may also impact on their health outcomes.

Given all these different potential effects on costs and outcomes, it is important that we measure them, and synthesise them within a coherent analytical framework. Economic evaluation provides a framework to examine cost-effectiveness (or 'value for money'), and so such an evaluation was built into this study. The cost-effectiveness analysis looks at the costs and health outcomes of ECPs relative to standard care within 10 sites reported in the study. Cost-effectiveness is calculated for the three different types of scheme involved in the study, and measured in terms of an incremental cost-effectiveness ratio (ICER).

6.2 Aims and objectives

Data collected in the five pairs of sites for the pragmatic quasi experimental multi-site community intervention trial on patient management and clinical outcomes, health status and health service use were used to measure the cost effectiveness of Emergency Care Practitioner (ECP) schemes by

- Analysing the cost implications of the clinical care outcomes for the acute healthcare episode extracted from clinical records
- Analysing the cost implications of the survey data from patients measuring their health status and their use of healthcare services following the acute health episode

6.3 Methods

The economic evaluation followed the technology appraisal guidelines used by the National Institute for Clinical Excellence (National Institute for Clinical Excellence, 2004), and as such, takes the NHS and Social Service perspective.

6.3.1 Costs

Two costs were estimated for patients based on different sets of data. The primary analysis is based on routine data as this was expected to have low levels of missing data. The following cost components were included in these cost estimates:

- Health professional costs (ECP or other)
- Service overheads
- Tests and investigations

- Same day ED attendances
- Same day inpatient admissions

Health professional costs were based on the time the practitioner spent involved in the episode. For the centre based services (MIU, OOH centre, WIC etc) this is the time from when the doctor/nurse/ECP started to see the patient to the time they discharged the patient. If it's an OOH home visit, it is time the doctor/ECP left the centre to time patient discharged. For 999 it is the time the ECP/paramedic was passed the job and thus became active on the job and the time 'green' or discharged.

Same day ED attendances were identified by 'initial disposal' from service records. Inpatient admissions were identified by 'initial disposal' for all services, but additionally for the pair one and pair two schemes, data on admissions following ED attendance were also available. Admissions were costed using a reference cost relating to the patient's initial presenting complaint, which was classified into eight categories.

A secondary analysis was undertaken based on patient reported resource use for the use NHS and social services in the 28 days following the index event. These costs could then be matched with QALY data based on the EQ-5D which was completed at the same time by the patient (see below). Within this secondary analysis, inpatient costs were based on numbers of days in hospital and a cost per day, and all other subsequent use of health services were based on service specific prices (Table 13).

All unit costs (2006/7 prices) are given in Table 13, with costs being inflated using the Hospital and Community Health Services Pay and Price Index where appropriate. (Curtis, 2007). Costs were not discounted as they all fell within one year. A critical overview of these unit costs is given in the discussion.

6.3.2 Outcomes

The EQ-5D was sent out to patients at seven days and 28 days following their initial contact; no baseline EQ-5D data were collected as it was thought impractical. Despite the lack of baseline data, incremental quality adjusted life-years (QALYs) can be estimated assuming a linear change in EQ-5D scores, and that the two groups have identical scores at baseline. With these assumptions, incremental QALYs are the same regardless of the assumed baseline level. This assumption does, however, remove some of the stochastic variation that would be present in baseline EQ-5D scores and therefore underestimates the uncertainty associated with the incremental QALY estimate. EQ-5D scores were estimated using the UK tariff based on time-trade-off values (Dolan, 1997).

6.3.3 Analysis

Results are presented split down by the five pairs of sites. Mean resource use and costs were compared between the study groups using t-tests for continuous and count data. Calculation of incremental cost-effectiveness ratios and cost-effectiveness acceptability curves (CEACs) were planned for each service pair.

6.4 Results

From the full sample of 5970 patients, data were missing for 32% of patients for the main economic analysis based on routine data, leaving cost data for 4066 patients. Missing data rates varied both between and within service pairs (Table 14). No costs could be calculated for the ECP scheme in the pair five as practitioner timings were not recorded. Differences between those included in the analysis and those excluded, were apparent for several patient characteristics (Table 15).

6.4.1 Resource use

Differences in the length of time health care practitioners spent on the patient episode were apparent for all service pairs, although the direction of the difference was not consistent across schemes. ECPs spent longer on the episode for the pair one and pair three sites, but less time for the pair two and pair three sites. Across all schemes, the ECPs consistently ordered fewer tests and investigations, although the difference in numbers were small. There are differences in these results compared to the findings in the main trial reported in Section 5, where ECPs in three sites carried out more investigations than their non-ECP control (see Figure 6) and ECPs in one site carried out more tests than control health professionals (see Figure 7). These differences reflect the fact that the economic analysis was carried out on a subset of the main trial data sample where complete cost information was available.

Large differences were seen in the initial disposal categories, but these were not consistent across schemes (Table 16). These differences have been discussed previously in this report and so are not repeated here.

6.4.2 Costs

Health professional costs broadly reflect the resource use figures with the notable exception of the OOH scheme (pair three), where the additional time spent by ECPs with the patient is offset by the higher cost of an out-of-hours GP (Table 17). The largest cost component for most schemes, however, are the costs of subsequent admissions and these dominate the cost differences (Figure 11). Statistically significant differences in costs are seen for two of the schemes (Pairs one and two) and these appear to be driven by the reduced ED and admission costs associated with the ECPs.

When costs are estimated for those patients that have complete questionnaire data, there is 90% missing data. The mean costs and QALYs (Table 18) are also very different from those in Table 18, suggesting a substantial selection bias.

6.4.3 Cost-effectiveness

Given the highly selected nature of the cost and QALY data, incremental cost-effectiveness ratios and cost-effectiveness acceptability curves (CEACs) were not estimated for the service pairs.

6.5 Discussion

6.5.1 Principal findings

The analysis based on routine data show that there is strong evidence that ECPs can reduce costs when operating in the setting in pair one (Table 18). Whilst the cost of the ECP is slightly higher for the setting in pair one, the different discharge patterns result in reduction in the use of other hospital services. For the other types of scheme, significant differences in costs are not apparent.

Small differences in the use and cost of test and investigations are seen across the service pairings in this analysis, with ECPs consistently using a fewer number. Differences in disposal patterns were seen across the different schemes, which reflects the different nature of the service pairs, but ECPs had an impact within each pair. Combining cost and outcome data to estimate cost-effectiveness, whilst feasible, was not attempted due to the high levels of missing data and evidence of a large selection bias.

6.5.2 Limitations

Missing data

The biggest shortcoming of the analysis is the missing data seen in the analysis of cost-effectiveness, and to a lesser degree, in the assessment of costs using routine data. One possible way of using these data more productively, would be to undertake additional analyses to impute the missing data and re-estimate cost-effectiveness. However, when 90% of the data need to be imputed there will be great uncertainty around the validity of such an approach, and it is doubtful that the subsequent findings would influence decision makers.

Unit costs

Whilst the unit costs of test, investigations and subsequent resource use are reasonably uncontentious, the HEALTH PROFESSIONAL costs are less robust as services vary widely between locations. Even within the same genre of service, staff mix and staff grades vary and location of service vary. For example, when comparing minor injury units, walk-in centres and emergency departments, the unit cost for both types of HEALTH PROFESSIONAL (ECP and other) are the same as both are costed at Agenda for Change Grade 6. Consequently, any difference between these types of services is due to overhead rates, length of episode, use of tests/investigations and disposal.

The costs of inpatient admissions are based on set of nine healthcare resource groups (HRGs) which were allocated to patients. More accurate costs could have been estimated if precise diagnoses were available, and length of stay data.

Also, data were available on the use of some consumables at the point of care (e.g. sutures and bandages), but these were not costed within the analysis as they were considered to be negligible.

6.6 Conclusions

Cost differences are apparent between schemes operating with and without ECPs. These differences are largely driven by health care professional referral patterns and the use of subsequent services. As a consequence of this, the largest cost differences are seen where hospital services are avoided – which is the case of ECPs in the setting in pair one. A robust cost-effectiveness analysis was not possible due to high rates of missing data.

Table 13. Unit costs

Resource	Unit cost (£2006/7)	Source
Ambulance attendance (per minute)	3.96	Yorkshire Ambulance Service and reported in Mason et al, 2005.
Ambulance attendance with ECP (per minute)	4.22	As above with 6.6% uplift based on ECP salaries being 24% higher than other staff (personal communication), and applied to 50% of staff within a staff budget that accounts for 55% of emergency ambulance costs.
ECP direct overheads (per patient)	£30	Yorkshire Ambulance Service First Response Vehicle annual cost.
ED nurse (per minute)	1	Curtis, 2007, Agenda for Change Grade 5 nurse.
WIC ECP (per minute)	1	As above.
ED overhead (per patient)	12	Derived from reference costs and local study of emergency care.
WIC overhead (per patient)	8	Derived from reference costs and local study of emergency care.
GP OOHs (per minute)	2.1	National Audit Office 2006, Table 11 (weighted by day of the week).
ECP (per minute)	0.4	AfC Grade 6 salary costs plus 25% unsocial hours.
Out-of-hours overhead (per patient)	6	Curtis 2007, derived from GP overheads.
X-ray	24	Reference costs 2007, direct access radiology services, plain film 1 area
CT scan	78	Reference costs 2007, direct access radiology services, CT scan 1 area no contrast
Ultrasound scan	45	Reference costs 2007, direct access radiology services, ultrasound scan < 20 mins
ECG	27	Reference costs 2007, direct access diagnostic services, 12 lead ECG
Blood test	3	Reference costs 2007, direct access pathology services, haematology
Urine test	1	Reference costs 2007, direct access pathology services, biochemistry

Resource	Unit cost (£2006/7)	Source
GP surgery consultation	26	Curtis 2007, clinic consultation lasting 11.7 mins without other staff or qualifications
ED attendance	62	Reference costs 2007, no investigation with no significant treatment, not leading to admission
Minor injury unit attendance	40	Reference costs 2007, no investigation with no significant treatment, not leading to admission
Walk-in centre attendance	37	Reference costs 2007, no investigation with no significant treatment, not leading to admission
NHS Direct contact	28	Hansard, 2004 & 2005
Community care contact	24	Curtis, 2007 Community nurse
Ambulance service attendance	134	Reference costs 2007, category B, urban, unknown problem
Inpatient day	357	Derived from Reference costs 2007, non-elective inpatients
GI	888	Reference costs 2006, Non-elective, Stomach or Duodenum Disorders <70 w/o cc
Acute adult medical	479	Reference costs 2006, Non-elective, Chest Pain <70 w/o cc
Soft tissue	682	Reference costs 2006, Non-elective, Gastrointestinal Bleed <70 w/o cc
Eye/ENT	523	Reference costs 2006, Non-elective, Non Surgical Ophthalmology with los <2 days
Falls	2489	Reference costs 2006, Non-elective, Closed Pelvis or Lower Limb Fractures <70 w/o cc
Musculoskeletal	1698	Reference costs 2006, Non-elective, Closed Upper Limb Fractures or Dislocations <70 w/o cc
Other injury adults	668	Reference costs 2006, Non-elective, Sprains, Strains, or Minor Open Wounds <70 w/o cc
Respiratory	1156	Reference costs 2006, Non-elective, Chronic Obstructive Pulmonary Disease or Bronchitis w/o cc

Table 14. Patient numbers and missing data by service pair and study arm

Service pair	Control	ECP
	n (% missing)	n (% missing)
Pair one	550 (14.5)	607 (12.9)
Pair two	959 (90.0)	503 (25.8)
Pair three	889 (28.9)	727 (2.9)
Pair four	764 (10.3)	526 (15.0)
Pair five	358 (64.2)	87 (100.0)*

- No data were available for length of HEALTH PROFESSIONAL episode.

Table 15. Patient characteristics of included and excluded patients for the main analysis

Characteristic	Unit of measurement	Missing (%)	Excluded sample	Included sample	p-value
Age	mean	0.5	44.7	45.0	0.690
Gender	% male	0.4	51.9	43.2	<0.001
Time of day presented	Midnight to 7:59 am		5.4	10.1	<0.001
	8:00 am to 17:59 pm	1.7	80.3	62.6	
	18:00 pm to 23:59 pm		14.6	27.3	
Initial presenting complaint	Acute paediatric medical		6.5	17.0	<0.001
	Acute adult medical		35.5	44.8	
	Paediatric trauma	1.4	11.2	5.2	
	Adult trauma		41.4	22.1	
	Elderly falls		5.4	10.8	

Table 16. Resource use for patients included in the economic analysis by scheme

	Pair one		Pair two		Pair three		Pair four		Pair five	
Item of resource	Control	ECP	Control	ECP	Control	ECP	Control	ECP	Control	ECP
	n=470	n=529	n=96	n=373	n=632	n=706	n=685	n=447	n=128	n=0
HCP contact time (mean mins)	49.5**	60.9**	35.6**	22.7**	10.7**	40.2**	28.7**	15.1**	34.4	-
Tests and investigations (mean number)	1.1**	0.8**	1.4**	0.1**	0.9**	0.2**	0.2**	0.2**	0.1	-
Initial disposal										
Home, no follow-up (%)	4.3	16.1	21.9	21.2	88.9	9.1	63.4	28.4	21.9	-
Home, unspecific follow-up (%)	3.0	26.3	0.0	32.2	1.4	62.0	19.0	43.6	42.2	-
GP referral (%)	0.2	4.5	0.0	7.0	0.2	10.3	0.0	13.2	17.2	-
Other primary care referral (%)	0.6	8.7	0.0	10.7	0.0	0.4	1.0	2.7	4.7	-
Other referral (%)	0.0	0.8	0.0	9.1	0.0	0.8	2.3	3.4	9.4	-
Outpatient referral (%)	0.0	0.4	0.0	1.1	0.0	0.4	8.6	5.6	0.0	-
ED referral (%)	91.9	34.8	78.1	12.1	0.3	8.4	5.1	1.8	4.7	-
Admitted (%)	0.0	8.5	0.0	6.7	9.2	8.5	0.6	1.3	0.0	-

* p-value <0.05

** p-value <0.01

Table 17. Mean cost per patient by scheme

	Pair one		Pair two		Pair three		Pair four		Pair five	
Item of resource	Control	ECP	Control	ECP	Control	ECP	Control	ECP	Control	ECP
	n=470	n=529	n=96	n=373	n=632	n=706	n=685	n=447	n=128	n=0
Health care practitioner	196	257	141	44	28	23	37	23	42	-
Tests and investigations	20	15	23	1	0	1	4	3	0	-
Subsequent ED	57	22	48	7	0	5	3	1	3	-
Subsequent admission	450	382	693	116	73	79	8	12	0	-
Total	723	675	905	169	101	108	52	38	45	-
Adjusted difference#		-114*		-574**		-15		-10		-

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* p-value <0.05

** p-value <0.01

Adjusted using a linear model with age category, gender, time period of presentation and diagnosis as factors. Negative difference means that ECP is less expensive than control.

Table 18. Costs and QALYs per patient

	Control		ECP		Mean Difference	p-value
	Mean	(SD)	Mean	(SD)		
Pair one						
Sample size (n)	77		101			
Cost (£)	798	(2021)	1109	(2545)	+311	0.380
QALYs	0.044	(0.021)	0.039	(0.026)	-0.005	0.158
Pair two						
Sample size (n)	2		45			
Cost (£)	119	(34)	219	(521)	+101	0.788
QALYs	-0.008	(0.007)	0.054	(0.024)	+0.062	0.001
Pair three						
Sample size (n)	97		130			
Cost (£)	187	(706)	300	(1044)	+113	0.360
QALYs	0.061	(0.022)	0.056	(0.026)	-0.005	0.152
Pair four						
Sample size (n)	18		96			
Cost (£)	156	(240)	61	(143)	-95	0.027
QALYs	0.065	(0.015)	0.061	(0.021)	-0.004	0.427
Pair five						
Sample size (n)	29					
Cost (£)	72	(83)	-	(-)	-	-
QALYs	0.068	(0.015)	-	(-)	-	-

7 Notes Review of quality and safety of care

7.1 Introduction

Record review has become an established method of examining the quality of care provided by health care organisations (Lilford et al, 2007) and has been used in a variety of health care settings, including emergency care (Hiatt et al,1989; Wolff, 1996; Wolff, 2002; Sari et al, 2007). Studies using inpatient medical record review to detect adverse events have devised a two step method of screening and clinical review of medical records (Wolff, 1996; Thomas et al, 2000; Thomas et al, 2002). Previous studies have shown that this methodology can be modified to detect adverse events in an ED (Wolff, 2002).

Record review is more established in the USA where large quality and safety review programmes exist but has been used to a lesser extent in the UK. The two main approaches are: 1) implicit (sometimes called holistic) review whereby reviewers use their professional judgement as experts in retrospectively reviewing case notes; and 2) explicit review where there is a consensus or established standard of care supporting a criterion based review against these explicit standards. These methods of record review have been refined by researchers at the University of Sheffield in the first UK study to compare the validity and reliability of the two methods, which has recently been completed for the NIHR Research Methodology Programme (Hutchinson, 2008a). No significant difference was found between the assessments of quality of care generated by the two methods. This suggests that although the two methods are exploring quality of care differently, they can allow somewhat similar quality ratings to be made. Collaboration with the NIHR Methodological Study team was undertaken in order to develop a valid approach to the evaluation of quality and safety of care provided by ECPs through notes review.

7.2 Aims and objectives

Patient quality and safety of care was assessed by a review of a sample of the clinical records of patients included in the pragmatic quasi experimental multi-centre community intervention trial. The aims of the study were to:

- Compare safety and quality of ECPs with non-ECP care in the five pairs of sites.
- To compare the safety and quality of care of ECPs in different models of service delivery in the five pairs of sites.

7.3 Methods

For assessment of clinical practice at the individual provider level, where cases of varying conditions are being cared for, the preferred approach is to use the implicit peer review approach, whereby reviewers use their professional judgement in reviewing case notes. Given the nature of the ECP role in dealing with a wide variety of presenting conditions the implicit approach was regarded as the more appropriate review method. However, this approach to assessing quality of care is by its very nature subjective and reliant on the individual reviewers' interpretation. Therefore, in order to ensure a degree of consistency in approach and reduce the potential for bias due to harshness, leniency or individual preference, a semi structured review form was developed and used, and supported by piloting and reviewer training. This form was based on the version used for implicit reviews in the Sheffield study of review methods (Hutchinson, 2008a). In addition, a number of records were scored by more than one reviewer in order to measure inter-rater reliability.

7.3.1 Selection of records

Stratified random sampling was used to select the clinical records for the notes review. The units of stratification were the service settings within each of the five pairs of sites. Notes were selected from a representative selection of each distinct service the ECPs were operating in. The ECPs in the pragmatic multi-centre community intervention trial were operational in a variety of services settings within the five pairs of sites and it was important that any differences in safety and quality in ECP working across these services was evaluated (See Section 5, Table 5). Within the five pairs of sites there were six distinct health service settings in which ECPs were operational. Each of the six distinct services had a corresponding control service in which ECPs were not operational. Thus there were 12 services which made up units from which the records were selected. A random sample of 40 patient episodes was selected from all recruited patients presenting to these 12 services. This meant a total of 480 notes (240 from ECP services and 240 from non-ECP services) were randomly selected. Quality of care/safety could then be compared between ECP notes and control practitioner notes. All patient, staff and organisational identifiers were removed from each record.

7.3.2 Reviewers

A panel of seven experienced clinicians specialising in emergency medicine were recruited to conduct the review of records. The reviewers were recruited from three different geographical locations (South Yorkshire; Humberside; South West) and were specialist registrars in emergency medicine. The use of experienced clinicians to conduct implicit record reviews is consistent with the approach employed by large scale quality and safety review programmes in the USA (Thomas, 2000; Thomas et al, 2002.) Findings from the Sheffield methodological study and similar studies would also suggest that for the type of review required to assess emergency care service provider records, where care is delivered as a discrete socio-technical encounter rather than an ongoing process involving a team or repeated consultations; experienced clinicians are appropriate reviewers as they tend to review from a more technical point of view than do nurses (Weingart et al, 2002; Hutchinson et al, 2008b).

7.3.3 Review form

Expert reviewers rated the quality of care actually provided on three key aspects of care (assessment of the clinical problem; investigations performed; patient management) and overall care on a numerical scale (1=unsatisfactory, 6=very best care). Reviewers were provided with written guidance to aid consistency in the interpretation of the numerical quality of care scales (Hutchinson A et al, 2008c):

Table 19. Guidance for reviewers in rating quality of care

1	Care fell short of current best practice in one or more significant areas resulting in the potential for, or actual, adverse impact on the patient.
2	Care fell short of current best practice in more than one significant area, but is not considered to have the potential for adverse impact on the patient.
3	Care fell short of current best practice in only one significant area, but is not considered to have the potential for adverse impact on the patient.
4	This was satisfactory only falling short of current best practice in more than two minor areas.
5	This was good care, only falling short of current best practice in one or two minor areas.
6	This was excellent care and met current best practice.

In addition, reviewers were asked to provide textual comments regarding the quality of care received by the patient overall, including assessment of the clinical problem, investigations carried out and the management of the patient. The overall quality of the clinical record was also rated on a numerical scale (1=inadequate, 6=excellent) and the following guidance was provided:

Table 20. Guidance for reviewers in rating quality of clinical records

1	The patient record contains gaps in three or more significant areas
2	The patient record that contains gaps in two significant areas
3	The patient record that contains gaps in one significant area
4	The patient record is satisfactory and only contains gaps in three or more minor areas
5	The patient record is good and only contains gaps in one or two minor areas.
6	The patient record is excellent

Unlike the explicit review approach, reviewers were not provided with any specific criteria on current best practice and used their professional judgement depending on the case they were evaluating. Piloting of the review form was conducted with three of the seven reviewers. These reviewers were provided with six records each; one record from each of the six different services and representing the range of different record types

(e.g. paper or electronic). No amendments were made to the content of the review form as a result of the pilot study.

The project team developed data collection software using an Access database, for the experts to complete which provided data entry screens for recording responses to each of the assessment categories on the review form, including the free text comment box. A copy of the reviewer form can be found in Appendix 5.

7.3.4 Reviewer training

A one-day reviewer training workshop was conducted at the University of Sheffield to provide guidance from experts in this research method, how to rank quality of care, the type of textual comments required, and to allow reviewers to practice conducting reviews with actual examples of the clinical records to be reviewed. The data collection software was also demonstrated.

The reviewers were blind to the actual nature of the study. They were informed that it was a national study evaluating the safety of care provided for minor injury and illness conditions. At the end of the training event each of the expert reviewers was provided with the actual set of records they were to review, and a copy of the data collection software with an instruction manual so that they could complete and return their assessments electronically. The 480 records were divided between the seven reviewers with each reviewer received a unique allocation of between 67 and 69 records, and each reviewer allocation proportionally matched from the 12 services and from both ECP and non-ECP records. In addition each reviewer received two extra records from those seen by the other reviewers so that 14 records were common across all the reviewers, which permitted the assessment of inter-rater reliability.

7.4 Data analysis

Data from the Access database were transferred to SPSS Version 14 for statistical analysis. The extent of reliability between reviewers was assessed by examining inter-rater reliability and intra-rater consistency. Intraclass Correlation Coefficients were calculated to assess inter-rater reliability between scores for the same fourteen records assessed by each of the seven reviewers. To assess intra-rater consistency (whether reviewers were internally consistent in their ratings), a mean quality of care score was calculated from the combined ratings for each of the three aspects of care (assessment, investigations, and management). Pearson correlation coefficients were calculated to assess whether the mean ratings for the combined aspects of care were consistent with the overall ratings for quality of care. The textual comments regarding the quality of care received by the patient overall, including assessment of the clinical problem, investigations carried out and the management of the patient were analysed to examine consistency in the implicit assessment criteria being used by the seven reviewers. Similarities and differences were identified in the comments provided on each of the fourteen records assessed.

Descriptive statistics were calculated to examine any differences, firstly between the two trial arms and then between the six different types of service delivery. The six different types of service delivery were split into three discrete categories for the purposes of the analyses. These three categories were created to compare and contrast quality of care between

different models of care delivery. The three categories were as follows; static centre based care (which included MIUs, WIC and urgent care centres) where ECPs worked as a static resource in a healthcare centre, 999/care direct (were care was provided exclusively by mobile professionals at the scene of incidents) and out of hours (care provided by a combination of static centre based professionals and mobile professionals). Two-tailed t-tests were used to establish the statistical significance of any differences between quality of care scores. A simple content analysis of the textual comments regarding quality of care was conducted across all records reviewed to make explicit the implicit assessment criteria used by reviewers in assessing overall care and to identify any obvious differences in care for ECP and control groups across the three different emergency care services.

7.5 Results

7.5.1 Inter-rater reliability

Table 21 provides the results of Intraclass Correlations calculated to assess inter-rater reliability for individual raters. The average measures (or sum) of the scores of the seven raters all correlate above 0.8.

Table 21. Inter-rater reliability between ratings for the same records assessed by different reviewers

Aspects of care	No of reviewers	No of reviews	Average measure Intraclass Correlation (ICC) (95% CI)	Single measure Intraclass Correlation (ICC) (95% CI)
Assessment	7	14	0.92 (0.83 to 0.97)	0.61 (0.41 to 0.82)
Investigation	7	14	0.88 (0.76 to 0.96)	0.52 (0.32 to 0.76)
Management	7	14	0.92 (0.83 to 0.97)	0.62 (0.41 to 0.82)
Overall care	7	14	0.93 (0.85 to 0.97)	0.64 (0.44 to 0.83)
Quality of records	7	11	0.89 (0.76 to 0.97)	0.54 (0.31 to 0.80)

The single measure Intraclass Correlations are also provided (Table 21). These are somewhat lower than the average measures ranging from 0.54 to 0.64.

7.5.2 Intra-rater consistency

All seven of the reviewers achieved correlations between the mean scores for the three individual aspects of care and overall quality of care of over 0.7. Six of the seven reviewers achieved correlations of 0.8 or above.

Table 22. Intra-rater consistency between mean ratings across three aspects of care and overall care ratings for each reviewer

Reviewer	No of reviews	Mean rating of 3 aspects of care (SD)	Overall care (SD)	Pearson Correlation between Mean rating of 3 aspects of care and Overall care (p value)
1	14	3.90 (1.10)	3.86 (1.23)	0.98 (<0.00)
2	14	4.60 (1.47)	4.50 (1.34)	0.94 (<0.00)
3	14	4.43 (0.95)	4.00 (1.11)	0.90 (<0.00)
4	14	4.83 (1.39)	4.79 (1.31)	0.95 (<0.00)
5	14	4.62 (1.08)	4.50 (1.02)	0.97 (<0.00)
6	14	4.60 (0.97)	4.07 (1.14)	0.79 (<0.01)
7	14	4.33 (0.70)	4.29 (0.99)	0.70 (<0.01)

7.5.3 Consistency in rating criteria

Table 23 presents the analysis of textual comments regarding the quality of care received by the patient overall to give an indication of the implicit assessment criteria being used by the seven reviewers and the extent of consistency. The mean overall care score for each record is also provided for comparison purposes.

Though some minor variations were observed in the comments noted for the same records, there was also considerable consistency in the strengths and weaknesses identified.

Table 23. Mean overall care scores for all seven reviewers on each record and free text comments on the quality of overall care

Record No	Mean overall care score for all reviewers (SD)	Comments on overall care
1.	4.43 (0.79)	Minor omissions on history and examination; management okay.
2.	4.14 (1.07)	Weak documentation; unclear description; management good.
3.	5.43 (0.54)	Good assessment, no investigations needed or done.
4.	2.00 (0.58)	Poor recording/documentation; difficult to read notes.
5.	5.29 (0.49)	Good assessment, investigation and care; no investigations needed or done.
6.	4.43 (0.79)	Query over choice of medication – type of antibiotic; some information not recorded – respiration rate.
7.	3.00 (1.00)	Limited examination and recording of information – sticking to protocol alone limited care.
8.	4.71 (0.76)	Difficult case with two presenting problems. Good history and care but some aspects of examination are absent.
9.	3.71 (0.76)	Difficult patient and presenting complaint; more detailed history and investigation warranted.
10.	3.71 (0.49)	History, examination and documentation could have been more detailed.
11.	4.43 (0.54)	Minor details missing on history and investigation; should have sent MSU.
12.	3.86 (0.69)	Omissions on examination and recording.
13.	5.43 (0.79)	Good assessment; no investigations needed or done.
14.	5.43 (0.54)	Straightforward problem; minor omissions in examination.

7.5.4 Quality of care scores

The mean quality of care scores for the two trial arms across all services are presented in Table 24. Mean score for overall care was significantly higher for ECPs compared with non-ECPs. Mean scores for ECPs were also significantly higher than for the controls in assessment and quality of records ($p < 0.01$).

Table 24. Quality of care scores by trial arm

Trial arm	ECP	Control
Overall care		
n	240	238
Mean (SD)	4.4 (1.1)*	4.1 (1.3)
(95% CI for mean)	(4.2 to 4.5)	(3.9 to 4.3)
Mean difference (95% CI)		0.30 (0.09 to 0.52)
Assessment		
n	240	239
Mean (SD)	4.4 (1.1)*	4.0 (1.3)
95% CI (for mean)	4.2 to 4.5	3.9 to 4.2
Mean difference (95% CI)		0.32 (0.09 to 0.54)
Investigation		
n	238	238
Mean (SD)	4.9 (1.3)	4.7 (1.4)
95% CI (for mean)	4.7 to 5.0	4.5 to 4.9
Mean difference (95% CI)		0.17 (-0.07 to 0.41)
Management		
n	238	238
Mean (SD)	4.5 (1.2)	4.3 (1.4)
95% CI (for mean)	4.4 to 4.7	4.1 to 4.4
Mean difference (95% CI)		0.27 (0.04 to 0.50)
Quality of records		
n	237	236
Mean (SD)	4.3 (1.0)*	4.0 (1.2)
95% CI (for mean)	4.2 to 4.5	3.9 to 4.2
Mean difference (95% CI)		**0.32 (0.12 to 0.53)**

* P=<0.01

Table 25 presents the mean quality of care scores for the two trial arms across the three different categories of emergency care services. For the static centre based settings (ED, WIC, MIU, urgent care centre) the mean scores for ECPs are significantly higher than controls on four of the five rating categories: assessment; management; overall care, and quality of records ($p < 0.01$). For the 999/care direct services, there were no significant differences observed between the scores for the ECPs and controls. For the out of hours service the mean scores for ECPs are significantly higher than controls on only one of the five rating categories: assessment ($p < 0.01$).

Table 25. Quality of care scores by trial arm across three emergency care services

	Static centre based settings (ED, WIC, MIU, urgent care centre)		999/care direct (mobile)		Out of hours service	
Trial arm	**ECP**	**Control**	**ECP**	**Control**	**ECP**	**Control**
Overall care						
n	160	158	40	40	40	40
Mean (SD)	4.6 (1.1)*	4.2 (1.3)	3.7 (1.1)	4.2 (1.30)	4.4 (1.2)	3.8 (1.3)
95% CI (for mean)	4.4 to 4.7	4.0 to 4.4	3.4 to 4.1	3.8 to 4.6	4.0 to 4.8	3.4 to 4.2
Mean difference (95% CI)	0.42 (0.16 – 0.68)		-0.45 (-0.97 to 0.73)		0.60 (0.06 to 1.14)	
Assessment						
n	160	159	40	40	40	40
Mean (SD)	4.5 (1.1)*	4.1(1.3)	3.8 (1.2)	4.3 (1.3)	4.4 (1.1)*	3.7 (1.3)
95% CI (for mean)	4.3 to 4.7	3.7 to 4.3	3.4 to 4.2	3.9 to 4.7	4.1 to 4.8	3.3 to 4.1
Mean difference (95% CI)	0.42 (0.15 to 0.69)		-0.53 (-1.1 to 0.03)		0.75 (0.22 to 1.29)	
Investigation						
n	158	158	40	40	40	40
Mean (SD)	5.1 (1.1)	4.9 (1.4)	4.1 (1.4)	4.4 (1.4)	5.0 (1.4)	4.5 (1.6)
95% CI (for mean)	4.9 to 5.3	4.7 to 5.1	3.6 to 4.5	3.9 to 4.8	4.5 to 5.4	4.0 to 5.0
Mean difference 95% CI)	0.22 (-0.06 to 0.49)		-0.30 (-0.92 to 0.32)		0.45 (-0.21 to 1.11)	
Management						
n	158	158	40	40	40	40
Mean (SD)	4.7 (1.1)*	4.3 (1.4)	3.8 (1.4)	4.3(1.3)	4.4 (1.1)	4.0 (1.4)
95% CI (for mean)	4.6 to 4.9	4.1 to 4.6	3.4 to 4.3	3.8 to 4.7	4.0 to 4.7	3.6 to 4.4
Mean difference (95% CI)	0.42 (0.14 to 0.70)		-0.43 (-1.02 to 0.17)		0.38 (-0.17 to 0.92)	
Quality of records						
n	157	156	40	40	40	40
Mean (SD)	4.5 (1.0)*	4.0 (1.3)	4.0 (1.2)	4.2 (1.1)	4.3 (1.0)	3.7 (1.0)
95% CI (for mean)	4.3 to 4.6	3.8 to 4.3	3.6 to 4.4	3.8 to 4.6	4.0 to 4.6	3.4 to 4.1
Mean difference (95% CI)	0.41 (0.15 to 0.68)		-0.23 (-0.74 to 0.29)		0.55 (0.11 to 0.99)	

* P=<0.05

7.5.5 Comments on overall quality of care

The implicit assessment criteria expressed in the textual comments appeared to be broadly consistent across the ECP and control groups in each of the three different emergency care services. Reviewers considered the three key aspects of care and the relevant detail provided in the patient record. The quality of the patient record was identified as a key factor in assessing the care delivered. For example, where limited detail was provided regarding assessment and/or investigations, it was difficult to ascertain whether the management was appropriate.

Comments were provided for the majority of records reviewed; eight records had no comments provided. Six of these had an overall care score of 6 so it may be that the reviewers did not identify any weaknesses in care. The other two records had overall care scores of 4. Reviewers generally provided a greater level of detail where they gave lower scores for overall care, usually highlighting the perceived shortcomings in care as detailed in the patient notes. Where care was not as good as it could have been reviewers proved comments on deficiencies and how the care could have been improved. However, the assessment of care was also influenced by the information available in the patient record.

Where records were scored 1 or 2 for overall care, the care was generally regarded as poor or very poor and common issues included: a limited history; important omissions in history, examination and management; and major omissions in recording/documenting information, including badly written notes and difficult to read handwriting. Where overall care was rated 3, the care was often described as poor, whereas overall care rated 4 was regarded as satisfactory or adequate. Common issues identified in comments from these records included: limited detail and a number of omissions in assessment, investigations or management, poor description and documentation of care. For records given scores of 5 or 6, overall care was regarded as good, very good or excellent. The individual aspects of care were generally regarded as appropriate and consistent with relevant guidelines and there were no unnecessary investigations or referrals. Minor omissions tended to result in scores of 5 rather than 6. Common omissions included: tetanus status not established/recorded, analgesia not offered/given; respiration rate not recorded, urine dip test not conducted/recorded, and scope for more specific advice/information. Table 26 provides details of the proportions of overall care scores by trial arm across three emergency care services.

Table 26. Proportions of overall care scores by trial arm across three emergency care services

	Urgent Care Centre (Static centre)		999 (Mobile)		Out of Hours	
Overall care score	**ECP % (N)**	**Control % (N)**	**ECP % (N)**	**Control % (N)**	**ECP % (N)**	**Control % (N)**
1	1.3% (2)	5.7% (9)	5.0% (2)	2.5% (1)	2.5% (1)	2.5% (1)
2	1.3% (2)	5.7% (9)	7.5% (3)	7.5% (3)	7.5% (3)	17.5% (7)
3	12.5% (20)	15.2% (24)	25.0% (10)	20.0% (8)	7.5% (3)	20.0% (8)
4	28.1% (45)	25.9% (41)	37.5% (15)	25.0% (10)	20.0% (8)	22.5% (9)
5	37.5% (60)	35.4% (56)	25.0% (10)	32.5% (13)	55.0% (22)	32.5% (13)
6	19.4% (31)	12.0% (19)	-	12.5% (5)	7.5% (3)	5.0% (2)
Total	**100% (160)**	**100% (158)**	**100% (40)**	**100% (40)**	**100% (40)**	**100% (40)**

7.6 Discussion

7.6.1 Principal findings

Overall, ECPs scored significantly higher than non-ECPs for mean quality of care scores. ECPs also scored significantly higher than non-ECPs for mean assessment (of the clinical problem) and for quality of the clinical record. However the differences between the ECP and non-ECP mean scores in these three aspects of care were small suggesting that they were clinically insignificant. However the findings from this notes review suggest that ECPs are providing a standard of clinical care which is slightly better than the non-ECP providers. ECPs also scored higher in the other two aspects of care compared (investigation and management of the clinical problem) although the differences were not statistically significant.

The mean quality of care scores for ECPs and non ECPs were compared between three different models of care delivery. ECPs working as a static resource in urgent healthcare centres (MIU, WIC, ED and an urgent care centre) had significantly higher mean scores for overall care than non ECPs in these same centres. ECPs working in these urgent healthcare centres also had significantly higher mean scores for assessment, management and overall quality of care. However the differences between the mean scores between ECPs and non-ECPs were small and were unlikely to point to a significant clinical difference in the care provided. In the other two

categories of service (999 and out of hours) ECPs did not score significantly higher than non-ECPs in any aspect of care except for assessment of the clinical problem in out of hours.

ECPs currently work in a variety of healthcare settings and it is essential that an evaluation of the quality of patient care is carried out in each model of service provision. The selection of the records for this review allowed a comparison of the quality and safety of care provided by ECPs working in different healthcare settings. As a minimum, care should be as safe as existing service models and the findings from the study suggest that this is true of ECPs regardless of the service they are operational in.

7.6.2 Limitations

One of the limitations of record review is that reviewers are reliant on the information recorded in the case notes to make their judgments regarding quality of care. The level of detail in the clinical records is an important factor and it may be that not all information pertaining to the case is documented. An alternative approach to assessing safety and quality of care is direct observation of the actual care provided, however, this would have been more time consuming and costly.

There are obvious limitations in employing an implicit review method as it relies on the subjective judgements of the reviewers on the process of care. However the inter-rater reliability scores of the seven reviewers were highly reliable which convention suggests indicates good agreement. These are considerably higher than previous studies using the implicit review approach (Hutchinson et al, 2008b; Hofer et al, 2004). Although an Intraclass Correlation of greater than 0.8 is regarded as indicative of good agreement, this generally relates to data having a clear right and wrong answer and where 100% agreement is possible. However, in the case of the implicit review approach based on subjective judgments, it is optimistic to expect such a high level of agreement. Correlations over 0.50 may actually represent a reasonable level of agreement (Hutchinson et al, 2008b). Ratings of intra-rater consistency for our reviewers also indicated a fair to good level of reliability between mean scores for the three individual aspects of care and overall quality of care mean scores.

The high level of agreement on subjective judgements of clinical records reviewed in this study suggests that the training process was successful in ensuring consistency across the raters in distinguishing between different levels of performance in relation to quality of care. It may also reflect the level of experience of the reviewers who were all experienced Emergency Department clinicians and would have a common implicit view on the safety and quality of care criteria across the range of conditions encountered by emergency care providers. The nature of the emergency care records may also have aided consistency in reviews in that the records provided accounts of discrete episodes of care whereas other studies involved reviews of more detailed hospital records of care over a longer period of time. To avoid any potential bias arising from reviewers perceptions of emergency care providers and ECPs in particular, reviewers were blind to the rationale for the overall study and staff identifiers were removed from records.

8 Survey of Staff

8.1 Introduction

This part of the study was undertaken in order to examine perceptions and attitudes of ECP and non-ECP staff on their respective roles as health care providers. The survey used 'job design theory' as a theoretical framework as it provides a powerful tool for capturing the impact of new ways of working on employees' experience of work (Morgeson F, Humphrey E. 2006).

8.2 Aims and objectives

A survey of all ECPs and a matched control group of non-ECPs in each pair of ECP and non-ECP sites was carried out in order to;

- Evaluate the attitudes and perceptions of ECPs to their role, in terms of key characteristics of the role and work related outcomes
- To compare ECP and non-ECP staff attitudes in terms of these key role characteristics and work related outcomes.

8.3 Methods

The method of data collection was a postal questionnaire with up to one reminder.

8.3.1 Participants

The sample frame consisted of 238 health professionals, in all five pairs of the participating sites (five ECP sites and five non-ECP sites). All ECPs who were currently operational across the five ECP sites were included. The sample frame for the non-ECP sites was chosen purposively to capture a range of other health professionals involved in delivering care to patients who were eligible to be seen by an ECP.

The sample details of ECPs and non-ECPs were provided by study contacts in the five pairs of sites. Names of staff and a work address were provided to the research team. A letter of invitation, information leaflets and consent forms and questionnaires was then mailed to the staff sample. If no reply was received within three weeks a reminder questionnaire was posted.

8.3.2 Questionnaire

The questionnaire was designed to measure a variety of job-related characteristics and work-related outcomes. A copy of the questionnaire can be found in Appendix 6. The main categories linked to **job characteristics** were:

- motivational job characteristics

- social job characteristics
- relational job characteristics
- other organisational perceptions
- other objective job characteristics

The categories for **work-related outcomes** for the staff were:

- employee well-being outcomes
- employee performance outcomes
- pro-social patient care outcomes

Additionally, a series of **demographic questions**: the respondent's age, gender, current profession and clinical background, was also included.

Each of the main headings contained sub-sets of related items. The dimensions contained with **job characteristics** were as follows:

Motivational job characteristics

Autonomy and control: This refers to the degree of independence and freedom the individual perceives within the role, and was represented by four items (e.g. "Do you have considerable opportunity for independence and freedom in how you do your work?").

Skill utilisation: This measures the diversity of skills the individual believes they use within the role, and was represented by five items (e.g. "Do you use a variety of skills?").

Task identity: This measures the extent to which the individual believes they have the opportunity to complete a whole piece of work, and was represented by two items (e.g. "Do you have a chance to complete the pieces of work you began?").

Task feedback: This refers to the availability of information the individual believes they receive relating to their performance, and was represented by three items (e.g. "Does your job itself provide feedback about your performance?").

Work demands: This refers to whether the individual believes they are provided with adequate resources to complete their required job tasks, and was represented by six items (e.g. "I do not have enough time to carry out my work").

Meaningfulness of job: This is the extent to which the individual perceives value and worth in what they do, and was represented by three items (e.g. "The work I do is very important to me").

Social job characteristics

Supervisor support: This refers to the availability of advice and support perceived from superiors, and was represented by six items (e.g. "To what extent does your manager / supervisor consider your personal feelings when implementing actions that will affect you?").

Colleague support: This refers to the availability of advice and support perceived from peers, and was represented by four items (e.g. "To what extent can you count on your colleagues to back you up at work?").

Relational job characteristics

Extent of contact with patients: This refers to the amount of interaction individuals report with patients, and was represented by two items (e.g. “My job allows frequent communication with the patients who benefit from my work”).

Extent of connection with patients: This refers to the intensity of interaction individuals believe they have with patients, and was represented by three items (e.g. “My job allows me to spend a good amount of time with my patients”).

Pro-activity of patients: This refers to how involved patients are perceived to be in their own care, and was represented by two items (e.g. “When caring for patients, how often do they voice opinions, query decisions, or make suggestions about their care?”).

Perceived pro-social job impact: This refers to how much of a difference the individual believes their job role makes to individuals, and was represented by five items (e.g. “My job gives me the chance to make a significant positive difference in patients’ lives”).

Perceived pro-social personal impact: This refers to how much of a difference the individual believes their own personal actions make to individuals, and was represented by three items (e.g. “I am very conscious of the positive impact that my work has on patients”).

Pro-social norms: This refers to the amount of consideration for patients perceived to be demonstrated by peers, where a high score indicates positive pro-social norms, and was represented by three items (e.g. “My co-workers treat patients with respect”).

Other organisational perceptions

Positive career development opportunities: This is the extent to which the individual believes they have the opportunity to develop professionally, and was represented by five items (e.g. “There will be clinical opportunities for my career advancement in the next few years”).

Objective measures of job characteristics

Patient contact was also assessed by two additional objective items. First, the number of patients seen in a typical day (“On average, how many patients do you see in a typical day?”) and, second, the average amount of time spent with each patient (“On average, how much time do you spend interacting with each patient?”).

The dimensions of the **work-related outcomes** contained the following elements:

Employee wellbeing

Job satisfaction: This refers to the extent to which the individual enjoys and values their job, and was represented by five items (e.g. “I find real enjoyment in my work”).

Self-worth: This is the extent to which individuals positively appraise themselves and their capabilities, and was represented by three items (e.g. “I feel that others appreciate my work”). *Wellbeing:* This refers to the extent to which an individual reports positive psychological states such as

happiness, peacefulness and enjoyment, with lower wellbeing indicated by self-reports of negative states such as fear, anxiety and depression. Wellbeing was represented by 20 items and a high score indicates positive wellbeing (e.g. “Thinking of the past week, how much of the time has your job made you feel anxious?”).

Employee performance

Perceived competence: This refers to how the individual appraises their own abilities, and was represented by two items (e.g. “I am competent about my ability to do my job”).

Role breadth self-efficacy: This refers to the extent to which the individual is confident they can perform competently outside the boundaries of their role, and was represented by five items (e.g. “How confident would you feel designing new procedures / protocols / pathways for your work area?”).

Professional commitment: This refers to the extent of an individual’s loyalty to and intention to stay within the role, and was represented by four items (e.g. “this is the ideal profession for a life’s work”);

Intention to quit: This refers to the individual’s intention to leave or stay in the role, and was represented by three items (e.g. “I often think about leaving my current role”).

Meeting performance expectations: This refers to the extent to which the individual believes they fulfil the requirements of the role, and was represented by two items (e.g. “How frequently do you meet performance expectations?”).

Performance quality: This refers to the quality of care the individual perceives they provide, and was represented by three items (e.g. “How frequently do you provide individualised care?”); *Taking charge / innovation:* This refers to the extent to which the individual perceives their own pro-activity within the role, and was represented by four items (e.g. “How frequently do you try to implement solutions to pressing organizational problems?”).

Pro-social patient care

Empathy with patients: This refers to the extent of compassion and understanding the individual feels towards patients, and was represented by four items (e.g. “I feel compassion towards my patients when they are experiencing difficulties”).

Perspective taking: This refers to the extent to which the individual is able to view things from the patient’s perspective, and was represented by four items (e.g. “I try hard to see things from the patient’s perspective, even if I don’t really agree with them or like them”).

Showing concern for patients: This is the extent to which the individual feels concern for the patient, and was represented by three items (e.g. “I feel concern for patients if they are suffering”).

Proactive care of patients: This refers to the extent that the individual encourages the patients to be an active participant in their own care, and was represented by four items (e.g. “How frequently do you make suggestions to patients to improve their longer-term recovery and health?”).

Motivation for pro-social behaviour: This is the extent to which the individual desires to make a difference in the lives of others, and was represented by five items (e.g. "It is very important to me to make a real difference in patients' lives").

8.3.3 Data collection process

The participants were asked to consider a 'specific presented statement' (SPS) against each item on the questionnaire and to score their level of agreement between the SPS and their current job, on a 5-point Likert scale (1 being low and 5 being high) as follows:

1 = Not at all, 2 = A little, 3 = Moderate amount, 4 = Quite a lot, 5 = A great deal.

8.4 Analysis

Initially, the differences between the ECP and non-ECP staff were examined for all the job characteristics and work-related outcomes measures using independent groups t-tests (or the non-parametric equivalent Mann Whitney U Test where the measure in question had a severely non-Normal distribution). The measure of average used to compare the outcomes between ECPs and non-ECPs, for motivational job characteristics, social job characteristics, relational job characteristics, other organisational perceptions, employee wellbeing, and employee performance, and pro-social patient care, was the mean. The measure used for the 'other objective job characteristics' was the median. The average score was then taken across each subset of items, giving a single measure of each for each respondent.

To investigate whether the differences found between ECPs and non-ECP responders were consistent across the five paired ECP and non-ECP sites in the evaluation, a series of more detailed analyses (using two-way full factorial ANOVA or the non-parametric equivalent where appropriate) was performed.

We also examined differences in the key outcome variables between ECPs and non-ECPs in the five paired ECP and non-ECP sites, controlling for potential mediating (explanatory) job characteristics variables. These analyses were performed using standard multiple regression techniques, with the percentage of variance in the outcome (the R-squared statistic) explained by the interaction between ECPs and non-ECPs within each pair of sites observed both before and after controlling for each job characteristic. Any job characteristics which were both significantly related to the outcome and caused a substantial reduction in the variance found was taken as an explanatory factor.

Finally we examined the relationship between ECP and non-ECPs in the five paired sites, and job satisfaction by controlling for potential 'mediating' (i.e. explanatory) variables i.e. those elements that were related to job satisfaction and had shown some degree of variation.

Throughout the analyses we used the $p < 0.05$ level of statistical significance; given the exploratory nature of the analyses, two-tailed tests were used. For the t-tests, effect sizes were estimated using Cohen's D statistic (the difference between the means divided by the standard deviation).

8.5 Results

Overall, 110 questionnaires were returned completed, 41 from ECPs and 69 from non-ECPs yielding a response rate of 46% (Table 27) In terms of gender, 57 were male and 53 female, although three-quarters of the ECPs were male. The mean age for ECPs was 40.4 years and 43.6 years for non-ECPs.

Table 27: Self-reported clinical roles of responders

Occupational group	Number of respondents	%
ECP	41	37
Non-ECP: Doctor	14	13
Non-ECP: Nurse - ENP	29	26
Non-ECP: Nurse - Staff/Senior	16	15
Non-ECP: Paramedic	10	9
Total	**110**	**100**

Collectively, ECPs reported significantly lower tenure in their existing role (median: 2.7 years) than non-ECPs (median: 5.0 years), although this is likely to be due to the shorter length of time the ECP role has been in place. The difference for NHS tenure is not significant, with ECPs reporting a mean of 17.5 years in the NHS and non-ECPs reporting a mean of 20.2 years.

8.5.1 Motivational job characteristics

ECP staff reported significantly lower levels of work demands (t = 2.92, medium effect size; Cohens D = 0.57), and also of task feedback (t = 2.79, medium effect size; Cohens D = 0.55), than ECPs. The difference between ECPs and non-ECPs in the 'meaningfulness of job', with ECPs experiencing less meaningfulness, also had a small to medium effect size although this fell short of statistical significance. No other differences were found between the ECP and non-ECP staff. (Table 28)

Table 28. Mean scores for motivational job characteristics

Characteristic	ECP	Non-ECP
Autonomy and control	4.41	4.27
Skill utilisation	3.93	4.07
Task identity	3.80	3.79
Task feedback	2.62	3.13*
Work demands	2.04	2.46*
Meaningfulness of job	4.15	4.42

*P< 0.05

8.5.2 Social job characteristics

There was a significant difference between levels of supervisor support reported by ECP and non-ECP staff, with supervisor support reported as lower by ECP staff (t = 3.46, medium to large effect size; Cohens D = 0.68). Availability of support from colleagues, however, does not differ between ECPs and non-ECP sites. (Table 29)

Table 29. Mean scores for social job characteristics

Characteristic	ECP	Non-ECP
Supervisor support	2.59*	3.25
Colleague support	4.15	4.11

*P< 0.05

8.5.3 Relational job characteristics

Almost all the relational job characteristics measured showed no differences existed between ECP and non-ECP staff. The only significant difference found is that ECP staff perceive their patients to be less involved with their own care (less proactive), (t = 2.44, medium effect size; Cohens D = 0.48). (Table 30)

Table 30. Mean scores for relational job characteristics

Characteristic	ECP	Non-ECP
Extent of contact with patients	4.02	4.20
Extent of connection with patients	3.26	3.22
Patient hostility / friendship received	4.04	3.82
Pro-activity of patients	2.86*	3.14
Perceived pro-social job impact	3.91	3.85
Perceived pro-social personal impact	4.02	3.94
Pro-social norms	4.27	4.25

*P< 0.05

8.5.4 Other organisational perceptions

There was a statistically significant difference between positive career development opportunities reported by ECP (measure =2.86) and non-ECP staff (measure =3.34) (t = 3.02, medium effect size; Cohens D = 0.59) (p<0.05), with the opportunity to develop professionally perceived as lower by ECP staff.

8.5.5 Objective measures of job characteristics

Overall, ECPs report that they see significantly fewer patients in a typical day (medians = 7 versus 15 patients, p<0.05) (Z = -3.61) and hence,

spend significantly more time with each of them (mean = 30 minutes versus 20 minutes, $p<0.05$) ($Z = -4.12$).

8.5.6 Employee wellbeing outcomes

T-tests of each outcome found that there were no significant differences between ECP staff and non-ECP staff on any wellbeing outcome scale. The direction of the mean scores may suggest that ECPs are less satisfied, have slightly lower self worth and lower wellbeing than non-ECPs. (Table 31)

Table 31. Mean scores for employee wellbeing outcomes

Employee wellbeing outcome	ECPs	Non-ECPs
Job satisfaction	3.78	4.03
Self worth	3.60	3.83
Wellbeing	3.83	3.98

*($p<0.05$),

8.5.7 Employee performance outcomes

In respect of employee performance outcomes, the only statistically significant finding is that ECP staff rate their performance higher than do the non-ECP staff ($t = 3.01$, medium effect size; Cohens $D = 0.62$). (Table 32) The results may indicate that ECP respondents take a more negative perspective on some of these measures than their non-ECP counterparts, appearing to be less committed and reporting a higher intention to quit than non-ECP staff.

Table 32. Mean scores for employee performance outcomes

Employee performance outcome	ECPs	Non ECPs
Perceived competence	4.17	4.31
Role breadth self efficacy	3.79	3.54
Professional commitment	3.26	3.63
Intention to quit	2.66	2.30
Meeting performance expectations	4.11	4.19
Performance quality	4.42*	4.05
Taking charge / innovation	2.74	2.77

*$P<0.05$

8.5.8 Pro-social patient care outcomes

There were no significant differences between ECPs and non-ECPs on any of the pro-social patient care outcomes, and there was no apparent pattern in the direction of differences across the five measures examined. (Table 33)

Table 33. Mean scores for pro-social patient care outcomes

Pro-social patient care outcome	ECPs	Non ECPs
Empathy with patients	4.30	4.47
Perspective taking	3.79	3.90
Showing concern for patients	4.37	4.35
Proactive care of patients	3.76	3.49
Motivation for pro-social behaviour	3.90	4.03

8.5.9 Comparisons of job characteristics by ECP vs non-ECPs across the five pairs of sites

The differences between the five pairs of sites revealed variations in the job characteristics dimensions between the matched ECP and non-ECP sites. In three pairs of sites, ECPs reported marginally higher levels on most of the positive job characteristic attributes than non-ECPs (Pairs one, two and three). The difference found between ECPs and non-ECPs in task feedback (Table 28) was largely explained by two of the five pairs of sites, where ECPs reported lower levels of task feedback (Pairs four and five). (Figure 11)

A site specific difference between the ECPs and non-ECPs was also found for 'meaningfulness of job'. (see Figure 12) A similar pattern was found for a number of other job characteristics such as, connection and contact with patients, friendship received from patients, perceived pro-social personal impact and pro-social norms, supervisor and colleague support.

The lower levels of work demands reported by ECP staff than non-ECP staff (Table 28) were consistent across all the sites except one matched pair of sites (pair four) where ECP staff reported higher work demands than reported by non-ECP staff. (Figure 13)

The objective measures of work characteristics followed a similar pattern. The median scores in one pair of sites indicated that ECPs were seeing higher numbers of patients and spent less time with each patient than non-ECPs (pair four). The converse was true in all the other pairs of sites. In these sites, non-ECP staff reported seeing more patients and spending less time with them than reported by ECPs. (Figure 14)

8.5.10 Comparisons of work-related outcomes by ECP vs non-ECP across the five paired sites

A similar pattern to the comparison of job characteristics (8.5.9) across the five paired sites was found for the work-related outcomes. There were no significant differences between ECP and non-ECP staff in four of the paired sites. In one pair of sites (pair four) ECPs reported significantly lower levels of self-worth, professional commitment and well-being, and a higher level of

intention to quit, than non-ECP staff. The site specific differences between ECPs and non-ECPs found were all statistically significant, and are illustrated for job satisfaction. (Figure 15).

Figure 11. Mean task feedback by ECPs and non-ECPs by site

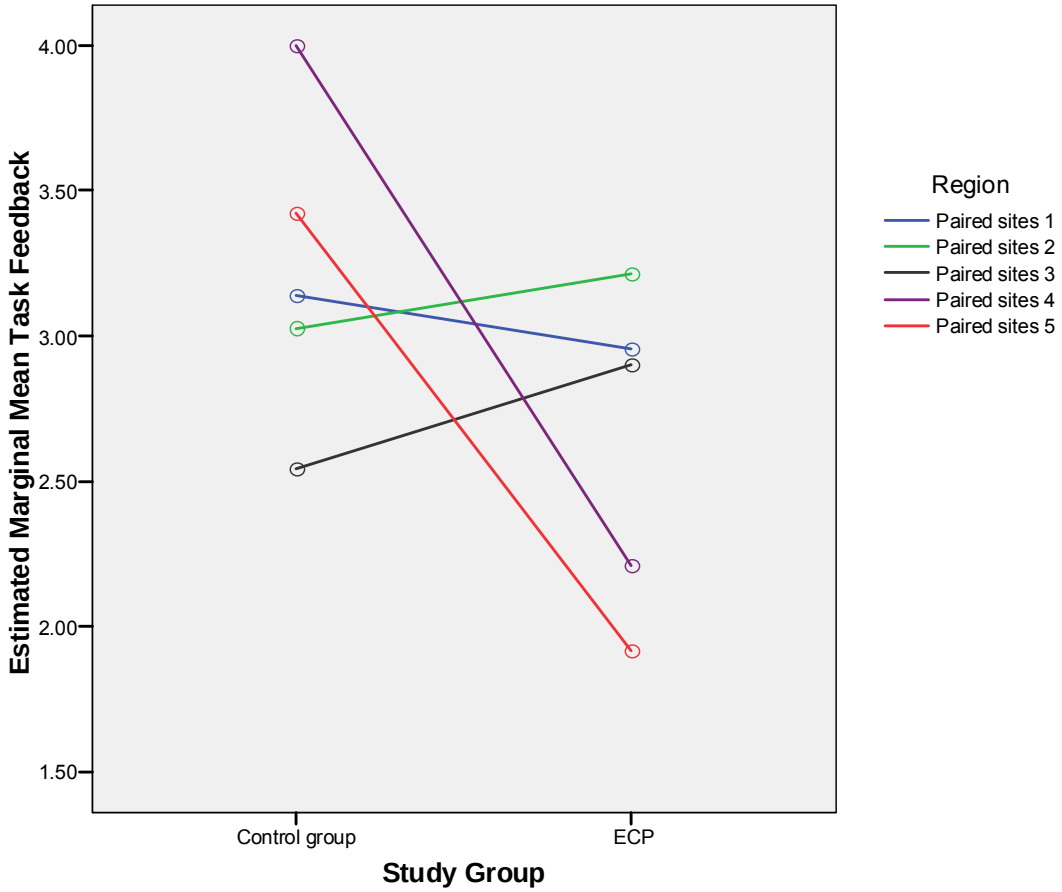


Figure 12. Mean meaningfulness of job by ECP and non-ECP by site

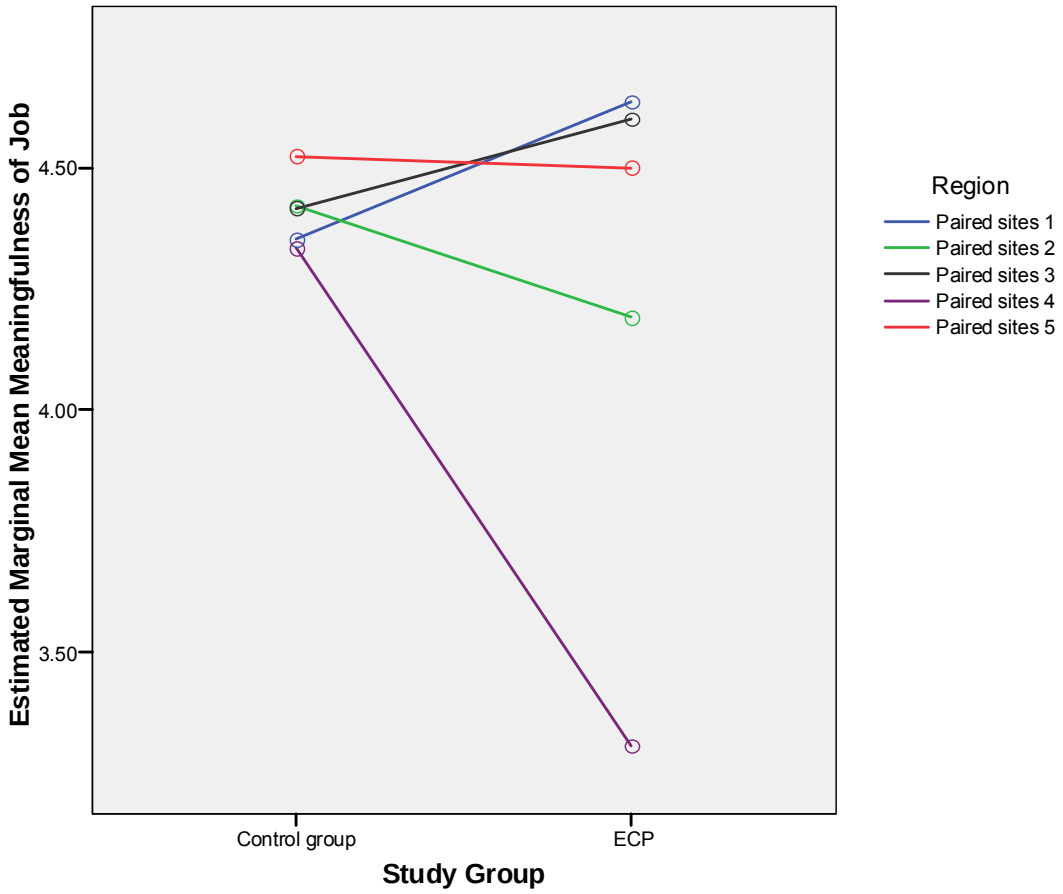


Figure 13. Mean work demands by ECPs and non-ECPs by site

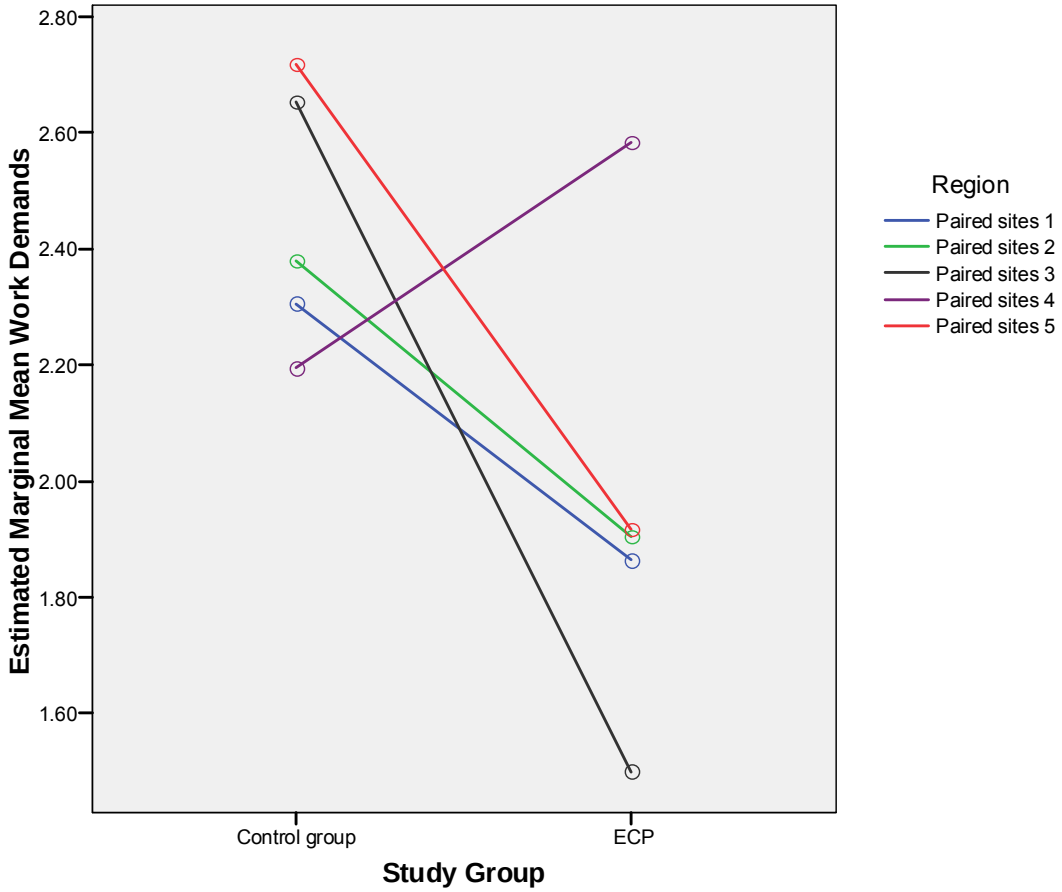


Figure 14. Median time spent interacting with each patient by ECPs and non-ECPs by site

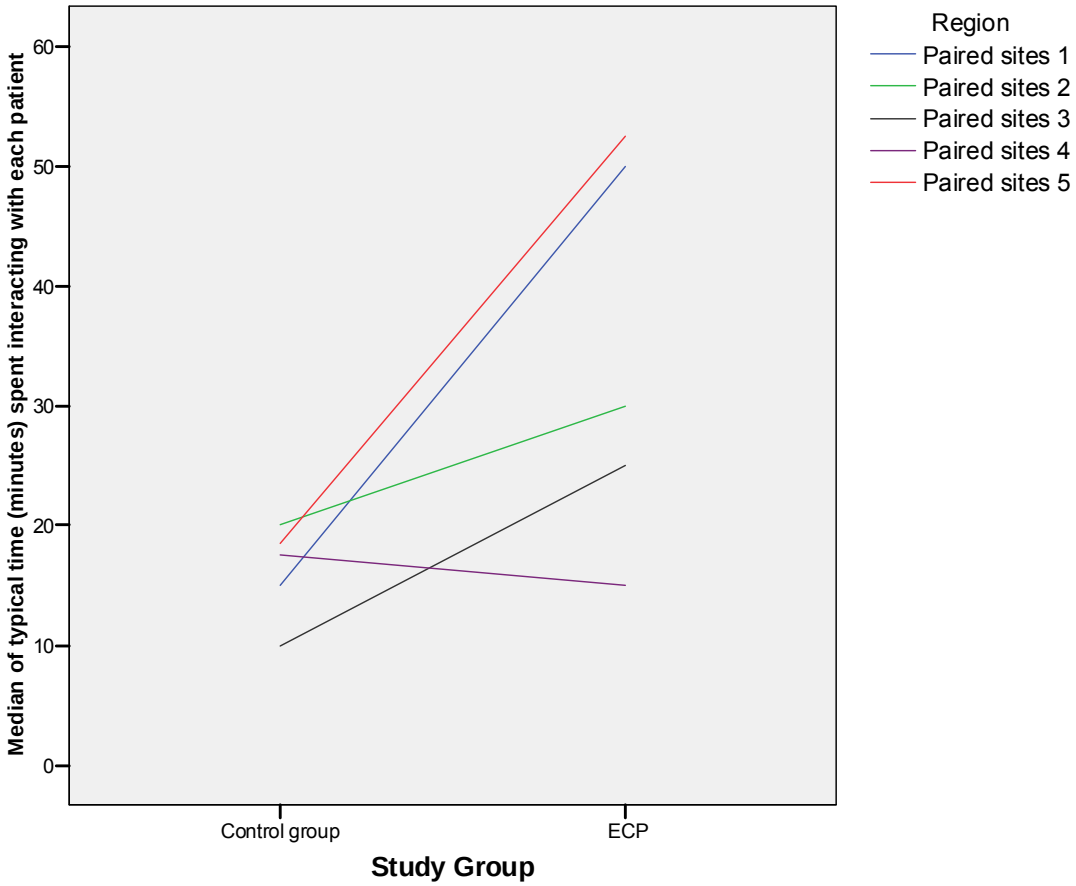
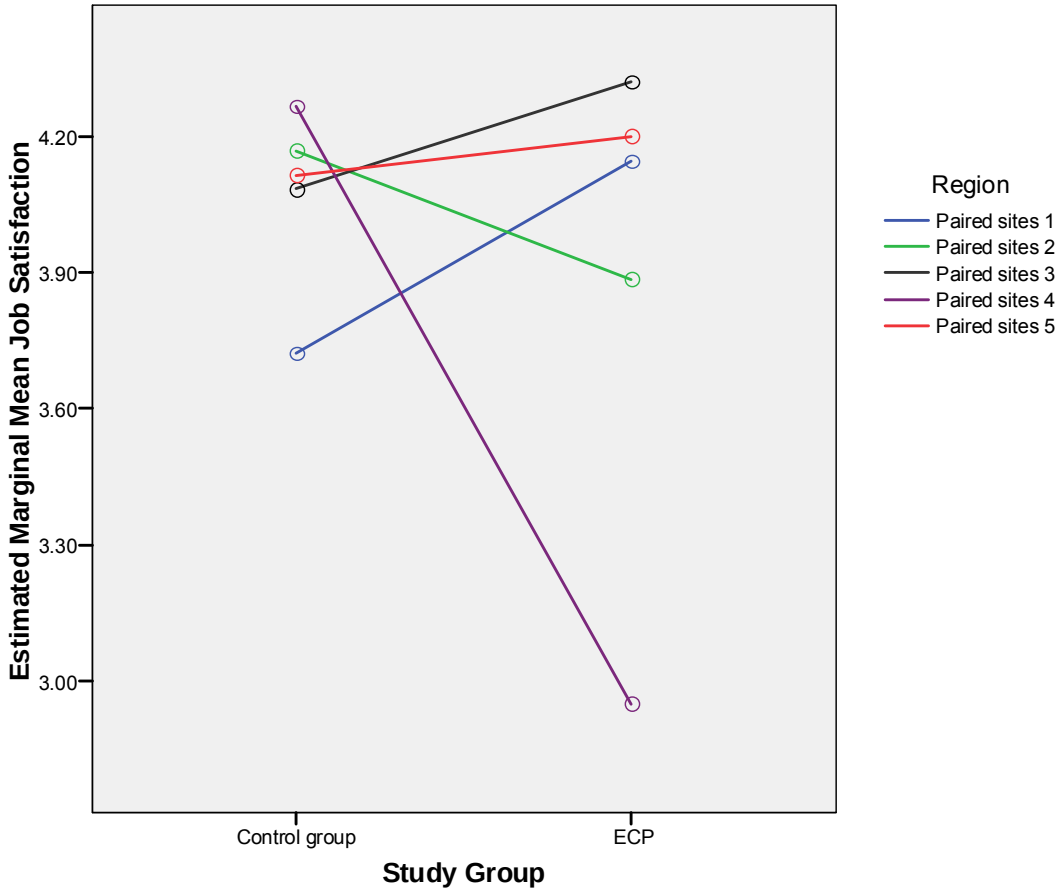


Figure 15. Mean job satisfaction by ECPs and non-ECPs by paired site



8.5.11 Site specific differences in ECP vs non-ECP and job satisfaction

Of all the job characteristics dimensions, two items: i) 'the time spent with patients', and ii) 'the meaningfulness of job', were found to account for much of the site specific variation found in job satisfaction between ECPs and non-ECPs. When these two items are controlled for in the model, the percentage of variance in job satisfaction explained by staffing group and site reduces from 13% to 2%. This indicates that the main explanation for why ECPs in one site are significantly less satisfied than their non-ECPs counterparts, (whereas in the other four pairs of sites, the difference in job satisfaction between ECPs and non-ECPs is minimal), is the relatively small amount of time ECPs in this site get to spend with patients and the relatively low levels of meaningfulness they feel regarding their job.

8.6 Discussion

8.6.1 Principal findings

Initial comparisons between ECP and non-ECP staff showed few differences. In terms of job characteristics overall, ECPs reported lower task feedback, lower supervisor support, fewer career opportunities, fewer patient contacts, more time with patients, more dependent (less proactive) patients, and lower work demands, than non-ECPs. The only significant difference in work related effects was that ECPs rated the quality of individualised patient care (performance quality) higher than non-ECPs.

ECPs were more likely to report higher levels of autonomy and control. Although the comparison was non-significant, the scores may reflect the potential of the ECP role to provide staff with a high degree of independence, with responsibility for assessing, treating and referring patients.

A more detailed analysis revealed that the findings were masking site specific differences between the paired sites. ECPs in two pairs of sites reported lower perceptions of a range of job characteristics (mostly around relational issues with patients, colleagues and supervisors) than non-ECPs (pairs four and five). In one of these two pairs of sites (pair four), ECPs also reported substantially lower levels of well-being, self worth, satisfaction, and commitment, and a higher intention to quit, than non-ECPs. The specific factors associated with lower levels of ECP job satisfaction apparent in this site (4a) (in marked contrast to ECPs in the other four pairs of sites) were negative perceptions of the 'meaningfulness of the job', and 'not having sufficient time to spend with patients'.

This result is interesting because the qualitative interviews indicate that ECPs in site 4a are the only group in our sample where ECPs do not deliver a mobile service either wholly or partly within their job specification. It appears that the organisational configuration in this area including the responsibility for ECPs, has undergone significant change since the cohort of ECPs included in our sample became operational. The ECPs are employed by the PCT. The particular setting in which ECPs are working is not the setting in which some of the ECPs in the sample expected to be working when they were recruited to become an ECP. Indeed it the opportunity to work for the ambulance service delivering care as part of a mobile unit that was stated to be a key motivation for some ECPs to leave a fixed centre and

become an ECP. It may be therefore that the lower levels of job satisfaction of ECP responders in this site reflects some disappointment due the difference between the 'expected' and the 'actual' setting in which ECPs are working.

With respect to ECPs in site 4a 'not having sufficient time to spend with patients', the qualitative interviews (Section 9.4) indicate that the service is popular with the local community and demands for health care are high. Contrary to other ECP models of working in the evaluation, and weak evidence generally that ECPs exercise higher levels of autonomy and control than non-ECPs, in this site ECPs have to respond to patient demand and adopt similar working practices as non-ECPs. A likely consequence of this is that this group of ECP do not spend as much time with some patients as they may wish.

In respect to negative perceptions of the 'meaningfulness of the job' in site 4a, the qualitative interviews (Section 9.4) revealed that generally, ECPs need to feel they are more than an 'extra pair of hands'. They aspire to deliver a unique and distinct service that complements but is different to existing services. For some ECPs, working in a fixed centre may not be 'sufficiently different' to satisfy this aspiration. Patients present to the centre in a similar way as they may present to an emergency department, or GP primary care, or a nurse-led WIC, or any other walk-in facility. One difference reported in the qualitative interviews (Section 9.4), is that ECPs in this site are providing a new service where previously there was no service, and this in itself was perceived to have generated significant new demands for health care. It appears that there are few age limits or restrictions on which patients ECPs can see so an ECP caseload may consist of a number of paediatric presentations, and also a few late presentations by adult patients with symptoms of potentially very serious illnesses, neither of which patient group ECPs felt properly equipped by training and experience to deal with. Conversely, at the other end of the illness or injury severity scale, a large proportion of the caseload was trivial conditions which before the new service became available, would probably have been resolved by 'self-care'.

8.6.2 Scientific validity – strengths and weaknesses of method

Staff in the non-ECP sites in our five pairs were selected from matched services in which ECPs were not operational. The non-ECP providers were professionals whose roles and responsibilities were being substituted by ECPs in the ECP sites. This allowed a comparison between the new ECP role and more established roles across matched services. However there were differences between the ECP and non-ECP samples as they were not matched in terms of age, sex and clinical background. The majority of ECPs came from a paramedic background while the majority of non-ECPs came from an emergency nursing background. The majority of ECPs were male, while the majority of non-ECPs were female. The extent to which these differences reflect what is true of ECPs and non-ECPs in the health service as a whole cannot be accurately ascertained and thus limits the generalisability of the survey findings. In terms of the ECP survey sample, the proportion of respondents who were male and from a paramedic background is broadly representative of ECPs as a whole in the five pairs of sites which made up the sample frame. Difference in current role tenure between ECPs and non-ECPs, is expected given the newness of the ECP role. All subsets of items in the responses to the questionnaires were subject to exploratory factor analysis and demonstrated good reliability

(Cronbach's alpha coefficient > 0.7). In other words they have been demonstrated to measure the single characteristic they were intended to consistently.

It is possible these analyses could be reflecting site differences that occur due to an unmeasured confounding factor related to site, as opposed to the effect of being an ECP. It is not possible to disentangle these effects by this method. However, since the selection of the ECP and non-ECP sites was designed purposively to match sites within areas, hopefully, the potential for confounders has been minimised.

9 Qualitative Studies

9.1 Introduction

A series of qualitative interviews was undertaken in order to enhance the findings of the other studies in the evaluation and increase understanding of the factors perceived by ECPs and other stakeholders to enable or obstruct the development and smooth integration of ECPs into the local health economy. The perspective taken was informed by two human resources theories which offer a structure within which to explore changing workforce policies and practices (Budhwar and Sparrow, 2002), and the subjective expectations and realities of the new roles for the staff involved (Stephens, 1994).

The value of qualitative methods lies in their ability to allow questions that may not be answered by experimental research methods, to be pursued in a systematic way.(Green, 1998)

9.2 Aims and objectives

To increase understanding of the underlying processes influencing the integration of ECPs into the emergency and urgent care workforce and to inform decisions about introducing new roles within the wider NHS, we conducted

- Face to face interviews with ECPs to investigate key workforce components such as working relationships with other health professionals, integration with other health providers, satisfaction, confidence in the role and future career progression; and
- Telephone interviews with other health and social care professionals to investigate the triggers and barriers to integrating the role into emergency and urgent care settings.

9.3 Methods

To draw on the subjective experiences of ECPs and OHPs, such as nurse practitioners, GPs, involved with or affected by the new way of working, we conducted face to face interviews with a sample of ECPs, and telephone interviews with OHPs, in the five ECP sites.

9.3.1 Participants

The participants were recruited purposively from ECP and OHPs working in the five ECP sites. The OHPs were identified from the range of other professional groups, for example, GPs or nurse practitioners, in the ECP sites who were, through close working or involvement with the development of ECPs, to give an informed view of ECP working.

9.3.2 Data collection process

The interviewers used a semi-structured schedule (see Appendix 7). This was structured to complement the questions in the staff survey (Section 8) and the repertory grid interviews (Section 10). The interview schedule for ECPs was intended to draw on ECP experiences of the role and its impact on healthcare provision locally as well as their personal and professional development. The schedule used in the interviews with the OHPs focused more on working relationships between themselves and ECPs, integration with other health and social care providers, and what they perceived to be the future direction for the ECP role.

For flexibility, both interview schedules contained 'open' questions to enable the participants to raise any important issues that they felt had not been covered during the interview

9.4 Analyses

With consent, all the interviews were digitally tape recorded. The digital files were transcribed and the subsequent analyses followed a simple thematic approach conducted in accordance with the principles of framework for applied policy research using appropriate manual coding techniques and software (Ritchie and Spencer, 1995).

The interviews were separated according to whether they were undertaken with ECPs or OHPs. The initial abstraction of data for each staff group was by site. The process was guided by the broad exploratory headings of:

- clinical background and experience;
- impetus for change;
- training and development;
- model of ECP working;
- support and supervision,
- acceptance and integration,
- perceived impact
- future directions

in the interview schedule. The narratives were re-grouped according to whether the content was 'descriptive', 'evaluative', or 'strategic'. The assimilation of the texts and preliminary processing was undertaken by three researchers. The reliability in the analysis was monitored by comparing the emerging themes found by two researchers extracting texts in the interviews from the same site, independently. The themes were then compared across all sites. Subsequently, the recurring and novel sub-themes within and across the five sites were synthesised into a rectangular text file format and interpreted. The results were validated by triangulation with the findings from the constituent studies in the evaluation.

9.5 Results

9.5.1 Sample achieved

Twenty-nine interviews, 19 with ECPs and 10 with OHPs were completed. The sample consisted of six interviews in four sites and five in the fifth site. The professional backgrounds of the OHP interviewees were an emergency

department (ED) nurse and trainer; four emergency nurse practitioners; a GP, a paramedic; and two nurse consultants (one ED and one MIU); and a residential care home manager. The previous NHS experience of the ECP interviewees consisted of 14 paramedics or paramedic practitioners, and five senior nurses in emergency medicine or other clinical specialty.

Although there was overlap, the recurring sub-themes emerging from the interviews divided broadly into five main categories: organisational, educational, operational, relational, and consequential. With varying emphases, the themes from the interviews with ECPs and the OHPs, in respect of organisational support, education, continuing professional education, integration and acceptance, and the consequential sub-themes, within the sites were remarkably consistent. The sub-themes within the operational categories were defined more clearly in the ECP interviews than those with the OHPs. OHPs expressed their experiences of the relational (including the effect of previous clinical background) more in terms of their professional and personal experience of working with individual ECPs, and the effect of ECPs on the service in which the OHP was based. The ECP interviews covered a much wider range of experiences with NHS clinical and non-clinical staff and services. In the position of professional care manager and therefore a provider of care **and** recipient of ECP services, the interview of one OHP, focussed entirely on the direct experience of the ECPs working on the residents and staff of that service.

The sub-themes from all the interviews are summarised in Table 34:

Table 34. Emergent themes within and across the five ECP sites

Framework	Sub-themes
Organisational	• Models of ECP working • Strategic vision • Leadership, commitment • Funding
Educational	• Education and training • Continuing Professional Development • Clinical supervision
Operational	• Partnerships • Support systems • Resources, kit and equipment
Relational	• Clinical background • Team-working • Integration and acceptance • Communication
Consequential	• Job satisfaction • Perceived impact of ECP working • Career pathways • Future directions

The consequential sub-themes were influenced positively or negatively by the extent to which initial expectations of ECP working at an individual level, were realised in practice. Organisationally, the site specific models of care in which the ECPs were working, the perceived commitment to on-going staff training and levels of operational support available, were the dominant factors in the ability of ECPs to match care to patient need appropriately, and to release health care resources, (such as ambulances, or doctor time),

for more serious cases. Educationally, the need for training and ongoing professional development to be ECP-specific in the settings in which ECPs are working was the major recurring theme in both the ECP and OHP data. The relational sub-themes captured some of the opportunities and challenges in shaping a new type of health professional from established clinical posts, and integrating the new role into the wider health care team. The strength of interpersonal skills, (see Section 10 repertory grid interviews) and the previous clinical background and experience of ECPs, emerged as dynamic influences acting dependently within the site specific context, and also transcending the different settings in which ECPs were deployed.

9.5.2 Organisational

The evaluation coincided with the rapid changes that accompanied the mergers between PCTs and between ambulance trusts, nationally. ECPs were working for the ambulance service (AS) as autonomous practitioners working in the community in two ECP sites (1a and 5a). In the third ECP site (3a), 80% of ECP time was contracted out by the AS to the PCT for ECPs to work in general practitioner (GP) led out of hours (OOH) service and 20% by the ambulance service mainly responding as a regular paramedic to achieve ORCON standards. In the remaining two ECP sites (2a and 4a), it appears that the PCT took responsibility for the ECP initiative in the early stages of the initiative. In site 2a, deployment of ECPs had yet to cover the whole of the area covered by the PCT. ECP working in this site appears to have been characterised by a series of time-limited contracts divided between assisting GPs in and out of hours, working in the community with nursing and residential homes, police custody suites, with other client groups, and seeking new business. In site 4a, the ECPs were employed by the PCT and worked full-time in a 24 hour urgent care centre staffed by ECPs only during the day and out of hours (OOHs) by GPs and ECPs. Although aspirations to develop a mobile service in site 4a were raised, the prevailing view was that the popularity of the urgent care facility with the local population was such that without additional staff and resources the opportunity for ECPs to develop a mobile service was not realistic.

Vision and leadership

Coherent vision and strong commitment to the ECP role by senior management, effective partnerships and clinical decision support networks were associated with higher morale amongst ECPs. Lack of clear vision or direction had negative effect on perceptions of ECP morale.

> *"They (….senior management team) just can't seem to want to put the effort in at this moment in time, to, to bring us on board, I mean... What we want is a meeting... to say 'look this is what we can bring to this role'. They're just not interested…" Site 3a ECP.201*

Variations in management structures and styles were evident between the sites. ECP morale appeared to be associated positively with **continuity in management and staffing**. In those sites where significant organisational changes were seen to impact on ECP working directly, the principal view was that although immediate managers were, or tried to be, supportive, the changes in staffing and responsibilities meant that managers who may be non-clinical and responsible for other groups of staff as well as ECPs, were unable to provide the level of support that some ECPs felt they needed.

"Managerial support erm, I mean our team leaders I would say, are obviously individuals that are working along side us…, that's the first line of management … these guys I mean, they have been obviously they have been along the ride with us, sort of thing…. They, they've experienced it first hand as well…. Above them we have erm… an area service manager. The problem being is we've, we've had probably, more area service managers that we've had cooked dinners. Err, they seem to be a hot potato that nobody wants. Site 3a ECP.200

Staff morale was also influenced by the strength of **communication links** between ECPs and the senior management team. Where communication between ECPs and strategic decision-makers was weak, or mediated entirely through a manager, ECPs felt insecure with little input into decisions affecting their current and future working.

Funding

Various funding arrangements for ECP working were described. Two sites were funded by the ambulance service and two were funded by the PCT. In the fifth site a substantial proportion of ECP time was contracted out by the ambulance service to the PCT. Differences between provider organisations in the costs of ECP care (who is paying) and the benefits (who is benefiting) were seen as a potential source of tension affecting organisational commitment to ECP working, at all levels.

"I think one of the problems the AS has [is] with the lack of direction – it's what benefit it is [ECP working] going to be to the AS." Site 3a ECP.201

9.5.3 Educational

Training and development

A feature of ECP working in the sites included in this evaluation was that ECPs were moving away from protocols towards opinion-based decision-making. This raised significant educational challenges which the sites had met in different ways.

All the ECP training courses were described as a mixture of classroom-based theory and supervised practice in placements to consolidate skills and clinical competence in minor injuries and minor illness. Two main approaches to training were evident: 1) a 'block' system consisting of several weeks (16 or 17 weeks) of academic theory followed by blocks of time in clinical placements; and 2) a rolling 'theory and practice' approach which consisted of relative short periods of classroom-based study (three weeks) backed up immediately by supervised practice in a clinical setting.

"…we were doing it from a clinical perspective, rather than an academic perspective, to see how that went. I think in some ways, talking to some of the others [ECPS] we may have done better because from week 3 we were dealing with patients." Site 5a ECP.2

"There were catheters specifically, I've not done much of those…But when we came to do them, that was something I felt I needed more experience at… So instead of spending two weeks doing an essay that really wasn't, for me, any use whatsoever….I would rather have spent those two weeks doing as many catheters as I can in a hospital setting or with the district nurses, or doing something else that I was less confident in doing." Site 1a ECP.33

There were variations in the academic component of the training courses in terms of content, course length, educational establishment (university-

based or other) and professional background of the staff (doctors or nurses) delivering the teaching. The significant challenges for tutors designing a new course where there was uncertainty about how and where ECPs were going to be deployed was acknowledged by both ECPs and OHPs.

> *"..As much as anything else we were developing that role ourselves as much as our instructors were." Site 5a ECP.3*

Reconciling the course content to task was considered a greater challenge in sites where ECP were deployed in a setting that was different to the one in which ECPs were expected to be working and seeing different patient groups than was anticipated when they were recruited into the role.

"....Certainly paediatrics we didn't get anywhere near as much as we should have. We got a lot on limbs and things, we had a spinal nurse who was very good, a respiratory specialist nurse who was also very good. But a lot of the patients that we see here are paeds. The majority really, if you took that out we wouldn't be seeing as many as we do by far. So I think we could have done with more than just a week on paediatrics." Site 4a ECP.20

The challenges and opportunities of ECP training varied between individual staff according to existing knowledge and relevant experience, and the models of service delivery in which ECPs were working.

> *"for me personally the most difficult thing was because I have been in a specialised area… I was trying to get in touch obviously, with the general training as I originally had it. For me personally that was an issue initially. I felt, in comparison to somebody who had perhaps been in an A & E background, I had more to catch up on, alongside them, I suppose the paramedics as well" Site 4a ECP.15*

The supervised clinical placements where the learning was consolidated and reinforced in practice were regarded as crucial.

> *"The ones that stood out the most were the GP ones…it was probably the hardest because it was more out of my comfort zone…It was really good and interactive they were always asking questions and pushing further and further." Site 2a ECP.117*

Qualifications

Compared with the national standards in nursing qualifications, some OHPs expressed uncertainty about what skills and competences an ECP qualification demonstrated.

> *"…what I would like to see is very similar to some of the programmes now being developed, that they would standardise programmes for ECPs so that on the qualification you knew exactly what is was or what you were getting really – if it did what it said on the tin." Site 5a OHP.1*

Continuing professional development (CPD) and clinical supervision

All the interviewees felt that CPD for the ECPs was essential for their personal and professional development and also for the successful implementation of the ECP role into the health service.

> *"…we should be developing still. It's a brand new idea and concept and nothing that's brand new is ever right straight away, so it takes a lot of years to develop. So it's a brand new concept, brand new role, brand new service, brand new people doing the job, and quite brave people have to do the role, but it needs clinical supervision, all the way along. There should be clinical back-up all the time." Site 4a ECP 19.*

Variation was evident across the sites in the amount of support and funding available to ECPs for CPD and clinical supervision. The interviewees referred to 1) formal systems,

> *"we've got a consultant which we can contact at any reasonable hour. We can also phone if it's out of hours, call either the clinical supervisor or the on-call doctor who works in the control room out of hours." Site 5a ECP.1*

2) informal networks, and 3) a combination of formal and informal arrangements.

> *"You can always ring the medics or the surgeons for advice really…I've gone to out of hours GPs for advice regarding paediatrics. I've take advice from surgeons and registrars in the emergency department. I've rang most people really." Site 5a ECP.1*

> *"I think they took on….a registrar extra in the ED as one of the clinical fellows to look after us, so we had plenty of support. ….I must admit the registrars and consultants were all on board as well, so if we were on nights we could still ring up and speak to a registrar or consultant for advice." Site 5a ECP.2*

Two types of formal system of supervision and CPD were evident: 1) named clinicians who could be contacted at any reasonable time for advice together with systems, such as an electronic database of all ECP contacts, to provide opportunities for ECPs to access cases for reflective review and discussion, and 2) 'flexible settings', and 'peer-group learning'. As well as being able to attend training courses, in site 5a and to a lesser extent, in site 3a, ECP shifts rotate across different fixed and mobile health care settings. In site 5a, ECPs in the fixed centres of WIC and EDs are paired with nurse practitioners. In this site, although the community was described as where 'the bulk of the work' of ECPs was, working regularly in the centres was felt to be crucial for ECPs to gain experience of the clinical presentations they may have to deal with in the community, to build confidence, and prevent deskilling. Rotating through different settings was also cited in the OHP interviews as the mechanism through which ECPs could gain exposure to the range of clinical presentations they may have to deal with in both primary care and community settings.

> *"….that's [ED] is where we can push the boundaries in a safe manner because you've got the registrars and things to go back and refer to before you dig yourself into a big hole and there's a problem. …out on the road, bit more conservative because you don't have that back up…there's someone on the end of the phone if we need them, but you don't have the physical backup to say: "can you have a look at this?" It [ED] is still an important part of the learning." Site 5a ECP.2*

> *"…what they need to do is rotate around the various placements to get them used to their skills, I would anticipate they should be doing a 3 or 4 month attachment to a practice. Then 3 or 4 months on the road with the ambulance service, 3 or 4 months possibly with out of hour's activities, that would be difficult with shifts of course. Then 3 to 4 months in a minor injuries unit. Yes that would be the right rotation, that would have to involve the PCT's, the ambulance service, a health care trust like a hospital. Can you imagine all that getting together?". Site 2a OHP.2*

All the ECP interviewees described being allowed time off organised around the need to maintain cover for the job for them to attend training courses. Locally-run courses in some sites were available for clinical staff.

> *"…the hospital has been kind enough, the A&E department to open up most of their training courses and seminars to us and similarly, so has*

the walk in centre….So we can sort of cherry-pick amongst those what interests us." Site 5a ECP.3

However, although useful training that was not ECP-specific may not address the gaps in skills and competence felt to be necessary for ECPs to work appropriately in the setting in which they were working.

"Generally, once a month there's a training evening with a different professional…I've been to chest pain… But it's just for everyone, GPs included….Some of them are not that appropriate to us [ECPs] but a lot of them are…IBS, chest pain, epilepsy, asthma, all those kinds of things." Site 3a ECP.1

Whether or not formal systems for CPD were in place, the requirement for CPD emerged as **self-motivated and self-directed**, and in one site, for specialist courses that some ECPs felt they needed, self-funded.

"We've got a certain amount of time in our rota for self development. And it's entirely up to us how we use that." Site 5a ECP.3"

Marked variations in the experience of for example, advanced driving skills, trauma stabilisation, minor injuries and minor illness between nurse and paramedic ECPs raised the need for training and opportunities for CPD to be tailored to meet individual needs to enable ECPs from different clinical backgrounds to achieve an equivalent knowledge base and standard of care.

"…once we got to the resus bits, that's all bread and butter to us [paramedic] the ALS team were saying it was interesting how the nurses struggled a bit because they were used to dealing with a big team and they were working in pairs for this…..Some of the other stuff like the wound care and the suturing of course, the nurses had been doing for years - that was more challenging for us [paramedic]." Site 5a ECP.2

The differences between paramedic and nurse ECPs offered significant opportunities for peer-group mentoring and team-building with ECP colleagues 'teaching and learning' from each other.

"I was working with an ECP who had come from a paramedic background and he was great at walking into people's houses, feeling comfortable going into people's houses. I learnt a lot from him… to be honest, to give me the confidence to go into people's houses. Site 4a ECP.19

"we get on really well with the nurses…a lot of them come and have placements with us out in the cars and the ambulances and there's quite a good ebb and flow as it were of staff broadening their skills base and their knowledge. Site 5a ECP.3

However, it was implied that peer-groups may place ECPs under pressure to appear more knowledgeable in areas where they would prefer to seek advice.

"if I feel I've got a stupid question that I really am stuck with and I don't want to ask anybody I have to work with, or the doctors, who I don't want to look stupid in front of an ECP, I could ring some of my friend colleagues, some of the doctors I have made friends with along the way through the training. I'm sure I could ring them …Site 1 ECP.33

The ability to admit you need to seek advice may depend on variations in self-confidence or assertiveness at the individual level. However, this training and development issue is predictable and underlines the need for appropriate clinical support to be in place.

9.5.4 Operational

The importance of adequate operational backup and support systems for ECPs were also perceived as crucial factors for effective working. A lack of continuity in how ECPs were deployed, not having the **necessary equipment and support systems**, were seen to frustrate the ability of ECPs to do perform their job to most effect.

> *"I mean its classic things like I mean obviously the agenda for change has been one issue but, vehicles haves been another issue you know, we were given, we were asked to give our specification for vehicles …. We told them exactly what we wanted and then we were given a vehicle …. No charging facilities for defib…. There was no way to secure things in the back, we didn't even have a secure box for, for our drugs.… these things, we'd been talking about them for the last 8 months… all we get is ping-ponged backwards and forward, that's just a classic example of what happens. Site 3a ECP.200*

The prospect of greater **autonomy and control** emerged as important motivational factors for becoming an ECP. However, some uncertainty about where the threshold between 'autonomy' and 'accountability' in clinical decisions made by ECPs was evident. This 'duality' which was perceived to have ramifications for patient safety and protecting ECPs from exposure to unsafe decisions, emphasises the need for ECPs to have and their responsible organisations to issue clear guidance about where the **boundaries of ECP working** are and to have appropriate **clinical support networks** in place. Additionally, to protect ECPs from inappropriate referrals, it is important that the guidance is available to all staff involved in service delivery, not only ECPs.

> *"we're led by guides that's fine and it's safe if you stay within them….but some people do try and work outside of their knowledge and skill…it's higher risk, not the acutely emergency patients. But I think whiles we're seeing that many high risk patients, there's more scope for problems. Site 1a ECP.33"*

The requirement for ECPs to be properly equipped included having **sufficient prescribing rights.** This was seen as an important factor affecting the usefulness of ECP working in primary care and also in the community. The ECPs work to PGDs. However, in some sites these were considered by ECPs and OHPs to be restrictive and limiting the usefulness of ECPs in both community and primary care settings.

> *"..the thing that could be done is that the training scheme comes with a prescribing role, or an enhanced prescribing role….they [ECPs] can only prescribe emergency drugs, they are working in minor health centres…autonomously seeing patients with colds and sore throats, and general practice type surgeries or out of hours activities… then without the ability to prescribe, they are useless…" Site 2a OHP.2*

9.5.5 Relational

Clinical background and experience

Depending on the setting in which they were deployed, ECPs require different mixes of clinical skills, competence, confidence, initiative, and inter-personal skills. The relative importance of these characteristics in 'good quality' patient care is addressed in the findings from the repertory grid interviews. (see Section 10)

The main drivers to become an ECP were identified as the opportunities of:

- staff and personal development through training and acquiring new skills;
- new career pathways that maintained a clinical focus;
- greater autonomy in clinical decisions;
- higher rewards in terms of increased pay or job satisfaction, or both.

Two main motivational pathways to becoming an ECP were evident: 1) those seeking new challenges in a **different** setting, and 2) those seeking new challenges within the **same** setting. Typical examples of the pathway 1) are an emergency department nurse wishing to expand his skills and competences in minor injury and illness, and apply them a mobile setting, or a paramedic wishing to improve her skills sufficiently to assist GPs in primary care settings. A typical example of pathway 2) is provided by a community paramedic seeking to extend his clinical knowledge and practice to provide a better clinical service to patients within the mobile setting in which he is used to working. Whatever the individual motivations for becoming an ECP were, the differences in clinical background and experience between nurse-trained and paramedic-trained ECPs raised significant issues for ECPs to adapt to working 'outside their comfort zone' either in environments, in teams, or with patient groups, with which they are unfamiliar. Differences in previous clinical background also raised implications for training and supervision depending on whether the ECPs were working in the community as lone practitioners or in pairs, or in a fixed setting with the ready availability of a team on site.

> *"As a paramedic you learn to either go up or go down to any patients level when you are talking to them, whether it's a little old lady in a house, to a business man in a road traffic accident. You are able to associate or empathise or actually communicate with them better. I know some of my colleagues had some trepidation when we first started, about going to peoples houses, because they come from a nursing background, not to take anything away from them because I've learnt a lot from the nurses. Some of my colleagues were quite hesitant and felt out of place when going into a house, whereas as a paramedic you do that day in day out, that's a normal thing…. we found it a bit more strange being in one place all the time. The biggest thing about being a paramedic is your adaptability - you learn to make do with what you've got. Whereas nurses that have worked in A & E or resus rooms or something like that, they've always had people around them that they can fall back on. That's not what paramedics are about, you are always either on your own or working in a team of two. We feel better able to cope with that." Site 4a ECP.16*

Acceptance and integration

The interviewees gave numerous examples of enthusiasm and ongoing support for ECPs from nurses, hospital doctors and general practitioners who gave their time freely to provide encouragement and support to ECPs. The ECPs and OHPs reported good relationships between ECPs and district nurses and intermediate care teams, and social care providers. Initially, however, all the interviewees were either aware of or had experienced resistance to the new role. The source of the resistance was both 'internal' (i.e. individual colleagues working for the same employer, which may be personal), and 'external' (i.e. a range of OHPs, for example, general practitioners, nurse practitioners, ambulance staff, hospital doctors, and support staff), who ECPs may come into contact with. There were also perceptions of 'departmental' or 'professional group' resistance, where the ECP service had been seen as a threat to existing urgent care services or existing provider groups. The reasons for the tensions were attributed to

lack of understanding about what ECPs are and what they can do, inter-professional jealousies, protecting self-interest, fear of losing resources, and differences between ECPs and nurse practitioners in pay, education, qualifications, and perceived clinical competence. Typical examples of tension described in the ECP and OHP interviews were:

- the initial refusal of nurse practitioners (NPs) to supervise or support ECPs;
- no or few referrals to ECPs by some control staff or ambulance crews;
- inappropriate referrals to ECPs;
- hospital doctors refusing to accept referrals from an ECP – re-routed via ED;
- refusal to accept requests from an ECP for an ambulance;
- resistance by MAU or bed bureaux to accept ECP referrals
- resistance by GP receptionists to connect ECP calls to the doctor;
- ECP training in x-rays undertaken in one acute Trust not accepted in another.

On the ground, overcoming resistance was largely down to the determination and ability of the individual ECP to get around obstacles. Although pockets of residual opposition persist and may linger on, generally, the extent of the resistance was felt to be changing slowly over time through shared working and improved understanding of the ECP role, and what ECPs are able to do.

"I know some of the registrars aren't happy at all with the ECP role, so we still have to do some work there. I don't think we'll ever get all of them on our side, same with the GPs, some are very pro-ECP and some are very anti-ECP, and they don't have any qualms about letting you know which way they are." Site 1a ECP.33

"If you like, the resistance to change is getting less because it's, it's not so new and most people have come across it now." Site 5a ECP.3

Counter strategies

Generally the barriers to ECP working were not considered by the ECP interviewees to be ECP specific or personal. Rather they were regarded as expected to accompany the introduction of any new practitioner role into the health service. The data revealed that individually and collectively, the ECPs are resourceful and wherever possible, regard barriers as obstacles to be overcome.

At an individual level, examples of initiatives to counter the resistance were:

- Engaging in proactive public relations 'winning hearts and minds' to raise awareness of the benefits of ECPs working;

"… I think the change required for our bit, because we are dealing with the ambulance service, in our environment as ECPs, I think it's changing the way people think and that is the thing we need to do. How we do that is to be persistent ….because it improves patient care. Site 1a ECP.32

- Making connections with medical staff on referral pathways;

"…when you go into the departments and you talk to the registrars and things and suddenly next time you ring up, it's not a voice at the end of the phone, they've got a personality and I think that has a big impact as well on referrals." Site 5a ECP.2

- staff and personal development through training and acquiring new skills;
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- greater autonomy in clinical decisions;
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the emergency department and walk in centres they're getting an extra member of staff free for the day." Site 5a ECP.3

However, cross-boundary working was also associated with weakening the traditional links between the employer and employee, and straining relationships between ECPs and those who they had previously regarded as colleagues working for the same employer.

9.5.6 Consequential

Job satisfaction

Factors such as age, gender, rewards in terms of remuneration and fulfilment, as well as social and organisational relationships are known to be associated with job satisfaction (Shields and Ward, 2001; Sibbald et al, 2003). Satisfaction may also depend on whether prior expectations of a role are high or low, and the extent to which those expectations are realised or realisable in practice. It is difficult in qualitative approaches to appreciate the relative importance individual ECPs will attribute to various aspects of the job. Disadvantages may not necessarily outweigh the advantages. The expectations that the ECP role offered a new clinical career pathway, more autonomy, and fulfilment through improved patient care, were confirmed in all the sites. Motivation and satisfaction appeared to be greater in those sites where ECPs had the opportunity to exercise greater autonomy by delivering a mobile service in the community. Additional benefits raised were increased self-awareness, confidence, appreciation from patients and carers, respect from OHP colleagues, and a drive to pursue knowledge.

"The change in outlook started with that first realisation that this is not a protocol bound thing…it's an area where we can develop individually and explore individually and we've been encouraged to do that….I've taken on some work on vulnerable adults or vulnerable patients….one of my colleagues is doing more work on wound closures, and someone else is doing more in terms of fracture management but all of us ultimately are hoping to feed back to the rest of the ambulance service and improve the way we all work." Site 5a ECP.3

Factors linked to expressions of dis-satisfaction were identified as:

- Increased responsibility without increased pay;
- Volume of work (over and under-utilisation of ECP skills);
- Inappropriate utilisation of ECP skills;
- Recruited to work as an ECP in one setting and being deployed in another;
- Lack of commitment to ECP working or adequate resources for CPD;
- Inadequate kit and equipment;
- Poor communication with senior managers;

The increase in responsibility was seen both as a challenge and an opportunity depending on the initiative, competence and confidence of the individual, and the level of organisational and operational support perceived to be available.

Time spent with patients

Generally, ECPs working in a mobile setting acknowledge that they are likely to spend more time with patients than, for example, a nurse practitioner

working in a minor injuries unit. One explanation for this is that the time spent with patients is 'setting dependent'. Providers working in a fixed setting are able to see if patients are waiting for care and of the need to respond to those demands. A second explanation it that longer time with patients is characteristic of 'lone working'. In the community ECPs have to combine all the tasks that in another setting may be undertaken or delegated to other members of staff.

> *"When you are in ECP you take on everything, you become the receptionist, you take all their personal details, all their past history, and all the drugs, you treat them with all they need and then you write all the paperwork up so you are doing a lot of people's role in one whereas before you could call on other people's help so it may not take as long in A&E to see a patient because you can ask a support worker to do a dressing or something if it's busy or you do part of the role whereas you are doing absolutely everything as an ECP". Site 1a ECP.40*

A third explanation is cultural differences between the working practices of ECPs due to previous professional training and experience. ECPs from a community paramedic background tend to adopt a broader approach to care than practitioners who by training and experience work may have a narrower 'symptom-focus' to patient care. (see Section 10 repertory grid interviews) A broader approach to patient care is more 'time intensive' because it takes account of issues beyond those of the immediate clinical presentation.

Career opportunities

Training and working as an ECP had provided new skills and potentially provided a stepping stone for clinically-trained staff to retain a clinical focus. Previously, the career direction for paramedics was either towards management or teaching. However how far the opportunities are likely to extend for paramedics varied from 'opening doors' to 'road ahead closed'.

> *"You just kind of stop as a paramedic and then I took on the ECP role, which is another step on the ladder…then you get onto that part of the ladder, and now I doing a degree…it just opens you up massively because you can go into primary care." Site 5a ECP.1.*

> *In the ECP role we're stuck paramedics-wise, we've come to this point and …there are no pathways from here." Site 4a ECP.6*

At an individual level, the relative importance of career opportunities to job satisfaction appears to be dependent on whether becoming an ECP was seen as the first step for continuous career progression or an improvement to the previous role that was sufficient in itself.

> *"As an ECP clinically there is not much else you can do, but it has brought a lot of people with varying different areas, different PCTs, different management, so it has opened doors, and networking, if someone is thinking about a career…I think it could open doors, just because of the exposure you're getting that you would not have as a paramedic." Site 1a ECP.33*

ECPs with a nursing background were seen to have more career pathways than ECPs with paramedic backgrounds. This was attributed to two main factors: 1) the wider acceptability and transferability of nursing qualifications between trusts, nationally, and 2) through their previous roles, nurses could access training regarded as essential for ECP working, for example, prescribing, that were not available to ECPs who previously had been paramedics.

> *"…we work off PGDs now and we have nurse prescribers. ….They said that a nurse prescribing was more appropriate. So what they said was you had to be a registered body for two to three years, before that was put forward. …from what we heard the prescribing has hit a brick wall. That would have opened doors for ex paramedics… to get the prescribing would have opened doors to go into the hospital environment, but without that we don't exist. All of my colleagues here who are nurses, are prescribers, they've all done it while they've been here…. As paramedics we can't." Site 4a ECP.6*

A further disparity within the ECP staff was regulation. By their previous roles, nurse-ECPs are registered with a national professional body. ECPs are not. The consequences of this were seen as a barrier to the cohesion of the ECP identity, and professional development of the role. This may also perpetuate tensions with the role resulting in a two-tier ECP service where ECPs who were formerly nurses can do more clinically (for example prescribing) for the patient than ECPs who trained as paramedics.

Perceived impact

The perceived impact of ECP working included positive and negative effects. The positive impacts were seen as benefits for the health services through improved record-keeping, cost savings, releasing resources including front line ambulances, reducing admissions, saving ED, and doctor time, for more appropriate targeting to emergency and serious cases. The flexibility of ECP working in primary care was also associated with avoiding bunching in home visits that otherwise would have to wait until the end of surgery, and also phased admissions.

> *"…they [MAU] actually noticed a dramatic shift in the people who were being admitted through the admissions unit. The [ECP] paperwork that came with the patient was 100% better and also the rationale for why they were being admitted was much clearer." Site 5a OHP.1*

> *"…Another impact was the admissions were actually spread out throughout the day, rather than all coming in over the lunchtime, because the ECPs would start going out to visit people as soon as the phone calls came in. They wouldn't be waiting until the GP's had finished their clinic." Site 5a OHP.1*

> *"In terms of other colleagues who I know work with them [ECPs] and the GP's who have had them [ECPs] on attachments, or working with surgeons, on the whole very good. The doctors really appreciate it, they see the benefits." Site 2a OHP2*

Clear benefits were seen for patients especially the elderly or people with young families who may find it difficult to get to services especially at night. The availability of ECPs was associated with improving access and equity for 'hard to reach' groups such as those not registered with a GP, people living in rural areas remote from urgent care services, or those dealing with difficult social problems. As well as immediate patient benefits, where ECPs were working directly with nursing homes or in custody suites or prisons, the benefits were seen to extend to the staff and resources in those services also. The interview of the OHP who was a professional carer in one site was dominated by accounts of how having direct links to the ECP service had improved access to care and the health of the residents. The interview also contained numerous and varied examples of the positive impact direct links with the ECP service had brought for the staff of the care home.

> *"…the first thing our elderly ladies say to us is 'don't send me into hospital, I don't want to go.' They [ECPs] avoid stress on them [ladies]*

because they are able to be treated in their own room, in their own surroundings, around people they know. These practitioners are very friendly people, they make them feel at ease, they introduce themselves say, 'Ohh let's have a look see what we're doing' that comfort alone, (not that you wouldn't get that at a hospital), but you've got the trauma of getting that lady into hospital …and then the waiting as well." Site 2a OHP.3

"…..if they got a laceration or something, they're going to go to hospital, be triaged immediately, sit for two hours waiting to be seen, have the wound cleaned, closed and dressed and then wait two to three hours for an ambulance home. This is not a positive experience for the patients…they just feel they are a burden on society. But if they are at home, they are safe and happy…if they can be left and treated they are so grateful. ….It seems very low on the agenda – the benefits to the patients, but it's pretty high on my agenda really." Site 5a ECP.1

"…also they added that they [ECPs] could attend and confirm death, which is always a major problem for me. So that is an added thing, that ECPs now attend and can confirm death, obviously they can check all the vital signs. Site 2a OHP.3

The negative impacts were perceived as generating new demands for health care that had not been met previously.

"I think also ECPs can make a difference to the out of hours, we are making a difference but we are also generating a new clientele that weren't there before because people would deal with the sore throat themselves, they would deal with the cold, because they didn't want to bother the doctor….it's quite startling what people are coming with, the normal remedies that people try at home that are coming to our service are unbelievable." Site 4a ECP.19

A further negative effect was linked to ECPs working in settings where they didn't feel they were making a difference. The setting in which all the interviewees felt ECPs could have most impact on patient care was as autonomous mobile practitioners working in the community.

"..then I went out with the ambulance for a week and that was a real eye opener because although I had worked in A&E and had done an A&E course in the past, I'd never been out with the ambulance. So I found that a fantastic role, and I think for a lot of ECPs who were actually working on the ambulance, that must be a really good role to be doing, because there were so many calls they went to that I would have kept at home and been able to keep at home with improved services, and we had to take them in. I found that very frustrating…" Site 4a ECP.19

The interviews generated a very clear sense of the need for ECPs to be providing a 'unique and distinct service' that complemented existing services but was more than "an extra pair of hands" i.e. delivering a different service to those which are available currently.

…there are plenty of autonomous practitioners in the emergency department…[ECPs] would be better off on the road…we can't avoid casualty attendance if we're working in casualty. We can't make the walk-in centre quieter if we are working in the walk in centre…" Site 5a ECP.1

"…it's the 'big cog in a small wheel' or a 'small cog in a big wheel'. In ED there are 70 staff there, you will have a lesser impact on the department." Site 5a ECP.2

"In the walk in centre we are simply working as a nurse practitioner and there's very little that we do that a nurse practitioner doesn't do…probably nothing really in the A&E department." Site 5a ECP.3

"Working in a clinic or say in an out of hours' doctors or a minor injuries setting …could work well but there's people already there who could do the job better or just the same, so it would be just putting us in for the sake of it really, unless there's really not enough people." Site 1a.ECP.33

"in minor injuries and I have to say the staff when you go in there they're pleased to see us because they know its an extra pair of hands." Site 3a ECP.200

Future directions

At an individual level, it appears that ECPs have benefited from the enhanced training and education. Career opportunities appear to have been have been extended.

"The settings you can work in as a paramedic is quite specialised, you can only really work for an ambulance service but an ECP just gives you options." Site 5a ECP.1

The ECPs appear to have established that there is a need for an intermediate care provider. The service provided by ECPs is highly regarded by patients and their carers. ECPs have gained respect from general practitioners and OHPs, and are becoming integrated into local health care teams. However, the future direction of the ECP role in some sites appeared to be uncertain. A faltering or lack of commitment to ECP working was seen to affect the ability of existing ECPs to do the job they were expected to do, resulting in lower staff morale and insecurity about future job opportunities.

"…we just need to be listened to really. Sometimes they need to have a little time to invest, speculate to accumulate…we don't have appropriate kit, we don't have appropriate vehicles, we are not being dispatched to appropriate jobs. Site 5a ECP.1

9.6 Discussion

9.6.1 Principal findings

The shaping of ECPs into an effective team and their integration into the health care workforce hinges positively or negatively on the quality of the leadership, vision and commitment to ECP at senior level. It also depends on training and continuing professional development matched to the case-mix and setting in which ECPs are deployed, and effective operational and clinical support systems. The divisions inherent within the ECP role due to previous training and qualifications, need resolving. National registration and regulation may be the appropriate route to achieve this. Job satisfaction and fulfilment of ECPs appears to be related strongly to having some measure of autonomy and control over working practices, although to protect ECPs from inappropriate referrals and for patient safety, where the threshold between autonomy and accountability occurs needs to be considered. The sense that ECPs seek to provide a service that complements existing services but is different to them also emerged as an important association with job satisfaction and morale. With appropriate back-up ECPs appear or aspire to contribute to local health services provision by working alone or in small teams in primary care or the

community for example, home visits or a mobile service. Although an important setting for on-going learning and maintaining competence, the ECPs appear to feel less useful in acute settings where they felt they reduced the workload for other staff, but were not 'adding value' to the skills that are there already.

The importance for ECPs to feel they have the support and operational back-up to become integrated into the workforce and deliver safe care to patients in any setting implies that in changing how patient care is delivered, trusts may need to reflect on their existing management styles and systems to respond to the emergent needs of new staffing groups who may require different types of support than may have been available traditionally in the organisation. Depending on the setting in which ECPs are deployed and previous clinical background, innovative approaches to change management may acquire greater importance if the balance in the previous clinical profile of the ECP workforce (currently mostly paramedic) changes.

9.6.2 Strengths and limitations

The staff interviews provided a very rich data set that increases understanding of the site specific experiences of ECP working and identifies issues characterising ECPs working in all five of the participating sites. The interview schedules were intended to complement the staffing survey (Section 8) and also the repertory grid study (Section 10). The degree of convergence and complementariness between all three studies, and the results of the clinical study also, increases the credibility of these qualitative findings. The interviewees were self-selecting and this raised the possibility that the emergent views may not be typical of ECPs and OHPs working in the sites. However, we achieved sufficient numbers of interviews for 'saturation' (i.e. the point where no new information is forthcoming) (Guest et al, 2006) to occur. We also confirmed the findings by triangulation with the other studies in this evaluation.

10 Repertory Grid Section

10.1 Introduction

Repertory grid is a form of structured interview adapted from techniques developed initially in clinical psychology (Fransella and Bannister, 1977; Kelly, 1955). It is based on the theory that complex abstract phenomena such as quality or beauty are constructed socially. How a person distinguishes 'good quality' from 'poor quality' can be elicited in an inductive process that asks the participants to contrast elements in what they consider to be 'good' against elements of what they construe to be 'less good' i.e. an opposite 'pole'. The advantage of using repertory grid techniques to draw out subjective views about what is valued highly and is not, is that the methods are capable of yielding insight into how the participant draws on his or her own unique set of experiences to make sense of phenomena like the quality of care, with minimum influence of the interviewer.

10.2 Aims and objectives

To investigate the key components of quality of care from the perspective of ECPs, control health professionals and users by:

- Conducting repertory group interviews with selected ECPs, other health professionals and users.

10.3 Methods

To explore the similarities and differences between ECPs, other health providers and users of healthcare, in what factors they associate with 'superior' and 'inferior' quality of care, we carried out 25 interviews with ECPs, and OHP providers in the control sites, and also interviews with 14 recent users of ECPs.

All the repertory grid interviews followed the same process. Based on their range of experiences of health care, the participants were asked to think about the quality of care they associated with six different health care providers and to divide the six selected into three pairs. Two of the six should be exemplars of good or excellent care-givers, two seen to be providers of care of average quality, and two considered to provide a poorer quality of care. The names of the six providers should not be given. The different qualities of care represented by the three pairs were distinguished by 'traffic-light' colour-coding: green, amber and red as follows:

Green - 2 x very good or excellent care

Amber - 2 x reasonable or average care

Red - 2 x less good or poor care

In accordance with the participant's responses, the cards were also numbered 1-6 and the type of health professional, such as nurse, doctor, ECP was also added, for example:

The cards were then organised into triads (i.e. groups of three) consisting for example, of two greens vs one red, or two amber v. one green. The participant was asked to consider in what ways two of the three were similar to each other and different from the third. The responses were noted by the researcher. The process was repeated until all combinations of the triads were exhausted or clear differences in the behaviours and attitudes described, and the quality of care attributed to them by the participant, became evident. The only requirement in the interviews with recent user of ECPs that differed from those with the staff was that one of the six providers selected by the recent user participants should be an ECP.

10.3.1Participants

The staff participants for the repertory grid interviews were recruited from ECP and non-ECP staff working in three of the five pairs of participating sites. The repertory grid interviews with recent users of ECP services were conducted in three ECP sites only. For the recent user interviews, the sample was drawn from responders to the seven and 28 day questionnaire who had confirmed in their responses that they were willing for the researchers to contact them again to arrange a short interview and provided a contact telephone number for that purpose.

10.4 Analysis

The responses of the ECP and non-ECP staff, and recent users of ECP services were noted on data collection sheets which were coded thematically enabling a template of the emergent themes associated with 'superior'; 'average' and 'poor' performance to be developed. The themes were categorised further into job skills, people skills and additional attitudes. Data were analysed at group and aggregate level as follows:

- **collective analysis** – to identify recurring themes across all participants.
- **staff analysis** – to reveal themes more common in, or unique to, staff.
- **recent user analysis** – to reveal themes more common in, or unique to recipients of health care.
- **staff and recent users of ECP services** – to elicit differences between the responses of care providers and care recipients.
- **ECP vs non-ECPs** – to investigate differences between the responses of ECP and non-ECPs.
- **clinical background** – to explore whether staff perceptions of care quality vary by previous clinical background.

10.5 Results

We completed 25 interviews with staff from three pairs of participating ECP and non-ECP sites, and 14 interviews with recent users of ECP services in the three ECP sites only. The occupational breakdown of the staff subset was 14 ECPs, and 11 non-ECPs (eight staff working in emergency departments, and three paramedics).

10.5.1 Dominant themes for both staff and patients

Several dominant themes emerged from the analysis, i.e. those that prevail across all sites and across both patients and health professionals. (Table 35)

Table 35. Repertory grid findings at aggregate and group level

Level of analysis	**Emergent themes**
Dominant themes overall	• Patient focus • Interpersonal skills • Competence • Commitment and motivation • Self-confidence
Staff themes	More common in staff than patients • Progressive • Clinical background Unique to staff • Problem-solving; Innovation
Patient themes	More common to patients than staff: • Professional • Non-judgemental Unique to patients: • Adaptability; Taking responsibility • Equipment and availability
Staff-patient comparisons	Staff • Nurturing patient focus • Emphasis on clinical skills • Over-confidence more salient • More critical of peers Patients • Collaborative patient focus • Emphasis on relational skills • Under-confidence more salient • Less critical of carers
ECP versus non-ECP comparisons	No differences found
Professional background comparisons	Paramedic background: • Collaborative patient focus • Emphasis on speed Nursing background: • Nurturing patient focus • Emphasis on safety Specialist nursing background: • Emphasis on directed focus

Specific behaviours and attitudes were frequently perceived to be the characteristics of health professionals that influence the quality of care they provide.

Focus on patient

Superior patient focus is characterised as having a genuine concern for the patient experience and demonstrating this by providing compassionate care that goes beyond mere medical procedures. Indicators may be attitudinal, such as having an empathetic nature, or behavioural, such as by taking extra care to ensure the patient is comfortable, communicating effectively, and providing continuation of care such as through referrals or home visits. Quality of care is perceived to deteriorate when empathetic involvement with the patient decreases and concern for protocol increases, resulting in a hollow, impersonal experience for the patient. Those perceived as delivering poor quality of care were regarded as neglecting patient needs altogether, lacking sympathy, empathy and understanding, even to the extent of being perceived as uncaring and unkind.

Interpersonal skills

This theme is strongly linked to patient focus, and concerns the specific people skills necessary to ensure a good relationship with the patient, such as building rapport, and being a good communicator, listener and informer. Those who are perceived to deliver poorer quality of care are described as being more detached and distant from the patient, unapproachable, difficult to read, poor communicators, and often ignore what the patient is saying or are abrasive towards them.

Competence

Clinical proficiency is clearly an essential element of good care, where the most highly regarded individuals are characterised as consistently knowledgeable, skilled, safe and capable during investigation, diagnosis and treatment. Those who provide a moderate quality of care may be reasonably proficient but less thorough and so are perceived to be less effective at diagnosis. They may also lack organisational and time-management skills and have difficulty prioritising workloads. Poor clinical performers are viewed as careless, lacking knowledge and displaying poor clinical judgement. Consequently, they are described as prone to making errors and carrying out inappropriate procedures, causing unnecessary anxiety and uncertainty for the patient.

Commitment and motivation

Two attitudes pertaining to professional drive were regarded as important characteristics of exceptional care providers. Being committed to the role and thus motivated to perform well was deemed as essential for the provision of good quality care, an indication of a strong work ethic. Those perceived as superior performers are described as passionate about their profession and thus willing to go the extra mile within the role. They are viewed as interested and attentive, striving for excellence, and are regarded as being willing to carry out extra work and apply themselves to different areas. Average performers were characterised as less interested and more likely to do no more than they have to. The reversal of commitment and motivation is apathy and a lack of engagement, with the poorest performers appearing disinterested and distracted, and reluctant to carry out thorough investigations requiring extra effort.

Self-confidence

Being confident and in control were frequently described attributes of those demonstrating care excellence. Self-confidence was inferred from behaviours such as appearing relaxed, calm and unflustered under pressure, calling for back-up only when appropriate, and a reassuring manner that instils confidence in the patient. Performance is perceived to deteriorate when confidence either increases or decreases inappropriately, leading to either reckless and careless behaviour or overly cautious, hesitant behaviour.

10.5.2Staff values

In addition to the dominant themes for both staff and patients highlighted in the previous sub-section (10.5.1), the following emerged as common themes for staff, although were less common in patients:

Progressive

Progressive individuals are characterised as keeping up to date with research and technology, using experience to inform practice, and are forward-thinking and interested in professional development, which was perceived to have a positive influence on care quality. These individuals are prepared to work outside the realms of their own experience and thus will volunteer to do so, viewing it as a learning opportunity. They may also continue to pursue out of hours development, such as by reading, portfolio building and reflection, and may seek out additional training in areas of interest. A diminishing interest in professional development is perceived to be associated with lower quality of care provision. A likely explanation for this is that individuals who lack a progressive attitude are less committed and thus less motivated within the role - themes that emerge as highly dominant overall - therefore are less likely to go the extra mile in care provision. Poor performers were regarded as being unaware of and disinterested in new clinical advancements, development and resistant to change.

Clinical background

Having experience in all aspects of acute care is viewed as advantageous in an emergency care role, positively influencing quality of care provision.

Two related themes unique to staff participants were problem solving and innovation.

Superior care providers were characterised as recognising the bigger, holistic picture, and thinking outside the box when dealing with patients and situations. They may take on a leadership role during high pressure situations to problem solve and reduce stress on their colleagues. They are leaders for change, instigating and promoting new ways of working, and continually challenging and changing care. They are viewed as critical and lateral thinkers, always planning ahead and thinking beyond the protocol. They are likely to enjoy discussing clinical problems and cases with colleagues. Those perceived as average care providers may be amenable to change, but are rarely the initiators. They may not recognise and learn from their mistakes, but will make an effort to change if things are pointed out to them clearly. Poor performers, on the other hand are regarded as being driven by protocols, limited thinkers and accustomed to doing things by the

book. They follow procedures to the letter rather than adapting them for the benefit of the patient. They often don't appreciate change, and may challenge it. They prefer to follow routines and rituals rather than think for themselves.

10.5.3Patient values

Thirteen of the 14 patient participants ranked the care they had received from ECPs in the pair of superior care-givers. One patient placed the ECP care in the middle 'average' range. This was not because the individual ECP demonstrated any lack of interpersonal or professional skills. The experience of this participant was that the ECP was limited by the role itself in the range of pain relief that the patient felt was necessary to relieve the particular symptoms.

In addition to the dominant themes for both staff and patients highlighted above, the following emerged as common themes for patients, although were less common in staff.

Professional

Healthcare providers were perceived to be professional if they were respectful and considerate not only to the patients themselves, but to members of the patient's families, and this was regarded as an attribute that positively enhances quality of care. Unprofessional behaviour from staff was described as making inappropriate, disrespectful or rude comments directly to the patient or within earshot of the patient, discussing confidential information in front of family, staff or other patients, being discourteous, or being inappropriately dressed.

Non-judgemental

This is closely linked to the previous theme, but relates to more specific attitudes towards certain characteristics of the patient. Descriptions of non-judgemental behaviour included demonstrating a liberal ethos, acceptance of lifestyle choices, and being impartial and open-minded. Judgemental attitudes, on the other hand, were characterised as forming prejudices on grounds of race, lifestyle choices, gender and disability. Patients also attributed being treated as inferior or subject to disapproving, patronizing or dismissive attitudes, as poor quality.

Emergent themes that were unique to patient participants related to adaptability, equipment provision, responsibility and availability of service. ***Adaptability*** was characterised as modifying behaviour to accommodate individual patient needs, such as being practical and empathetic, not patronizing, in dealing with a disability or cultural differences. The level of care received was rated more positively when one carer used mime and spoke more slowly in order to optimise communication with a patient who had hearing problems. ***Taking responsibility*** was also considered an important element of good care by patients. Responses implied that in certain circumstances, the gesture of an apology for a previous mistake or over-sight, is appreciated. More practically, being ***adequately equipped*** was another important element, indicating that even the most superior care will be compromised if the health care provider arrives on the scene with the wrong or inadequate equipment. Finally, ***availability of service*** was viewed by patients as an essential contributor to care quality, although this is less attributable to certain individuals but is more of a general requirement.

10.5.4 Comparisons of patient and staff-derived themes

A number of differences emerged between what patients and health care professionals constitute as being characteristics of good care. In some cases this was reflected in differing importance of themes. In others, where the same theme emerged, different underlying behaviours were described as a reflection of this theme.

Focus on patient

Although both patients and health professionals agree on the importance of patient focus in care-giving, there was a subtle contrast in the way patient focus was expressed. Although health professionals placed some emphasis on developing a collaborative partnership with patients, this view appears to be more strongly upheld by the patients themselves. The staff interviewees often used softer terms for example, “caring” and “sympathetic”, “smiling” and “jolly”, and referred to explicit indicators of patient focus such as making a cup of tea for the patient, calling relatives, listening and encouraging, and providing pain relief. Patients also referred to observable behaviours that clearly indicate patient focus, such as being kept informed and being offered practical support, however they placed more emphasis on implicit indicators of patient focus. These were characterised in the form of an empathetic, kind, respectful, compassionate attitude, understanding of patient needs and concerns, a concern for the preservation of dignity and the ability to make a patient feel special, individual and important, and not just a number. Patients appear to desire an equal, supportive partnership with their health professional and to be taken seriously as intelligent beings capable of participating in decisions concerning their own health. They appreciate honesty and straight-talking. Dignity and respect becomes even more important as quality of care decreases. Patients regarded the care from providers who made make them feel an inconvenience, embarrassed, humiliated and unimportant, as ‘poor’ quality.

An interesting illustration of the contrast between patient and staff attitudes to patient focus came from one health professional who had recently experienced an emergency admission as an inpatient, and subsequently became a patient participant in this study. Patient focus in this narrative was exemplified by the carer being pro-active and taking the initiative to make contact with the patient and reassure them that they were there. Showing compassion for the patient, being considerate and well informed, dominated this participant’s construction of good quality care. The interviewee described emerging from the experience with an enhanced understanding of how vulnerable patients can feel, and as a result, re-evaluating their own approach to patient care to become more proactive and empathetic.

Further support for a contrast in patient / staff values comes from the descriptions of novel themes for each population, as described in the previous two sections. The novel staff themes of ***progressive outlook***, ***clinical background***, ***problem solving*** and ***innovation*** are reflections of an attitude towards the clinical problem, and suggest that, for staff, great importance is placed on the desire and ability to develop and perform clinically. In contrast, for patients, greater value is placed on emotional, rather than clinical, needs, illustrated by the relational values of being ***professional***, ***non-judgemental*** and ***adaptable***.

From additional insights gained during analysis, ***self-confidence*** was a dominant theme for both patients and staff. Two opposing negative poles were identified, ***under-confidence*** and ***over-confidence.*** Patients described under-confidence as being over-reliant on other staff, displaying uncertainty and appearing phased or less-confident. There was only an isolated reference to over-confidence as "careless". Staff, on the other hand gave numerous examples of over-confident behaviour, where the individuals concerned were considered to have exceeded their role boundaries inappropriately, yet were perceived to have a poor underlying knowledge base. However, patients may view clinical competence as a given, yet do have more understanding of emotional needs. These two insights are supported by the finding that the two dominant themes overall are ***patient focus*** and ***competence***. Staff and patients each appear to have "expertise" in one area, but understand the need for the other.

10.5.5Comparisons of ECPs and non-ECPs

There were no obvious differences between ECP and non-ECP sites, in terms of what distinguishes good from less good quality of care. There was agreement between ECPs on certain themes, but no more so with each other than with non-ECPs.

10.5.6Comparisons by clinical background

As there are different pathways into becoming an ECP, practitioners from contrasting backgrounds may differ in their perceptions of what characterises good care. The ECPs who took part in the repertory grid interviews came from two contrasting clinical backgrounds, and these were grouped as follows:

- Nursing background
- Paramedic background

In line with expectations, practitioners from different backgrounds placed different emphases on the factors that contribute to good quality care. The dominant themes of patient focus, interpersonal skills, competence were upheld across both background groups. However, there were differences in the way they were expressed.

Patient focus and interpersonal skills

All three groups talked of doing things to make the patient more comfortable, however there appeared to be a contrast in the way the patient-carer relationship was viewed by practitioners from emergency nursing and paramedic backgrounds. Those from emergency nursing backgrounds appeared to positively appraise a more nurturing approach towards the patient, and thus were more likely to refer to characteristics such as empathy, listening, smiling, laughing and being jolly. Those from paramedic backgrounds viewed the patient-professional relationship more of collaboration, expressed in qualities such as respecting, encouraging, guiding, coaching and negotiating.

Competence

Both groups regarded knowledge and experience as valuable attributes contributing to clinical proficiency. Within nursing, those from emergency nursing backgrounds placed more emphasis on being able to manage the

patient safely, and those from a specialist nursing background valued clinical focus on the immediate presenting problem.

Clinical background

Those from a paramedic background perceived that having experience of the ED, which places the individual practitioner in high pressure, often critical situations, was an important contributor to the provision of good ECP care. Participants from a nursing background, in particular those who were originally emergency nurse trained, emphasised the importance of well rounded experience, which included a knowledge of primary care, paramedic practice, social services, acute care and the ED.

It appears therefore, that despite differences in the way these themes are expressed, they are undoubtedly the core characteristics of quality care provision as perceived by practitioners.

Elsewhere, there was agreement between those from a paramedic or emergency nursing background that individuals who provide superior quality of care are ***progressive***, ***non-judgemental***, ***motivated*** and ***committed***. Highly appraised individuals are those who genuinely enjoy the role, are interested in their patients and in keeping up to date with clinical topics, and have the drive and enthusiasm to provide gold standard care. ***Self-confidence*** was another theme in which there was agreement between those from paramedic and emergency nursing backgrounds, both greatly valuing the ability to rely on one's own judgment in clinical decision making. However, although both groups appraised those with low self-confidence negatively, only those from a paramedic background associated over-confidence with a lower quality of care.

Both those from paramedic and emergency nursing backgrounds were in agreement on the importance of being ***professional***, ***conscientious***, and being able to remain ***calm under pressure***. However, those from a paramedic background had a tendency to refer to these attributes more often, and so are inferred to place greater value on them. This may be due to prior experience of being the first contact point with the community, and thus portraying the image of their profession, as well as having to handle high pressure situations alone.

Certain themes were valued only by one group. Emergency nurses were the only group to refer to ***problem-solving*** and ***innovation***, whereas paramedics valued ***intuition*** and the ability to read and anticipate a situation.

10.6 Discussion

10.6.1Principal findings

Overall, the dominant themes associated with superior quality of care were patient focus, good interpersonal skills, clinical competence, commitment, motivation and self-confidence. There were no differences in views between ECPs and non-ECPs. Some variations between patients and staff, and also between ECPs from different clinical backgrounds, were evident. The findings imply two disparities between the views of staff and patients. Firstly, staff tended to place greater emphasis on clinical skills. On the other hand, in health care encounters, patients take clinical competence as expected and emphasise relational skills. Clinical competence has obvious

significance in high quality of care. However it is genuine concern and respect for the patient characterised by being compassionate, empathetic, considerate and non-judgemental that, for patients in this sample, distinguishes superior from poorer quality of care.

The second potential disparity between staff and patients is in what constitutes 'patient focused care'. The findings revealed a tendency to see the patient-provider relationship as either a nurturing, **one-directional delivery of care** from provider to patient**,** or as a **collaborative partnership** where both parties contribute. Although the patient experience is clearly an important factor for care providers as well as for patients, the contrast between the patient and professional in what patient-focused care is, provides useful insight. Patients appear to place more value on a collaborative partnership, being treated respectfully as individuals worthy of making their own decisions, kept informed and offered practical support.

Thirteen of the 14 recent users of ECP services in the sample ranked the care received from ECPs as superior quality. Additionally, the analysis by clinical background found that paramedic-trained staff were more likely than staff from other backgrounds to view the patient-carer relationship in similar collaborative terms as the patients. It appears therefore that by virtue of their current operational setting, training and previous experience some staff may have greater appreciation of how patients experience and value care than others.

The repertory grid findings go some way towards highlighting the complexities of how beliefs about the quality of patient care are formulated. Raising awareness of such issues may be a useful step forward to promoting a unitary set of principles for ECPs and also other health care providers, reconciling a high standard of clinical care with the relational and collaborative aspects valued by patients.

10.6.2Strengths and limitations

The repertory grid technique allowed the participants to reflect on their unique set of observations and experiences of health care and to express what attitudes and behaviours they value and what they do not, in their own words (Dyson, 1996). Date were analysed using a simple thematic approach which ranked the themes either negatively or positively, according to the frequency that they occurred in the data. Participants were self-selecting and the results may benefit from being confirmed with another sample. Nevertheless, the sample numbers in our study and in the subsets are comparable with those reported elsewhere (Dyson, 1996, Lambert et al, 2004). Our study yielded a rich data set that supports and adds to the results of the wider evaluation. The finding that almost all the patient subset placed the ECP in the 'superior' care may have been influenced by the presence of an interviewer, or that the health care event attended by an ECP was fairly recent in the patient's memory. To allow for this, all the repertory grid data were analysed by researchers who were not involved in interviewing patients. This separation of task, together with the justifications and descriptions of behaviours underpinning the patients' choices recorded in the data, strengthens our confidence in the findings. In judging the quality of care, ECPs who have had paramedic training (which at the time of this evaluation, most ECPs nationally have) were found to share similar values about the quality of care as the patients. This may help explain the finding in the clinical survey (Section 5) that patients were consistently more satisfied with ECP care than non-ECP care. The repertory

grid findings may also inform recruitment and selection processes, and a model for training a health care workforce that understands and is sensitive to the needs of patients.

10.7 Conclusion

The repertory grid findings go some way towards highlighting the complexities of how beliefs about the quality of patient care are formulated. Raising awareness of such issues may be a useful step forward to promoting a unitary set of principles for ECPs and also other health care providers, reconciling a high standard of clinical care with the relational and collaborative aspects valued by patients.

11 Strategic Policy Context

11.1 Aims and objectives

We sought to place the results of the evaluation within the wider context of national and local policies. The aim of this piece of work therefore was to feed back some of the emerging findings to a small number of key decision-makers involved with the development of new ways of working. We sought to obtain their views on the results as well as on more general issues about the ECP role as an example of how role substitution within the health service was working, and any implications for future development.

11.2 Methods

The interviews were set up with five strategic leads involved with ECP working after preliminary analysis of the data collected in the evaluation had been undertaken. The interviewer used a semi-structured interview schedule to guide the discussions. With consent the interviews were tape recorded.

11.3 Analysis

The narratives were arranged thematically and used as a point of reference for the national policy context and variations locally, in which the overall findings of the evaluation could be considered.

11.4 Results

Two interviews were undertaken with key personnel who provided a national perspective on ECP working. Three interviewees were senior staff (two in PCTs: one in an ambulance service) who provided a local strategic view of ECPs.

One of our preliminary results was that although the findings indicated that across a range of objective measures, overall the service provided by ECPs compared equally or better than that provided by non-ECPs, and patient satisfaction with ECP care was high, the qualitative work suggested that the future direction of ECP working appeared to be uncertain. In some sites, responsibility for the ECPs had transferred from one organisation to another, funding for ECPs appeared to have been withdrawn, and the structure and process of training courses were being reconsidered.

11.4.1 National perspective

The key message from the national perspective was that there was no lack of commitment to ECP working. Things may be “a bit quiet”. However, any apparent uncertainty did not signal a reversal or withdrawal of support at senior policy level. The evaluation had coincided with major re-organisation of the ambulance trusts and the primary care trusts. Those changes may

have impacted on ECPs locally. Notwithstanding some stalling or rearranging of responsibilities, ECP working was associated with benefits for the organisation, and for patients, and fewer referrals to EDs. The provision of ECPs, and other types of intermediate care practitioners was in line with the current health policy to provide appropriate patient care locally and out of hospital. This was expected to be confirmed when the report from Lord Darzi (Department of Health, 2008) was published.

The changes in the education and training of ECPs were attributed to adjusting the balance between the vocational training of paramedics towards an academic and clinical skills and competences that ECPs need to match local need. Measures to standardise the education nationally, such as the competency curriculum framework published in June 2007, were being implemented.

The residual influence of previous clinical background affecting ECPs who had been nurses and those who had been paramedics, differently, in terms of their skill-base, and the ability of to prescribe a wider range of drugs than those covered by PGDs, was acknowledged as a limitation on the role. It was felt that professional registration and regulation was the route by which these issues would be resolved. In respect of career opportunities, the ECP role has added a career step for nurses and paramedics to retain a clinical focus. Previously, the only promotional route for paramedics was into management or education. It was felt that concerns about the transferability of the ECP role between Trusts, had not be borne out in practice. A larger proportion of the ECP workforce nationally has paramedic backgrounds but the balance was moving slowly towards having equal proportions of nurses and paramedics.

In terms of perceived impact, ECPs were working in three settings nationally: pre-hospital, primary care and OOH, and in acute trusts. One of the two interviewees felt that the particular strengths of ECPs were their flexibility and adaptability. ECPs were likely to be most effective in settings where their particular skills “added value to the existing provision”. ECPs were least effective where ECPs did not add a lot to the existing skill-mix, i.e. in settings, for example acute trusts, where there were large numbers of people working there already. Rotating ECPs through acute trusts however, was considered to be the most effective vehicle for continuing professional development and preventing ECPs from becoming de-skilled.

Resistance to ECPs becoming integrated and accepted into the wider health care team were considered to be due to professional jealousies which were to be expected and these would disappear over time as the role matured. Examples of measures introduced to overcome resistance to ECP working were putting experienced ECPs with strong interpersonal skills capable of communicating effectively with staff and management into ambulance service control rooms to assist the appropriate targeting of ECPs.

11.4.2Local perspective

The development of ECPs in one area was ‘organisational based’. It was a result of a flexible response to out of hours provision where GPs were considered to be less cost effective than ECPs, and also national policy moves towards urgent care walk in centres. The second example of ECP working was a ‘problem-solving’ model. In this model, ECPs, who were mostly all nurse trained, were developed by the PCT and managed under the nursing arm of the trust. ECPs were felt to be most effective assisting with home visits and GP weekend out of hours care. They were considered to be less efficient with minor problems and GP out of hours evening care,

and least effective in emergency departments. Overall, however, the ECPs were felt to be successful such that when the development funding was exhausted, additional funds were invested for ECPs to work collaboratively with community matrons (who are experienced in managing long term conditions) on an 'admission prevention initiatives'. In this ECPs and the community matron work as immediate responders liaising with GPs and acute trusts and the PCT. Supported by positive feedback from GPs and patients, and figures from their local audit, the interviewee reported a substantial return on that investment in terms reduced costs and saved admissions.

The participant felt that the successful management of ECPs was about "managing expectations" – being clear exactly what the job is. This included a clinical manager who understood urgent care and the context in which ECPs are working, effective systems of continuing professional development, including appraisal-based approach to identify training needs at an individual level, mentoring by GPs and case discussion. Reportedly, an attempt to merge the training of ECPs with the AS locally had not worked out, partly because of the AS requirement for trainees to pass the emergency driving test before they could go on the course. There was nothing to suggest however, that trained ECPs were not transferable between Trusts. The major problem for this PCT was retaining ECPs who were well-placed to be 'poached' by other services. In terms of future direction, as ECPs they were fulfilling a different role. A potential drawback to the future development of ECPs was that compared to the organisation of other professional groups in the health service, ECP were not seen to have a strong advocate promoting their interests at national level. ECPs were becoming a distinct profession and therefore the appropriate route was probably national registration.

The third participant gave a perspective from an ambulance trust. This interviewee provided further explanations for our findings from the qualitative interviews that the future direction of ECPs appears uncertain. Tensions within the AS were attributed to individual, organisational and strategic explanations. 'Individually', the development of ECPs had provided an alternative purely clinical career structure that challenged the legitimacy and expertise previously attached to those following the traditional promotional route that combined clinical and management responsibilities. A second source of tension was 'organisational', resulting from targets to meet new operational performance standards and pressures on the ability of the AS to release front-line staff for training. A third source of tension was more 'strategic'. It appears that some Ambulance Services are seeking Foundation Trust status. A consequence of this may be a retreat from 'joined-up' thinking and cross-boundary working associated with ECP practice. Any move towards more transactional and contractual working may well affect the priority some organisations are able to give to ECP working.

11.5 Discussion

The interviews with strategic leads provided valuable insight to current policies and priorities that are likely to affect ECP working. They also enabled the apparent inconsistencies between the results from the clinical study that point to ECPs being a positive initiative that depending on setting, benefits patients, staff, health and other services, and the qualitative findings that implied hesitation or withdrawal of support for ECPs in some quarters. The evaluation coincided with significant mergers

between Trusts and changes in responsibility, and the impact of the changes was greater in some sites participating in our evaluation than others. This factor may have been responsible for some of the variation found in the clinical studies between the sites. The predicted and unintended consequence of restructuring on organisational effectiveness is well-documented in the scientific literature (Fulop et al, 2002). As well as expected advantages, restructuring initiatives are linked to negative effects on service delivery and developmental delay. Tensions between merged organisations and perceived differences in cultures are also identified as barriers to effective working. For staff, mergers are associated with increased stress, lower morale, higher job insecurities, and higher intention to quit (Brown et al, 2006; Cortvriend, 2004). All these issues were identified in the staff survey (Section 8), and raised in our qualitative interviews with ECPs and OHPs (Section 9). The unintended effects of mergers would be expected to have a disproportionate affect on the development and integration and also the effectiveness of new cross-boundary roles like ECPs compared to established roles, in some sites. The example of positive ECP inter-professional, cross-boundary, task-based initiative dedicated to 'admission avoidance', the existing literature, and the informed contextual perspective provided by the strategic leads strengthens our confidence in the findings.

12 Discussion

12.1 Introduction

This mixed methods study aimed to evaluate the impact of role substitution in healthcare. The example used for this study was that of Emergency Care Practitioners working in different urgent and emergency healthcare settings. The study consisted of different parts each of which examined aspects of the ECP role:

- A pragmatic quasi experimental intervention trial compared five sites employing ECPs to deliver care in different settings with five matched sites employing non-ECP staff from different backgrounds to deliver care in similar matched settings. The trial focussed on the clinical encounter and evaluated the initial management of the patient, and, through follow up, patient satisfaction with care provided, subsequent healthcare contacts made and health outcomes.
- Alongside the trial, the safety and quality of care provided to patients was assessed in both the ECP patients and their matched non-ECP patient counterparts. A retrospective records review approach was taken to this part of the study. Clinical records were assessed by trained specialists in emergency medicine over three key aspects of care with an additional rating being given for overall quality.
- A staff survey focussed on the views of the staff delivering patient care. It aimed to evaluate views from both ECP and the non-ECP control counterparts on their satisfaction with the role they have, their ability to undertake the role, job characteristics, the level of support they receive, their future career opportunities and quality of contact with patients.
- In order to understand what impact ECPs have on service delivery, an assessment of cost-effectiveness was undertaken. The total costs to the NHS of the provision of the ECP service(s) in each location relative to the non-ECP service(s), the consequences of the scheme on the wider NHS (e.g. in the form of subsequent health care contacts related to the initial episode) and the private costs borne by patients and their families. Data on the use of the health service was collected for each patient using patient-completed 28 day questionnaires.
- A large qualitative component was included in the evaluation to enable the attitudes and views of both staff and patients on the ECP role to be examined in more depth. Three different approaches were used:
    a. Semi-structured interviews with staff which explored in more depth aspects of the role and designed to capture their subjective experiences of the impact of the role on their personal and professional development, and integration into the wider health economy.
    b. Repertory grid interviews were conducted with ECP staff, other health professionals and patients in order to explore the similarities and differences between factors they associate with ‘superior’ and ‘inferior’ quality of care.

c. Finally, semi-structured telephone interviews with personnel involved with strategic decision-making around new ways of working, locally or nationally in order to consider the findings of the evaluation in the context of policy relating to new ways of working.

The ECP role represents an ideal example to examine changing ways of working in healthcare. The ECP role has evolved around the country within different settings which are mainly concerned with the delivery of emergency and urgent healthcare. However, within that system, the ECP may work across boundaries and in multiple settings depending on how they have been commissioned locally. This has presented an opportunity to evaluate the role within different settings and provide some evidence for effectiveness of the role in terms of patient care, integration, cost effectiveness and job satisfaction, and also to compare between settings. Our results have demonstrated that marked differences exist within the pairs of settings studies, that is, in similar settings ECPs function differently from control non-ECP staff in relation to some aspects of how they deliver care. Furthermore, there are also marked differences in the way ECPs practice between settings. These findings should therefore enable some conclusions to be drawn about the most effective way(s) to employ this type of role within healthcare, given the limitations of this study.

12.2 Principal findings

Table 36 is included as a reminder of the services evaluated within the paired sites.

Table 36. Pairs of sites included in the study

Pair	Intervention service setting(s)	Control service setting(s)
1	ECPs working as single responder to 999 calls	Standard paramedic / technician ambulance responding to 999 calls
2	ECPs responding to direct calls to service from nursing and residential homes	Standard paramedic / technician ambulance responding to 999 calls from nursing and residential homes
	ECPs working in a minor injury unit	ENPs working in minor injury unit
3	ECPs working alongside GP-led primary care out of hours service	GP-led out of hours primary care service
4	ECP-led 24 hour Urgent Care Centre based in a community hospital	Nurse-led 24 hour 'casualty' based in a small infirmary
5	ECPs working alongside ENPs in a walk-in-centre	ENP-led walk-in-centre
	ECPs working alongside ENPs in minors clinic in an emergency department	ENP-led minors clinic in an emergency department
	ECPs working as single responder to 999 calls (NOT evaluated)	Standard paramedic / technician ambulance responding to 999 calls (NOT evaluated)

Overall there were no differences between ECP services and non-ECP services in the five pairs of participating sites in respect of patient discharge, investigations, treatments, time spent with patients, or contact with other services within 28 days of the original episode of care. Within the 28 day period, there was no difference between ECP and non-ECP care in the self-reported health status of patients. In spite of this, patients were significantly more likely to report being 'highly satisfied' with ECP care than non-ECP care. However, depending on the sites and settings in which they are working, it is clear that the ECPs are having a different impact when compared with non-ECP counterparts in the control sites.

In pair one, ECPs carried out more investigations, gave more treatments, spent a longer mean time with patients, and were much more likely than non-ECPs in the matched settings to discharge patients. ECPs in pair two were also more likely than non-ECPs to discharge patients and patients were more likely to report a worsening health status if they had been seen by non-ECP staffed services. In pair three ECPs carried out more investigations than non-ECPs, spent less time with their patients and ECP patients were more likely to report a worsening health status. In pair four non-ECP staff were more likely to discharge patients, undertake more investigations and provide more patient treatments. In pair five ECPs spent less time with patients, carried out more investigations and were more likely to discharge patients than non-ECPs. Patients in pairs one, two, three and four were significantly more 'highly satisfied' with ECP care. In pair five, patients were satisfied with ECP and non-ECP care equally. No differences were found overall or within pairs in terms of follow up that patients reported receiving following their initial healthcare episode. Table 37 below summarises these findings:

Table 37. Summary of main trial findings indicating where differences were found between intervention and control sites

Outcome	Pair one	Pair two	Pair three	Pair four	Pair five
↑ discharge	ECP	ECP	Non-ECP	Non-ECP	ECP
↑ highly satisfied	ECP	ECP	ECP	ECP	
↓ mean clinician time	Non-ECP	ECP	Non-ECP	ECP	ECP
↑ any investigation	ECP	Non-ECP	ECP	Non-ECP	ECP
↑ any treatment	ECP	Non-ECP		Non-ECP	
↓ any follow up					
↓ health at follow up		Non-ECP	ECP		

Note: Shaded cells indicate no significant difference found between intervention and control

The five pairs of sites in this study were selected on the basis of their heterogeneity in terms of models of service delivery of ECP care. It is not surprising therefore that the results from analysis of the clinical data are also very heterogeneous. The degree of heterogeneity is reflected in the results presented in Section 5. This limits the interpretation that can be

placed on the overall results, as they may mask substantial variation that was found between each pair of sites.

The degree of variation identified in patient management and outcome is both interesting and important if lessons are to be learnt about how ECPs integrate into local health care systems and deliver care to patients. ECPs are having a differential impact when compared with their non-ECP counterparts and this is dependent on the sites and services they are working in.

12.2.1Patient management

The outcomes here in relation to patient management were investigation, treatment and disposal. The analysis compared the pairs of sites in relation to the number of investigations and treatments provided, but this does not reflect appropriateness of care. Although differences were found in rates of investigations and treatment, the safety study (Section 5) did not identify deficiencies in ECP care in relation to these aspects of care.

Patients presenting with an acute complaint underwent more investigations by ECP services in pairs one, three, and five when compared with their non-ECP services. The investigations performed ranged from ECG, blood testing, urine testing, X-ray, ultrasound and CT scanning. In pair one, ECPs would have more skills to investigate patients than their non-ECP counterparts (paramedics and ambulance technicians), and therefore this findings is not surprising. In pair three, it is likely that non-ECPs (GPs in this case) would utilise investigation less given their wealth of expertise and experience. Generally, GPs are used to working in surgeries where investigations are not readily available, and also, previous studies have shown that GPs perform fewer investigations and refer patients onto other services less when compared with hospital doctors (Dale et al, 1995).

Looking at results for ‘discharge’, patients are much more likely to be discharged by ECPs than their non-ECP counterparts where ECPs are working wholly (pair one) or predominantly in a mobile service out in the community (pair two) rather than based in out-of-hours and urgent care settings which are predominantly static (pairs three and four). This finding may be considered predictable. The non-ECP control staff in pair one, and partly in pair two, cannot assess, investigate, treat and discharge patients on scene in the way that ECPs can. Therefore, it would be expected that patients would not be discharged on scene in the majority of cases in these control sites.

The finding that ECPs in pair five were more effective than the non-ECPs at discharging patients is not readily explainable initially. It might be expected that the control non-ECP staff (experienced nurse practitioners) would discharge more patients. One explanation is that ECPs in site 5a work for a large amount of their time as a mobile unit for the ambulance service. Although this aspect of their ECP work did not form part of our evaluation, qualitative interviews with ECPs and other health professionals alongside ECPs when they were deployed in the static setting (which was included in our evaluation), point to differences between nurse practitioners and ECPs, around the management of risk. These differences were attributed to ECPs being used to lone working in a mobile setting and to taking decisions independently. Consultations between the ECP and the on-site team in the static centre might have led to a different decision about the management of a particular patient, being made. An approach to patient care by ECPs familiar with working in a mobile setting therefore, may render ECPs

working in the static site 5a to be more likely than non ECPs, to discharge patients.

Non-ECP control staff discharged proportionately more patients than ECPs in pairs three and four. In these two pairs of sites, the ECPs were based mainly in static settings. In pair three ECPs were being compared with GPs. In pair four, ECPs were compared with experienced nurse practitioners (pair four). Again, we can see that differences in discharge practice vary with whom the ECP is being compared, and the settings in which ECPs are deployed.

Proportionately, therefore, although modifiable at an individual ECP level, the finding that ECPs discharge more patients than non-ECPs appears to depend on the experiences of working as autonomous practitioners in a mobile setting where their added value is clear when compared with the standard control non-ECP. By contrast, in the static settings, the ECP may perceive less autonomy and control and less added value than the control counterpart.

Other studies of extended skill roles within the community found that patient management was also affected by the role. Previously, ECPs were found to have carried out fewer investigations, provided more treatments and were more likely to discharge patients home, than the usual providers (Mason et al, 2007b), Cooper et al, also found that non-conveyance rates amongst ECPs were higher than for non-ECP ambulance patients (Cooper et al, 2007). Paramedic practitioners for older people were also found to discharge more patients at scene thereby having a significant impact on ED attendances and hospital admission rates (Mason et al, 2007a).

12.2.2Patient time

The ability to discharge patients was at the expense of time. ECPs in pairs one and two spent significantly longer with patients than non-ECPs in the respective control sites. These are predominantly mobile services where the control would be an ambulance technician or paramedic. Any increased time that ECPs spend with patients in the community has to be weighed against the other NHS resource use and transfer of costs to the patients in terms waiting times for treatment and for transport, if patients have to travel to and from hospital for care that could be delivered by the ECP.

An explanation of the greater length of time ECPs may spend with patients is provided by the qualitative interviews. (Section 9.4) When ECPs are working on their own or in pairs delivering care in the community (pair one, and to a lesser extent, pair two) they do not have a large team that may be available to them in an ED, MIU or WIC. In the community ECPs have to take control of the situation including any family, bystanders, and animals, act as receptionist, take a history, assess the patient, carry out investigations, perform any treatment, and ensure the patient is clinically secure with appropriate back-up if necessary, before they can discharge safely.

A further factor that may impact on time spent with patients is the finding from the staff survey (Section 8) that overall, ECPs perceive their patients to be less proactive in their own care. This may indicate that in the community, ECPs are seeing more isolated, vulnerable or elderly patients than those eligible for ECP care who present to static health centres. This finding was partly confirmed by the quantitative data which showed a higher mean age amongst ECP patients than non-ECP patients. (Section 5)

Additionally, an integral feature of the ECP role described in the interviews with strategic leads is a presumption (reported to be confirmed in local audit) that ECPs doing home visits and working in a primary care setting prevent ED attendances and hospital admissions. Explanations given for this are that compared to GPs for example, ECPs have more time to spend with patients. ECPs also have good knowledge of and linkages with the support services necessary to enable a patient to stay at home.

One previous study evaluated time spent with the patient by practitioners with extended skills. Time can be important both in terms of costs and also patient satisfaction. Mason et al compared mean total episode time in a randomised controlled trial of paramedic practitioners assessing older people in the community, and found that the paramedic practitioners spent longer with patients, but the episode time was reduced simply because fewer journeys to the ED and hospital were being made by patients (Mason et al, 2007a). Overall there were cost savings associated with this change. Our findings confirm and support this research.

12.2.3 Patient satisfaction

In terms of patient satisfaction, compared to non-ECPs, data collected in the clinical study found that ECP care was associated with higher or equivalent levels of satisfaction. This finding is supported by the analysis of the patient and staff repertory grid interviews. (Section 10) Comparing the experiences and observations of care delivered by different types of health care provider, all except one in the patient sample placed the care received from ECPs in the superior care category. Factors that were found to distinguish superior from poorer quality of care include genuine concern and respect for the patient characterised by being compassionate, empathetic, considerate and non-judgemental.

Previous studies have found that patients report being highly satisfied with extended roles. When comparing the care from ED doctors and nurse practitioners patients reported higher levels of satisfaction with nurse practitioners (Carter et al, 2007). Evaluations of pre-hospital extended roles (ECP and paramedic practitioner) have also reported high levels of patient satisfaction (Mason et al, 2007; Mason et al 2007a). In addition, these studies did not find that increased levels of satisfaction were at the expense of high quality patient care.

The repertory grid findings go some way towards highlighting the complexities of how beliefs about the quality of patient care are formulated. Compared to their experiences of different types of health professionals, almost all the recent users of ECP services interviewed rated the care received from ECPs as superior quality. Depending on previous clinical background, the study also found a potential disparity between staff and patients in what constitutes ‘patient focused care’. The findings suggest a tendency to see the patient-provider relationship as either a nurturing, one-directional delivery of care from provider to patient, or as a collaborative partnership where both parties contribute. Patients appear to place more value on the collaborative partnership approach, being treated respectfully as individuals worthy of making their own decisions, kept informed and offered practical support. The views of staff who had paramedic backgrounds matched the view of the patients more closely than staff from non-paramedic backgrounds.

This finding may be a useful step forward to promoting a unitary set of principles for ECPs and also other health care providers, to integrate a high

standard of clinical care with the relational and collaborative aspects valued by patients, in their professional practice.

Repertory grid studies eliciting the view of professional staff groups (Dyson, 1996) and patient preferences for different treatments (Lambert et al, 2004; Lewith et al, 2002) have been published previously. Largely, our findings support this research. The particular strength of our study is that the ECP evaluation offered the opportunity to examine staff and patient views of the quality of care, at a time when ECPs, who are recruited from different clinical staff groups, are at a formative stage of their professional role development and becoming integrated into the workforce. Although the subsets of staff were small, the analysis was sufficiently sensitive to reveal disparities between the views of staff and patients. The findings may usefully inform approaches to patient care by ECPs and the professional practice of other staff groups in the wider NHS

12.2.4 Patient safety

The results have shown that the ECP services scored significantly higher than non-ECPs across three aspects of care (assessment; overall care, and quality of records) when the two trial arms of the trial were compared. The differences detected, although statistically significant, are small and may not reflect clinical significance. However, the finding is important. It indicates that ECPs are providing a slightly better level of care than their control counterparts for the pairs of services involved in this study. It may be unreasonable to expect large differences, as this would rely on ECPs providing exceptional care and other emergency care providers delivering very poor care. The repertory grid interviews (Section 10) identified clinical competence as a dominant theme associated with superior quality of care by both sets of staff. Patients on the other hand felt that the clinical competence of the health professional was expected, and distinguished providers of superior quality of care by their relational skills.

Previous studies have tried to evaluate safety of care in the pre-hospital setting using different methods. Studies in the US that have evaluated pre-hospital triage decisions have mainly involved the utilisation of protocols or guidelines. Silvestri et al, 2002 previously concluded that paramedics could not safely determine which patients could be left at home without additional training. They found that subsequent ED attendance and hospital admission rates were unacceptably high in those patients triaged to be left at home. Pointer found that following a brief training session and review of a study workbook, ambulance crews were not able to triage patients accurately, with a 9.6% under-triage rate (Pointer, 2001). Schmidt found a similar 9% under-triage rate (Schmidt et al, 2000). Other US studies have discussed the difficulties in identification by ambulance crews of cases eligible for community treatment (Kamper et al, 2001, Bissell, 1999). In addition, the relative merits of a pre-hospital practitioner have been discussed with respect to certain geographical areas such as rural locations, in fulfilling a broader public health and primary care outreach role in the local community (O'Meara, 2003).

In the UK, however, the assessment of appropriateness of care provided by extended role paramedic practitioners attending older people with minor conditions during a randomised controlled trial found no difference between the paramedic practitioners and control clinicians in terms of unplanned ED attendance within 7 days of the index episode (Mason et al, 2007a). The results of the safety study within our current evaluation, confirms earlier findings that in the UK, overall the care provided by ECPs is at least equally

as safe as the care provided by non-ECP providers working in similar settings.

12.2.5 Cost Effectiveness

Few studies have attempted an evaluation of resources in relation to extended roles in healthcare. This analysis based on routine data showed that there is strong evidence that ECPs can reduce costs when operating in mobile schemes (settings 1a and 2a) (Section 5). Whilst the cost of the ECP care is slightly higher for the mobile service settings, the different discharge patterns result in reduction and therefore cost savings in the use of other hospital services. For the other settings, significant differences in costs are not apparent.

Previous studies in emergency care have found that extended roles have varying cost impact. Sakr et al found that nurse practitioners in the ED were operating safely, but were also more expensive than a doctor provided service. The increased costs were principally from an increased proportion of nurse practitioner patients being referred for follow up. (Sakr et al, 2003). Carter also found that nurse practitioners provide high quality care, but at increased costs to the service (Carter et al, 2007). A cost-effectiveness analysis of introducing paramedic practitioners with extended skills to assess and treat older people calling the ambulance service with minor conditions found a non-significant cost saving in the paramedic practitioner patients of £140 per patient. This was principally because of a significant reduction in ED and hospital admissions. (Dixon et al, 2008). Perhaps the key difference between the nurse practitioners, and paramedic practitioners, and ECPs in our current study is that cost savings are made by avoiding patients attending hospital. The curbing of the patient journey appears to be safe and satisfactory for patients. It also has an impact on reducing or releasing resources for appropriate investment elsewhere in the delivery of patient care.

12.3 Development of new roles in healthcare

Initial comparisons of the data from the staff survey found few differences between ECPs and non-ECPs (Section 8). ECPs reported lower task feedback, lower supervisor support, fewer career opportunities, fewer patient contacts, more time with patients, more dependent (less proactive) patients, and lower work demands, than non-ECPs. The only difference in work related effects was that ECPs rated the quality of individualised patient care (performance quality) higher than non-ECPs.

We found that ECPs had comparable scores for well-being outcomes including job satisfaction with non-ECPs. ECPs compared favourably with non-ECPs in terms of job characteristics (autonomy and control, skill utilisation) which have been demonstrated to be significant explanatory factors for outcomes such as job satisfaction (Morgeson and Humphrey, 2006). ECPs were more likely to report higher levels of autonomy and control, although the comparison with non-ECPs was non-significant. However our findings may reflect the potential of the ECP role to provide staff with a high degree of independence, with responsibility for assessing, treating and referring patients.

Some differences between the pairs of sites were identified. In pair four ECPs reported lower levels of well-being, self worth, satisfaction, and

commitment, and a higher intention to quit, than non-ECPs. This finding was associated with lower perceptions of the 'meaningfulness of the job', and 'not having sufficient time to spend with patients'. In pair five, relational issues with patients, colleagues and supervisors were also reported to be poorer amongst ECPs than non-ECPs.

The impact of 'not having sufficient time to spend with patients' was an explanatory factor for ECPs in site pair four reporting lower self worth, well-being, professional commitment and significantly higher intention to quit than non-ECPs. ECPs in this site differed from the other ECPs sites in the evaluation, as they reported spending less time with patients than the non-ECPs in the matched settings, and higher work demands.

There is little research examining how extended roles in the health service impact on experiences of the role and on work related outcomes. However, autonomy and control have been found to be important influences on job satisfaction. A survey of over 600 health professionals working in new roles (mainly nurse practitioners and nurse specialists) showed levels of job satisfaction were high as a result of increased freedom and autonomy, increased responsibility and opportunity to manage their own caseload and the main factors identified as mediating this (Collins et al, 2000). It follows therefore, that ECP job satisfaction is likely to be lower in settings where staff have less autonomy and control, and higher workload.

McPherson stated that there is little evidence as to how to introduce extended roles, educate, support and mentor these practitioners (McPherson, 2006). Previous research findings in non-health service settings have demonstrated that changes to people's jobs such as expanding and empowering roles do have the potential to improve workforce outcomes such as job satisfaction and performance (Manz and Sims, 1993), enhanced commitment (Leach et al, 2003), a greater propensity to use initiative and be proactive (Frese et al, 1996, Parker et al, 1997), and enhanced organisational productivity (Patterson et al, 2004). Our results support this research.

Our finding that ECPs perceive fewer career opportunities than non-ECPs has been reported previously. The impact of new intermediate care services on job satisfaction, skills and career opportunities found that providers working in these new services demonstrated high levels of satisfaction related in part to increased autonomy. However career development opportunities were limited mainly due to the relative newness of services, small size of services and lack of clear careers structures (Nancarrow et al, 2007). Poor career advancement opportunities have also been shown in nursing staff to be determinants of intention to quit their job (Shields and Ward, 2001).

The negative effect of work demands on job satisfaction, intention to quit and stress has been demonstrated in previous surveys of GPs (Calnan et al, 2001, Sibbald et al, 2003, Sibbald et al, 2000, Edwards et al, 2002). A survey of GPs in the UK found that GPs reporting high job demands were twice as likely to indicate mental distress (Calnan et al, 2001). A further study of job satisfaction and intention to quit in GPs found higher job satisfaction was associated with reduced likelihood of quitting with lower levels of satisfaction associated with longer reported working hours (Sibbald et al, 2003). This is consistent with other research which indicates high workload is an important factor in job related dissatisfaction amongst doctors (Sibbald et al, 2000). The impact of work demands has also been demonstrated to influence job satisfaction in nurses. A national survey of nursing staff in England found that job satisfaction was the single most

important determinant of intention to quit. Further analysis showed that demoralisation was caused in part by increased workload (Shields and Ward, 2001).

12.4 Development of new roles within the NHS – lessons to learn

As some previous studies have also found, new roles within healthcare are expected to reduce cost whilst also providing a high quality of care (Laurant, 2005). This has not been fully borne out by this study. Certainly, care that is delivered by ECPs appears to be of comparable quality to the standard with which they were being compared. However, cost savings may be limited to certain settings and services. It must be remembered that ECPs work to protocols which require them to see a selected but limited range of presenting complaints and patient groups. The extended role is not a way of substituting for doctors in healthcare. Added value is being provided where the ECP is providing a higher level of care than previously existed, such as in the ambulance service. In other settings, it is difficult to see what additional value the ECP can have, and at best they provide an equivalent level of care to the standard health professionals. It is therefore essential that the development of new roles is embedded in reality for the system, for patients and probably most importantly for the professionals themselves. Our study has highlighted the importance of training individuals and employing them for a role that they ultimately can undertake. It found that there was some dissatisfaction amongst ECPs where they felt they were being underused or inappropriately used in their role. Stress and dissatisfaction has previously been shown to be influenced by high work demands, conflicting role demands and the ability to have a low level of influence on decisions (Mason et al, 2006b).

The ECP role evolved in parallel with significant organisational change both in primary care and the ambulance service with the merging of PCTs and ambulance service trusts. Organisational change can adversely affect staff, and this may be especially the case for new roles that may be struggling to integrate into existing healthcare systems. Mergers tend to adversely affect service delivery due to a loss of managerial focus. Planned service developments may be delayed or changed leading to a poor utilisation of specialist services such as the ECP (Fulop et al, 2002). Leadership has an impact on the experience of change and damage can occur which may increase intentions to leave. Opportunities for stabilisation following change are crucial for employees. (Cortviend, 2004).

12.5 Using these methodologies as a framework for future evaluations

There is an expectation that role substitution will have an impact by reducing costs whilst maintaining quality of patient care. However, few studies have evaluated the impact on patient care and costs, tending to focus more on workforce issues. The mixed methods approach we designed for this evaluation allowed a number of aspects of new ways of working to be examined simultaneously and incrementally. It provided a multi-dimensional perspective of ECP working and the methods are adaptable to evaluate other roles in the health service. It also contained an internal mechanism for checking the validity of the results by comparing the

similarities and differences between the component studies to add meaning and understanding to complex phenomena.

The methods for the clinical studies were designed to capture variation in discharge and referral rates, investigations and treatments using routinely available clinical data. Alongside this, an assessment of safety and quality was made using a records review approach. This provides some measure and comparison of quality of care being provided by both ECPs and their non-ECP controls.

Our methodology to capture the patient perspective allowed some data to be collected quantitatively in large volumes, and for this to be supplemented by in depth qualitative information. The patient questionnaire enabled an assessment of patient satisfaction and subsequent use of health services to be made. Repertory grid interviews asked patients to rate their previous experiences and assessment of the quality of health care they have received in the past with that of the ECP.

Finally, the workforce perspective enabled the views of ECPs and non-ECP staff and also staff who work alongside ECPs to be collected. A mixed approach was also taken here. A quantitative staff survey compared ECP and non-ECP staff across a range of work characteristics and related outcomes. These findings were supplemented and extended by in-depth interviews with a smaller number of ECP and health professionals working with or coming into contact with ECP working. A repertory grid method also explored the views about quality of care from a professional perspective. In addition, the small number of stakeholder interviews enabled a more strategic view and value of the ECP role to be recorded.

12.6 Study strengths and limitations

This study was composed of a series of smaller evaluations, each with their own strengths and weaknesses that are discussed more fully within the sections. These are summarised below.

12.6.1 Pragmatic quasi-experimental multi-centre community intervention trial of patient and clinical outcomes

Models of service delivery were peculiar to each pair of sites and were not necessarily replicated in the other sites. Therefore, findings for each of these models may not be generalisable to other similar settings. However, these sites were not considered atypical in how ECP services had developed in some sites and not others nationally. The ECP and non-ECP services included in this study were recruited purposively to enable comparisons of ECP working with non-ECP working in matched health service and spatial settings to be undertaken in a systematic way. The findings are limited to an extent by the poor follow up rates that were obtained from patients. Patients receiving questionnaires were not necessarily aware of the study, and had not consented to it, this may partly explain variation in the follow-up rates. Therefore the interpretation of the questionnaire findings must be treated with some caution. However, the findings confirm and support previously published research.

12.6.2Patient safety study

Reviewers in the records review study of safety are reliant on the information recorded in the case notes to make their judgments regarding quality of care. The level of detail in the clinical records is an important factor. It may be that not all information pertaining to the case is documented. However, completeness of recording is a quality and safety issue, and ECP scores were significantly higher than those of non-ECPs. An alternative approach to assessing safety and quality of care is direct observation of the actual care provided, however, this would have been more time consuming and costly.

12.6.3Cost-effectiveness analysis

The missing data seen in the analysis of cost-effectiveness, and to a lesser degree, in the assessment of costs using routine data is a limitation. The low response rates made estimation of costs impossible. However, resource use was estimated and provides some indication of where savings might be the greatest in the settings that were evaluated, and the findings are similar to research published previously.

12.6.4Staff survey study

There were differences between the ECP and non-ECP samples participating in the survey study as they were not matched in terms of age, sex and clinical background. The extent to which the baseline differences reflect what is true of ECPs and non-ECPs in the health service as a whole cannot be accurately ascertained. This may limit the generalisability of the survey findings. It is possible the analyses could be reflecting site differences that occur due to an unmeasured confounding factor related to site, as opposed to the effect of being an ECP. It is not possible to disentangle these effects by the methods used in this study. However, since the selection of the ECP and non-ECP sites was designed purposively to match sites within areas, hopefully, the potential for confounders has been minimised.

12.6.5Qualitative studies

The qualitative studies yielded a rich source of textual and contextual data that confirmed and extended our understanding of the quantitative findings. The number of interviews achieved was sufficient for ‘saturation’ to be reached, and the findings were validated by their convergence and divergence with the analysis of the repertory grid interviews, and the results of the quantitative studies. The numbers of repertory grid interviews with staff and patients achieved were similar or greater than those reported in previous studies. The subset of staff for the analysis by clinical background may have been small and these results may benefit from being replicated in a larger sample. Nevertheless the analysis was very rigorous and distinct patterns in how staff and patients judge the quality of patient care were discernible in the data. The interviews with the strategic leads enabled some apparent inconsistencies between the quantitative and the qualitative findings to be reconciled, and the addition of a strategic view confirmed the relevance of our findings to local and national policy.

12.7 Further Recommendations

12.7.1 Future development of the ECP role

It is clear that ECPs are having an impact in a variety of settings that have been evaluated by this study. However the impact varies by setting. This study has shown that the mobile ECP services had the greatest impact on patient outcomes and costs.

In addition, ECP job satisfaction appears to be enhanced by having a mobile element to the service they deliver.

Policy Initiatives

In some settings, the care provided by ECPs is highly comparable to existing providers, such as nurse practitioners. It may not in itself be distinguishable from these roles. The impact in these settings is likely to be on relieving staff workload and patient waiting times. In some settings, the ECP may be able to offer a less comprehensive service than the standard. This particularly applies to primary care where the control non-ECP staff were GPs who are unconstrained by pathways or protocols and often, have years of experience to add. ECPs in these settings are inclined towards assisting GPs to manage patient care more efficiently. In mobile settings however, ECPs seem to have greater autonomy and to add most value to existing services and patients. Possibly this is because ECPs have more skills than the control non-ECP staff who were paramedics and ambulance technicians, and where appropriate, are able to provide patients with a 'one-stop shop' service and release pressure on other resources like ambulances and EDs. This finding has previously been shown in a randomised controlled trial which evaluated a paramedic intervention with extended skills treating older people with a minor emergency complaint (Mason et al, 2007a), where both ED attendance and hospital admission were significantly reduced by the intervention.

Although a rigorous cost-effectiveness analysis was not possible due to the constraints of the data that was gathered, it is clear that resource savings can be made with ECPs. These were most significant in the mobile settings where ECPs had the greatest impact on subsequent ED attendance and hospital admission (see Section 5).

One of the problems with health professionals working across organisational boundaries, is that the organisation funding the role may not necessarily directly benefit from having it in place. This conflict may act as a disincentive to cross-boundary working. In order to ensure that such roles benefit patients, organisations need to be encouraged to support roles which reduce the patient journey and operate across boundaries to facilitate this. Separate funding streams perhaps through networks could assist in putting these systems in place.

Organisational targets, such as the ambulance service time-limited response times may also act as a disincentive for the development of extended skill roles. A review of targets in healthcare settings could allow ongoing development that is unconstrained by inappropriate targets for this group of professionals and their patients.

12.7.2 Role Development and Establishment

Shaping of ECPs into an effective team and their integration into the health care workforce hinges positively or negatively on the quality of the leadership, vision and commitment to ECPs at senior level. The satisfaction of ECPs within their role also varies by setting, principally because of differences in perceptions of how the role was originally designed to operate. With appropriate back-up ECPs appear or aspire to contribute to local health services provision by working alone or in small teams in primary care or the community for example, home visits or a mobile service. Although an important setting for on-going learning and maintaining competence, the ECPs appear to feel less useful in acute settings where they felt they reduced the workload for other staff, but were not 'adding value' to the skills that are there already.

Protection of the ECP 'brand' is essential. This could be achieved through national registration and regulation. This would prevent the name and role of 'Emergency Care Practitioner' from being used inappropriately by other health professionals who have not undertaken the qualification.

Ongoing support should be a mandatory aspect of the role. It should incorporate appraisal and continuing professional development matched to the case-mix and setting in which ECPs are deployed, and effective operational and clinical support systems.

The importance for ECPs to feel they have the support and operational back-up to become integrated into the workforce and deliver safe care to patients in any setting implies that in changing how patient care is delivered, Trusts may need to reflect on their existing management styles and systems to respond to the emergent needs of new staffing groups who may require different types of support than may have been available traditionally in the organisation.

Depending on the setting in which ECPs are deployed and previous clinical background, innovative approaches to change management may acquire greater importance if the balance in the previous clinical profile of the ECP workforce (currently mostly paramedic) changes. The divisions inherent within the ECP role due to previous training and qualifications, need resolving. National registration and regulation may be the appropriate route to achieve this.

12.7.3 Future Research

This study has compared the ECP role with non-ECPs in different matched healthcare settings. The results have shown huge variation in the impact that the ECP is having on patient care largely dependent on the setting they are working in and the health professional they are being compared with. It is clear that there have been challenges in setting up the role, and there are some ongoing problems with satisfaction amongst ECPs that they are not reaching their full potential in some services.

The methods used in this study have taken multiple perspectives and used the results from each to explain the findings, develop some conclusions and make some recommendations about ECP working if the role is to function effectively for patient benefit, within the health service. The methods represent a template for the future evaluation of new roles in healthcare. Other roles evolving in the emergency and urgent care system should be evaluated in order to inform their ongoing development.

It is clear that the ECP is adding value in some settings and that having a role which is either entirely mobile, or has a mobile element to it is where the ECP can have the greatest impact on the patient journey. Further research could focus on interventions to assist the ECPs in maximising their impact. It could be the case, for example that they would have a role in managing specific client groups. For example, the increasing problem of older people requiring emergency care is a key area where demand is rising and services are poorly configured to match the needs of this group of patients. Previous studies have shown that a community-based service can reduce ED and hospital admission rates safely for older patients with minor acute conditions (Mason et al 2007a). One ECP service (pair 2a) already provides this mobile support to care homes with the result that more patients were discharged at scene than in the control service.

Further research is needed to establish cost-effectiveness of ECPs. This study has indicated where ECPs are producing resource savings, but the data were not robust enough to produce an accurate cost-effectiveness analysis.

12.8 Summary and recommendations for local action

The methodology applied in this study forms a template that can be applied to other evaluations of new roles in healthcare. Ongoing work is needed to build the evidence to support or refute the design and implementation of new ways of working and to evaluate their impact on patients and the healthcare system.

This study has successfully evaluated the impact of a new role in healthcare taking the example of Emergency Care Practitioners operating through a variety of healthcare settings. Although the diversity of settings, models and geographical locations included in the evaluation may mean that the differences observed between sites may be related to factors other than the ECP model, the findings from the study do allow some recommendations about the most effective way to employ and support this type of role within healthcare as follows:

- Commissioners developing ECP services should give consideration to including a model of ECP working wholly or predominantly as a mobile service in the community to, i) allow the treatment of patients in their place of residence without unnecessary referral to other emergency and urgent care services, ii) make resource savings by reducing ED attendance and subsequent hospital admission and iii) maximise job satisfaction of individuals working in the role.

- ECPs seeing patients with minor injury or minor illness, in a variety of emergency and urgent care settings, including wholly or predominantly as a mobile service in the community, provide care of at least an equivalent level of quality and safety as standard health providers.

In all the settings ECPs are working flexibly across the traditional organisational boundaries of primary and secondary care. Additionally, the ECP workforce is being shaped by staff recruited from different clinical qualifications, experiences and workplace culture and practices. The characteristics of ECP working raise particular challenges for managing changes of this kind to how health care is delivered which can be translated into general recommendations for local action.

It is recommended that integrating ECPs successfully into the local health care workforce requires:

- Clear strategic vision about the value of ECPs to the health care team and of the role in delivery of health care locally that ECPs are expected to fulfil.

- Facilitation of cross boundary ECP working, effective partnerships between all the organisations involved, for example, PCTs, Ambulance Trusts, Out-of-Hours providers.

- Ensuring viability of the role funding streams established at a local level, perhaps through urgent care networks, or initiatives such as, admission avoidance, or towards particular client groups, to support new roles which cross traditional boundaries of care.

- Good communication across and within organisations i) the strategic commitment to ECP working to be communicated clearly to all grades of staff involved in service delivery, and ii) effective lines of communication between ECPs and senior managers about existing roles and opportunities to expand or develop the scope of ECP working in the future

- Identifying training needs at an individual practitioner level, ECP professional development to be linked to regular staff appraisals, reflective practice and case review

- Maintaining skills by ensuring that ECPs have sufficient exposure to the range of presentations that they may have to deal with. Achieved for example, by rotating through ED, MIU and the ambulance service, or targeted placements for example in GP practice

- Maximising the opportunity for transfer of skills, mentoring between practitioners working in unfamiliar settings, changing attitudes and reshaping professional boundaries, ECP teams to include practitioners from different clinical backgrounds

- Enabling ECPs to do the job they are expected to do, ensure they have the appropriate equipment and operational back-up

- Recognise the challenges for staff moving from protocol-led practice to opinion-based decision-making, and ensure that suitable systems of clinical supervision and support are in place

- Provide incentive and maintain morale, appropriate reward and remuneration for the extra responsibilities that may attach to the ECP role

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Appendix 1 Detailed descriptions of ECP sites

Site 1a	
Number of ECPs	23
Employer	Ambulance service
Background	N=15 paramedic background and N= 8 nursing background
Training	13 week classroom based learning Placements for six months in emergency department, GP surgeries.
Service details	ECPs worked in 999 setting as single responders
Detailed working of service	ECPs worked in the community as single responders primarily to 999 calls. An ECP in the communications room screens incoming 999 calls and refers those calls to the ECPs working on the road which they (the ECPs) are most likely to be able to see and treat in the community. The ECPs select the calls based on presenting condition and any other information they can glean from the call taker. If the call is a fall or difficulty breathing then they dispatch an ECP without asking too many questions of the caller as these are the category of caller which ECP can have maximum impact in terms of reducing transport to hospital. Selection of other calls is based on clinical judgement of the ECP. With experience ECPs in communications gets a 'feel' for the calls that are appropriate to be seen and treated by an ECP and the ones that are not. Standard 999 dispatchers in the control room can also dispatch ECPs to calls if they identify appropriate ECP calls. Other sources of referral for ECP calls were nursing and residential homes which had direct access to the ECP in the communications room and ambulance crews dispatched to patients who they considered as 'ECP eligible jobs' i.e not requiring transport to hospital.
Eligible conditions seen by ECP service	All 999 calls except ineligible conditions.
Ineligible conditions	Generally ECP do not see any of the following conditions; chest pains, severe road collisions, obstetrics, overdoses, assaults and anything involving alcohol.
Supervision and support	Clinical support for ECPs is provided mainly by colleagues although senior hospital doctors can be accessed by telephone if required. The Assistant Medical Director of the ambulance service is responsible for management of ECPs and also provides clinical support. There are no formal supervision arrangements for the ECP team once training is completed.
Continuing professional development (CPD)	CPD is primarily self-directed by ECPs themselves. Individual ECPs are encouraged to identify gaps in their clinical knowledge and skills and organise training days or appointments appropriate clinical settings in order to update their skill and knowledge base. There are six half days per year available for these self-directed sessions.
Management	The ECP management structure is provided by an ECP lead and supervision and overall management is provided Assistant Medical

	Director of the ambulance service.

Site 2a	
Number of ECPs	Nine
Employer	Primary Care Trust
Background	Six of the ECPs were from a paramedic background and three were from a community nursing background.
Training	There were two distinct parts; 1) A 15 week university based course primarily anatomy and physiology, 2) six months in clinical vocational placements, including placements in GP surgeries, mental health clinics and hospital wards. At the end of the clinical placements there was one week further in classroom followed by assessment through Objective Structured Clinical Examinations (OSCEs).
Service details	• 24 hour community response to direct calls from nursing and residential homes and carrying out home visits for GPs • ECPs working in a minor injury unit based in a shopping centre • ECPs working alongside GPs in an out of hours (OOHs) primary care centre
Detailed working of service	Two ECPs were operational in the community during in hours (8am -6pm) and one operational in the OOHs (from 6pm – 8am). During the study the ECPs work was evenly spread between nursing home and residential home visits and GP home visits. During the study period more of their community time became concentrated in the GP home visits. <u>Nursing and residential home visits</u> When the ECP service was started minor injury and illness calls from nursing and residential homes which often resulted in 999 calls to the ambulance service were seen as cases that could be more appropriately dealt with by ECPs. Visits were carried out to the nursing and residential homes in the city to notify them about the service. Each home was given a list of examples of conditions that would be eligible for the ECPs to see. Nursing homes were given the number of the ECP on duty in the event of an incident. The ECP would discuss the cases over the phone with the staff and if the call was an appropriate ECP case they would attend the patient. If the patient was not an appropriate ECP call they would advise staff to contact appropriate service (999 or GP). <u>In hours GP home visits</u> There were around 30 general practices that referred in hours home visits to ECPs at the time of the study although during the study this number increased as the PCT was merged with another PCT in the city. The practices that referred to ECPs were generally single handed practices whose GPs were restricted in the home visits they could carry out compared with partnered practices. ECPs saw similar conditions as they dealt with in the nursing and residential homes but they also provided a signposting service for patients with chronic conditions referring them to appropriate service.

Site 2a ctd	
Detailed working of service ctd	<u>OOHs GP home visits</u> In the out of hours service ECPs worked alongside GPs in primary care out of hour's centres and responded to home visits. Out of hours caller details were faxed in from central call centre and a GP or ECP looked at the call details and rang the patient back to triage the call. A decision was then made to either advise the patient over the phone or to decide if the patient needed to come into the call centre or required a home visit/. The ECP would see patients in the centre and would carry out home visits. <u>Minor injury unit</u> In the Minor injury unit ECPs worked in a nurse practitioner led service. All presentations to the minor injury unit were seen by ECPs. These presentations were mainly minor injuries and in a small proportion of cases minor illness
Eligible conditions	Falls, Adult > 18 years of age, Adults >18 years with minor injuries and no loss of consciousness, non life threatening breathing problems and exacerbations of long term conditions (asthma, COPD, chest infection), Minor injuries and wound care such as abrasions, lacerations, contusions, sprains or superficial head wounds, minor and moderate illness such as allergic reaction, sore throat, upper respiratory tract infections, minor burns and scalds, bites and stings, palliative care if ED attendance inappropriate
Ineligible conditions	Children under 18 months Abdominal complaints
Supervision and support	There was no formal structured supervision for ECPs during the study period. Supervision and support was informal and provided mainly by GPs who ECPS could phone when they required advice regarding a patient. Additional support was provided by hospital staff where appropriate and fellow ECPs. A small amount of formal supervision was provided by child protection co-ordinators in regard to the caseload of children seen by ECPs.
CPD	Training days were set aside by the PCT for training sessions and clinical support sessions designed exclusively for ECPs, and addressing areas identified by the ECPs such as child supervision, heart failure, and basic life support. An Annual Performance Development Review had been started by the end of the study.
Management	Direct line management provided by a non-ECP line manager who was an Advanced Community Matron in Unique Care.

Site	3a
Employer	Ambulance service (although contracted by the service to work for a health board for 80% of their time)
Number of ECPs	Six ECPs were operational at the time of the study In this site the title of the professionals was Paramedic Practitioners (PPs) rather than ECPs. However in terms of the specification of their role and the training they underwent the PPs were to all intents and purposes the same as ECPs.
Background	All six were from a paramedic background
Training	There was a six month period of full time training split between minor injury and minor illness course. The minor injuries course involved working full time in a minor injuries clinic alongside permanent mentors. The course included a two week classroom component and acquired practitioner competences were signed off by the PP mentor. The course also included critical analysis of cases and in order to complete the course PPs produced a portfolio and were assessed through 12 OSCEs The minor illness course comprised a one week classroom course and then consisted of a placement in a primary care setting with a GP mentor. Completion of the course was on production of a portfolio and finishing 5 OSCEs.
Service details	PPs worked in the following settings: • GP led OOHs service, alongside GPs and nurse practitioners working in a primary care centre and also responding to home visits • a nurse practitioner led minor injury centre based in a city centre general hospital • an Emergency Department in a large city infirmary • 999 setting (but more as paramedics than as paramedic practitioners)
Detailed working of service	The paramedic practitioners spent virtually all their working time in the out of hours service and the 999 setting. In the 999 setting at the time of the study the PPs were not using their extended roles as they were being used as first responders to potentially life-threatening 999 calls. They worked in the ED and MIU in order to maintain their skills in minor injuries but this was on a zero hours contract. Thus the out of hours setting was the only service were they were fully operational in their new extended role. <u>GP OOHs</u> PPs worked in an OOHs service based in a hospital outpatients department serving a large urban area. The service consisted of three general practitioners, a nurse practitioner and a paramedic practitioner and operated from 6pm – 8am Monday to Thursday and 6pm Friday until 8am Monday. All calls to the service came via NHS Direct, when an initial triage of the patient was carried out. The patient was triaged to stay at home (self care), 999, or to speak to a GP. If triaged to speak to a GP the call was sent through to a GP in the out of hours centre. The GP then decided if the patient should receive advice over the phone, needed to come into the out of hours centre or required a home visit. The paramedic practitioner could see patients in the centre or could carry out home visits as required.

Site 3a ctd	
Eligible conditions	PPs were in theory trained to see virtually all presentations to the out of hours service.
Ineligible conditions	The only formal exclusion was home visits for children under the age of ten. It was left to the individual PP to see patients that they felt comfortable in dealing with, however in practice there were particular patients that the PP service did not see. These were the following presentations for which they had limited training or experience; psychiatric patients, gynaecological presentations, neonates and patients with complex histories and presentations involving multiple medical complaints.
Supervision and support	Support for the PPs was on an informal ad-hoc basis and provided by colleagues who they worked alongside in the out of hours service. In the main this was GPs but could also be nurse practitioners or fellow PPs. PPs could approach whichever staff were working and discuss cases and receive a second opinion about a patient. If a patient potentially required referral to acute care then this could be discussed with a consultant. Supervision of the PPs, clinical governance and management of risk was managed by the OOHs Clinical Director. The Clinical Director retrospectively examined clinical notes of patients seen by PPs and discussed cases with individuals as required. Each PP had an annual post proficiency review carried out within the ambulance service but this was mainly to review paramedic skills rather than the extended skills used as PPs.
CPD	CPD and further training of PPs was largely self-directed by the PPs themselves. If a PP wanted to attend specific courses then time off could be arranged to so. Such courses were identified by the PPs themselves. The OOHs employers organised training evenings bi-monthly on specific clinical topics (chest pain, asthma etc). Proof of attendance at the evening was provided by a certificate.
Management	Management of the PPs was carried out by an ambulance service area manager.

Site	4a
Employer	Primary Care Trust
Number of ECPs	21
Background	11 paramedics, 10 nursing (range of backgrounds community, A&E, paediatric and cardiology)
Training	The training consisted of a 16 week university course concentrating on clinical examination and diseases of heart, lungs and vital organs. Following this there was a six month period of clinical placements. The placements were chosen by ECPs in order to gain experience in areas and skills commensurate with their individual needs. At the end of the placement ECPs were assessed using the standard OSCE. Each ECP also had a six month mentorship with a GP.
Services	24 hour Urgent care centre A primary care walk-in-centre (WIC)
Detailed working of services	The ECPs worked primarily in the 24 hour Urgent Care Centre, which was based in a community hospital. The Urgent Care Centre was set up by the PCT to improve access to primary care services for patients with minor illness and minor injury and was set up to be run by ECPs. Due to the rural location of most of the catchment population and resulting large distances to the hospitals in the area, the centre operates more like a mini ED seeing more acute cases such as chest pains as well as minor injuries and illnesses. The centre has a large throughput of patients and sees in the region of 4,000 patients per month. At any one time the centre is staffed by two ECPs along with support staff. The WIC is operational from Monday to Friday 8.30-5.30 pm. ECPs work in the centre alongside GPs. Patients are seen on a walk-in and appointment basis. The presentations at the WIC are minor injury and illness presentations. ECPs work autonomously as in the Urgent Care Centre although there are no x-ray facilities available.
Eligible conditions	ECPs trained to see all presentations in the out of hours service.
Ineligible conditions	None
Supervision and support	The majority of the clinical support provided to ECPs is peer support from fellow ECPs. The ECPs come from a range of nursing and paramedic backgrounds and the resulting skill mix allows them to provide support to each other. An example of this might be in nursing staff assisting paramedics in the interpretation of X-rays. Additional support was provided by GP mentors identified during the ECPs training period. During the study a GP with special interests was appointed in order to work part-time in the urgent care centre with ECPs to provide clinical support and supervision.
CPD	CPD after the initial period of ECP training was self directed by ECPs. Some of the ECPs in the centre with specific skill deficits identified and participated in national courses to ensure they had sufficient skills to operate in the centre.
Management	Line management was provided off site by a non-clinical PCT unscheduled care manager. An ECP Clinical lead was established responsible for reporting to the line manager and also for ECP

	clinical development.
Site	5a
Employer	Ambulance Trust
Number of ECPs	17.5 whole time equivalent
Background	16.5 paramedic 1 joint nursing and paramedic
Training	The initial cohort of ECPs under went a 16 week classroom based learning period followed by a six month placement period. This was a non-university accredited course. Subsequent cohorts of ECPs now undergo university based and accredited training. The initial ECP training consisted of fulltime classroom learning for three weeks in advanced life support to ensure each ECP attained the same level of skill in this area. This three week period also included consultant lectures in relevant clinical areas in minor illness and injury. Following this three week fulltime course, for the remaining 13 weeks the ECP time was divided between clinical experience in an ED for two days a week and three days a week which included practical consultant led clinical sessions and lectures. Completion of the taught course was determined by completing the required amount of course hours for each clinical area, which was signed off by the consultants. On completion of the taught element ECPs completed a six month placement in a WIC.
Service details	• 999 ambulance service • Emergency Department (ED) • WIC
Detailed working of service	The ECPs were primarily operational in the ambulance service were they work as solo responders to 999 calls. ECP calls are allocated by a rapid response dispatch desk situated in ambulance control. The other sources of referral are direct referrals from ambulance crews and referrals from primary care OOHs services. In the ED, ECPs worked in the Minor injuries clinic which was a nurse practitioner led service. Each ECP worked here for two days every seven weeks. Patients were triaged as they presented to the ED and those classed as minor injuries or illness were seen in the minors clinic. ECPs worked as autonomous practitioners in the ED clinic seeing and treating patients. The ED was in a large urban general hospital. The WIC was a nurse practitioner stand-alone service. Each ECP worked here for two days every seven weeks. The service is open from 8 am – 9.30pm seven days a week. Patients self present with minor injuries or illness and ECPs work as autonomous practitioners seeing and treating patients.

Site 5a ctd	
Eligible conditions	ECPs are deployed to ALL grades of 999 calls when working in the 999 service as they are dispatched by the rapid response desk in ambulance control and thus can be sent to category A life-threatening 999 calls as first responders until a fully crewed ambulance arrives. While working in the EDs the ECPs have a propensity toward minor injuries and illness because they are based in a "Minors" clinic. They can work in majors clinic, especially when shadowing doctors, but the vast majority of their experience is in minor injuries. While working in the WICs, ECPs work through the patients queues as the other staff and therefore get a mixture of ALL cases that present at Walk in Centres, although there is a balance towards minor illness rather than minor injury.
Ineligible conditions	No ineligible conditions in services ECPs operate
Supervision and support	Across all the three settings clinical support to the ECP team primarily comes from a consultant ECP. Additional support is provided by clinicians who they work alongside in their service settings, such as ED registrars and nurse practitioners.
CPD	The rotations into the ED and the walk-in-centre are the main element of the continuing development of the ECPs. These rotations are designed to maintain training competences developed by the new role. A structure for additional training updates was being planned for the ECP team during the study. This was to involve competency based training sessions with the intention that all ECPs would eventually have identical level of competences. Each session rewarded with five units towards an annual total of 40 to be achieved in order to advance onto the next stage.
Management	Day to day management provided by an ambulance service manager.

Appendix 2 Letter of invitation to patients to participate in study

Dear patient,

Re: Evaluation of NHS emergency and urgent care service provision – patient views

I understand that on [Date] you contacted the [Service] following an illness or injury affecting yourself or someone you may help to look after. I am therefore writing to ask if you will kindly take part in our study of how health services are delivered to patients by completing and returning the enclosed questionnaire in the envelope provided. The envelope does not need a stamp as the postage has been pre-paid.

I am also enclosing some information about why we are carrying out the study and what agreeing to help may involve for you. I would be grateful if you will read this. I hope it is clear. However, if you have further questions please contact my colleague Joanne Casson on 0114 2220834, and she will try to answer them.

I hope you will agree to help. Your views and experiences are very important to us. I assure you that all responses will be treated in the strictest confidence. Your name does not appear on the questionnaire and no individual will be identifiable in any of the results.

If our understanding is incorrect and you were not seen by the service noted above or you are unable to complete a questionnaire, please complete page 2 of the questionnaire and we will update our records accordingly.

I look forward to hearing from you.

Dr Suzanne Mason

Lead Investigator

Appendix 3 Information leaflet for patients

Evaluation of emergency and urgent care service provision

An information leaflet for patients

Before you decide whether you wish to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish.

Why is the survey being carried out?

The study is being carried out to discover whether there are any important differences in patients' experiences of the care they receive from the NHS which may be useful in changing and/or improving services provided.

Where is the survey being carried out?

It is being conducted in several different health care settings, for example, in Minor Injury Units, GP surgeries and ambulance services, in several areas of the UK, including the area where you live.

Why have I been chosen?

You are being asked to help simply because you have contacted this service during the period that we are recruiting patients to the study. We are inviting every patient presenting to this service with certain types of health problem, to take part.

Who is conducting the survey?

The survey is being undertaken by a research team with a great deal of experience of this type of work. The team is led by a senior medical doctor and researcher at the University of Sheffield.

If I agree to help, what does that involve?

You will be asked to complete and sign the consent enclosed, and to complete two questionnaires, one of which is enclosed with this information. A second questionnaire will follow in the next few weeks.

The questionnaire has been used in previous studies and will probably take you about 15 minutes to complete. The envelope provided for you to return the completed booklet to the research team does not require a stamp.

What about data protection and confidentiality?

All the information that you may give will be treated in the strictest confidence. It will be combined with the views and experiences of other patients who agree to help. This information will only be used for the purposes of this research, and will be seen by the research team only. You will not be identifiable in any publication of the findings. Throughout, your details will be held strictly in accordance with the relevant guidance on data protection: all data will be anonymised and stored in a secure environment. You are free to access any of the data, relating to you, that we collect as part of this study.

What happens if I do not wish to take part?

If you do not wish to take part, please tick the appropriate box on page 2 of the questionnaire and use the envelope to return the blank questionnaire to us and we will not contact you again. If you decide to take part you are still free to withdraw at any time without giving a reason.

If you would like further information on this research please contact:

Joanne Casson

Project Officer

Health Services Research Section

University of Sheffield

Telephone: 0114 2220834

Appendix 4 Patient questionnaires

Intervention Site Seven Day Questionnaire

Confidential

Health Services Research Section
University of Sheffield

Evaluation of emergency and urgent care service provision – patient views

On you were seen (or advised over the phone) by an Emergency Care Practitioner relating to

We would be very grateful if you could answer some questions about what happened on that day with regard to your contact only with the EMERGENCY CARE PRACTITIONER.

Completing the survey will not take too long. If the information in the questionnaire causes distress to you, then please do not feel obliged to proceed to complete it.

An envelope has been provided for you to post this back to us – you do not need a stamp.

The questions which follow are for the person whose name appears on the envelope.

If that person cannot fill in the answers for themselves and you are doing it for them, please remember to give answers for the person named on the envelope, and not for yourself.

If you are completing this survey for someone else, please say what your relationship is to them *(mother, father, son, daughter, friend, carer, spouse)*

.....

Prior to completing this questionnaire, please read this consent page and sign below if you wish to take part. If you have already signed a consent sheet on an earlier questionnaire, please move onto question 1.

CONSENT TO THE STUDY

Evaluation of emergency and urgent care service provision – patient views

***Please tick as appropriate**:*

I confirm that I have read and understand the information provided for the above study and have had the opportunity to ask questions. ☐

I understand that my participation by completing two questionnaires is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. ☐

I agree to take part in the above study. ☐

_____	_____	_____
Name of Patient	Date	Signature

Should you not wish to take part please complete below and return this form in the envelope provided

I am unable to complete this questionnaire at the moment ☐

I do not wish to take part in the survey and do not want any further contact ☐

PLEASE DO NOT DETACH THIS SHEET FROM THE FORM

Here are some general questions about yourself (that is the person to whom the questionnaire was addressed).

Q1. How old are you? …….years

Q2. Are you? Male ☐ Female ☐

Q3. Where do you live?

In my own home, alone ☐

In my own home, with someone else ☐

With family/friends at their home ☐

In a Residential/Nursing Home ☐

Other ☐

Please say ……

Q4. Who or where did you go to initially for help? (Please tick all that apply)

Telephoned 999 for an ambulance ☐

Telephoned GP surgery for advice ☐

Telephoned GP emergency service for advice ☐

Telephoned NHS Direct for advice (or NHS 24) ☐

Telephoned A&E department for advice ☐

Telephoned Minor Injury Unit for advice ☐

Telephoned Walk-in Centre for advice ☐

Attended GP surgery ☐

Attended A&E department ☐

Attended Minor Injury Unit ☐

Attended Walk-in Centre ☐

Other ☐

Please say ……

THE EMERGENCY CARE PRACTITIONER MAY HAVE GIVEN YOU SOME ADVICE – HERE ARE SOME QUESTIONS ABOUT THAT

Q5. Did the Emergency Care Practitioner give you any advice about looking after your health problem?

Yes ☐ No ☐ Not Sure ☐ *(If No, move to Q9)*

Q6. What advice were you given?

……

……

……

Q7. Did you act on the advice you were given?

Yes, all of it ☐ Yes, some of it ☐ No, none of it ☐

(If yes, move to Q9)

Q8. If you didn't act on the advice of the Emergency Care Practitioner, why was this? *Please tick all that apply.*

I got better ☐

I did not agree with the advice I was given ☐

I did not understand the advice I was given ☐

I was unable to act on the advice for some reason ☐

Please say why……

Q9. HERE ARE SOME QUESTIONS ABOUT HOW SATISFIED YOU WERE WITH THE CARE YOU RECEIVED FROM THE EMERGENCY CARE PRACTITIONER SERVICE (Please mark the boxes that seem closest to your views and please try and give an answer for each part).

		Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
a)	I think the Emergency Care Practitioner was polite	☐	☐	☐	☐	☐
b)	The Emergency Care Practitioner was concerned about me as a person	☐	☐	☐	☐	☐
c)	The Emergency Care Practitioner spent enough time listening to me	☐	☐	☐	☐	☐
d)	The Emergency Care Practitioner answered all my questions	☐	☐	☐	☐	☐
e)	The Emergency Care Practitioner was thorough in their examination of me	☐	☐	☐	☐	☐
f)	The medical treatment I received from the Emergency Care Practitioner was excellent	☐	☐	☐	☐	☐
g)	The service I received from the Emergency Care Practitioner could be improved	☐	☐	☐	☐	☐
h)	I was generally satisfied with the care I received from the Emergency Care Practitioner	☐	☐	☐	☐	☐
i)	I was satisfied with the advice I was given by the Emergency Care Practitioner	☐	☐	☐	☐	☐

Q10. Thinking about the length of time you spent with the Emergency Care Practitioner. Was this:

About right ☐ Too Long ☐ Not Long Enough ☐

Q11. Overall, how satisfied were you with the care that you received on this occasion?

Very Satisfied	Fairly Satisfied	Uncertain	Not very satisfied	Not satisfied at all
☐	☐	☐	☐	☐

Q12. If you were to experience a similar health problem again, where would you prefer to have your examinations and treatment? (Please tick only one box)

In your own home ☐

At a GP Health Centre ☐

At a hospital ☐

No preference ☐

Other, please state ☐

.....

.....

.....

Q13. If you were to experience a similar health problem again, who would you prefer to carry out your treatment? (Please tick only one box)

A Doctor ☐

A Nurse ☐

A specially trained professional in your own home (e.g. Emergency Care Practitioner) ☐

No preference ☐

Other, please state ☐

.....

.....

.....

FINALLY, PLEASE ANSWER THESE QUESTIONS ABOUT YOUR HEALTH TODAY.

Q14. Describing your own health today

By placing a tick in one box in each group below, please indicate which statements best describe your own health state today.

Mobility

I have no problems in walking ☐

I have some problems in walking ☐

I am confined to bed ☐

Self-care

I have no problems with self-care ☐

I have some problems with washing or dressing myself ☐

I am unable to wash or dress myself ☐

Usual Activities (e.g. work, study, housework, family or leisure activities)

I have no problem with performing my usual activities ☐

I have some problems with performing my usual activities ☐

I am unable to perform my usual activities ☐

Pain/Discomfort

I have no pain or discomfort ☐

I have moderate pain or discomfort ☐

I have extreme pain or discomfort ☐

Anxiety/Depression

I am not anxious or depressed ☐

I am moderately anxious or depressed ☐

I am extremely anxious or depressed ☐

EuroQoL EQ-5D ©

If you have any further comments, please tell us here.

We are planning to carry out interviews (lasting around 20 minutes) with a small number of patients to find out more about their experiences of health services. The researchers only need to speak to a small number of people directly, so agreeing to complete and return the questionnaire does not mean that you have to take part in an interview unless you wish to do so.

Would you be willing to take part in a follow up interview?

about the care you received?

Yes ☐ **No** ☐

If Yes, please give your name and telephone number

……

Thank you for your help.

When you have completed the questionnaire, use the envelope provided, which does not need a stamp and return it to:

Health Services Research Section, Regent Court, 30 Regent Street,

Sheffield, S1 4DA

Intervention Site 28 Day Questionnaire

Confidential

Health Services Research Section
University of Sheffield

Evaluation of emergency and urgent care service provision – patient follow up

On you were seen (or advised over the phone) by an Emergency Care Practitioner relating to

We would be very grateful if you could answer some questions about what happened <u>following</u> your contact with the EMERGENCY CARE PRACTITIONER.

Completing the survey will not take too long. If the information in the questionnaire causes distress to you, then please do not feel obliged to proceed to complete it.

An envelope has been provided for you to post this back to us – <u>you do not need a stamp.</u>

The questions which follow are for **the person whose name appears on the envelope.**

If that person cannot fill in the answers for themselves and you are doing it for them, please remember to give answers <u>for the person named on the envelope</u>, and not for yourself.

If you are completing this survey for someone else, please say what your relationship is to them *(mother, father, son, daughter, friend, carer, spouse)*

…….

Prior to completing this questionnaire, please read this consent page and sign below <u>if you wish to take part</u>. If you have already signed a consent sheet on an earlier questionnaire, please move onto question 1.

CONSENT TO THE STUDY

Evaluation of emergency and urgent care service provision – patient views

Please tick as appropriate:

I confirm that I have read and understand the information provided for the above study and have had the opportunity to ask questions. ☐

I understand that my participation by completing two questionnaires is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. ☐

I agree to take part in the above study. ☐

_____	_____	_____
Name of Patient	Date	Signature

Should you <u>not</u> wish to take part please complete below and return this form in the envelope provided

I am unable to complete this questionnaire at the moment ☐

I do not wish to take part in the survey and do not want any further contact ☐

PLEASE DO NOT DETACH THIS SHEET FROM THE FORM

Contact with an Emergency Care Practitioner

Thinking only about the time since you first saw or spoke to the Emergency Care Practitioner, detailed on page one:

Q1. Have you, or someone on your behalf, consulted an Emergency Care Practitioner about the same health problem mentioned on page one since you saw or spoke to the Emergency Care Practitioner?

Yes ☐ No☐ *If No, please go to Q3*

Q2. On how many occasions have you, or someone else, consulted an Emergency Care Practitioner about the same health problem mentioned since you saw or spoke to the Emergency Care Practitioner? *(Please circle)*

1 2 3 4 5+

Contact with your family doctor (GP) or primary care services

Thinking only about the time since you first saw or spoke to the Emergency Care Practitioner, detailed on page one:

Q3. Have you, or someone on your behalf, consulted your GP or Primary Care Services about the same health problem mentioned on page one since you saw or spoke to the Emergency Care Practitioner?

Yes ☐ No☐ *If No, please go to Q5*

Q4. On how many occasions have you, or someone else, consulted a GP or Primary Care Services about the same health problem mentioned since you saw or spoke to the Emergency Care Practitioner? *(Please circle)*

1 2 3 4 5+

Contact with a Walk-in Centre

Thinking only about the time since you first saw or spoke to the Emergency Care Practitioner, detailed on page one:

Q5. Have you attended a Walk-in Centre about the same health problem mentioned on page one since you saw or spoke to the Emergency Care Practitioner?

Yes ☐ No☐ *If No, please go to Q7*

Q6. On how many occasions have you attended a Walk-in Centre about the same health problem mentioned since you saw or spoke to the Emergency Care Practitioner? *(Please circle)*

1 2 3 4 5+

Contact with NHS Direct (or NHS 24), the national telephone advice line

Thinking only about the time since you first saw or spoke to the Emergency Care Practitioner, detailed on page one:

Q7. Have you, or someone on your behalf, telephoned NHS Direct (or NHS 24) about the same health problem mentioned on page one since you saw or spoke to the Emergency Care Practitioner?

Yes ☐ No☐ *If No, please go to Q9*

Q8. On how many occasions have you, or someone else, telephoned NHS Direct (or NHS 24) about the same health problem mentioned since you saw or spoke to the Emergency Care Practitioner? *(Please circle)*

1 2 3 4 5+

Contact with Social or community Services

Thinking only about the time since you first saw or spoke to the Emergency Care Practitioner, detailed on page one:

Q9. Have you, or someone on your behalf, consulted social or community services about the same health problem mentioned on page one since you saw or spoke to the Emergency Care Practitioner?

Yes ☐ No☐ *If No, please go to Q11*

Q10. On how many occasions have you, or someone else, consulted social or community services about the same health problem mentioned since you saw or spoke to the Emergency Care Practitioner? *(Please circle)*

1 2 3 4 5+

Contact with a Minor Injuries Unit

Thinking only about the time since you first saw or spoke to the Emergency Care Practitioner, detailed on page one:

Q11. Have you attended a Minor Injuries Unit because of the same health problem mentioned on page one since you saw or spoke to the Emergency Care Practitioner?

Yes ☐ No☐ *If No, please go to Q13*

Q12. On how many occasions have you attended a Minor Injuries Unit because of the same health problem mentioned since you saw or spoke to the Emergency Care Practitioner? *(Please circle)*

1 2 3 4 5+

Contact with the ambulance service

Thinking only about the time since you first saw or spoke to the Emergency Care Practitioner, detailed on page one:

Q13. Have you, or someone on your behalf, called for an ambulance because of the same health problem mentioned on page one since you saw or spoke to the Emergency Care Practitioner?

Yes ☐ No☐ *If no, please go to Q15*

Q14. On how many occasions have you, or someone else, called for an ambulance because of the same health problem mentioned since you saw or spoke to the Emergency Care Practitioner?
(Please circle)

1 2 3 4 5+

Contact with an Accident & Emergency Department (A&E)

Thinking only about the time since you first saw or spoke to the Emergency Care Practitioner, detailed on page one:

Q15. Have you attended A&E because of the same health problem mentioned on page one since you saw or spoke to the Emergency Care Practitioner?

Yes ☐ No☐ *If no, please go to Q17*

Q16. On how many occasions have you attended A&E because of the same health problem mentioned since you saw or spoke to the Emergency Care Practitioner?
(Please circle)

1 2 3 4 5+

Admission to hospital

Thinking only about the time since you first saw or spoke to the Emergency Care Practitioner, detailed on page one:

Q17. Have you been admitted to hospital because of the same health problem mentioned on page one since you saw or spoke to the Emergency Care Practitioner?

Yes ☐ No☐ *If no, please go to Q18*

Q17a. If yes, how many nights did you spend in hospital

_____ **nights**

Q16. Describing your own health today

By placing a tick in one box in each group below, please indicate which statements best describe your own health state today.

Mobility

I have no problems in walking ☐

I have some problems in walking ☐

I am confined to bed ☐

Self-care

I have no problems with self-care ☐

I have some problems with washing or dressing myself ☐

I am unable to wash or dress myself ☐

Usual Activities (e.g. work, study, housework, family or leisure activities)

I have no problem with performing my usual activities ☐

I have some problems with performing my usual activities ☐

I am unable to perform my usual activities ☐

Pain / Discomfort

I have no pain or discomfort ☐

I have moderate pain or discomfort ☐

I have extreme pain or discomfort ☐

Anxiety / Depression

I am not anxious or depressed ☐

I am moderately anxious or depressed ☐

I am extremely anxious or depressed ☐

EuroQoL EQ-5D ©

Q19. Thinking about your physical health – how do you feel now in comparison to how you felt immediately before you saw or spoke to the Emergency Care Practitioner on the date mentioned on page one?

My physical health is the same ☐

My physical health is worse ☐

My physical health is better ☐

If you have any further comments, please tell us here

Researchers at the University of Sheffield are planning to carry out interviews with a small number of patients to find out more about their experiences of health services. The researchers only need to speak to a small number of people directly, so agreeing to complete and return the questionnaire does not mean that you have to take part in an interview unless you wish to do so.

Would you be willing to take part in a follow-up interview about the care you received?

Yes ☐ **No** ☐

If 'YES', please give your name and telephone number
……

Thank you for your help.

When you have completed the questionnaire, use the envelope provided, which does not need a stamp and return it to: Health Services Research Section, Regent Court, 30 Regent Street, Sheffield, S1 4DA

Appendix 5 Word version of patient safety notes review reviewer form

National Study Evaluating Safety of Care in Minor Injury and Minor Illness

Reviewer form
(one to be completed for each clinical record)

Review data

Reviewer ID
Reviewer Site
Clinical record number
Study ID

Assessment of the clinical problem

Please rate the quality of the assessment of the clinical problem in terms of the assessment of the completeness of the history and examination and whether it was in accordance with current best practice (for example, your professional standards).

Unsatisfactory ☐ ☐ ☐ ☐ ☐ ☐ Very best care

Assessment of investigations performed

Please comment on the appropriateness of any investigations undertaken for this patient in terms of the type of investigation carried out, whether it was in accordance with current best practice (for example, your professional standards) and whether there were any omissions.

Unsatisfactory ☐ ☐ ☐ ☐ ☐ ☐ Very best care

Assessment of patient management

Please comment on the quality of care the patient received in terms of the management of the clinical problem i.e was the treatment given and their disposal appropriate in this case. Was the management in accordance with current best practice (for example, your professional standards). You may also wish to comment from your own professional viewpoint. If there is any other information that you think is important or relevant that you wish to comment on then please do so.

Please rate the care received during this phase of care.

Unsatisfactory ☐ ☐ ☐ ☐ ☐ ☐ Very best care

Overall care

Please comment on the quality of care the patient received overall. Was the overall care in accordance with current best practice (for example, your professional standards)? You may also wish to comment from your own professional viewpoint. If there is any other information that you think is important or relevant that you wish to comment on then please do so.

Please comment on the care received by the patient overall:

Unsatisfactory ☐ ☐ ☐ ☐ ☐ ☐ Very best care

Quality of clinical records

We are interested in your view about the quality of the patient records as a marker of quality of care provided.

Please comment on the quality of the clinical records:

Unsatisfactory ☐ ☐ ☐ ☐ ☐ ☐ Very best care

Guidance for completing the quality of care scales

The following examples illustrate how you should complete the quality of care scales.

Care fell short of current best practice in one or more significant areas resulting in the potential for, or actual, adverse impact on the patient. If you feel the care received by the patient fits this description, please complete the scale as shown below:

Unsatisfactory ☐ ☐ ☐ ☐ ☐ ☐ Very best care

Care fell short of current best practice in more than 1 significant area, but is not considered to have the potential for adverse impact on the patient. If you feel the care received by the patient fits this description, please complete the scale as shown below:

Unsatisfactory ☐ ☐ ☐ ☐ ☐ ☐ Very best care

Care fell short of current best practice in only 1 significant area, but is not considered to have the potential for adverse impact on the patient. If you feel the care received by the patient fits this description, please complete the scale as shown below:

☐ ☐ ☐ ☐ ☐ ☐

Unsatisfactory Very best care

This was satisfactory care, only falling short of current best practice in more than 2 minor areas. If you feel the care received by the patient fits this description, please complete the scale below:

Unsatisfactory ☐ ☐ ☐ ☐ ☐ ☐ Very best care

This was good care, which only fell short of current best practice in 1 or 2 minor areas. If you feel the care received by the patient fits this description, please complete the scale as shown below:

Unsatisfactory ☐ ☐ ☐ ☐ ☐ ☐ Very best care

This was excellent care and met current best practice. If you feel the care received by the patient fits this description, please complete the scale as shown below:

Unsatisfactory ☐ ☐ ☐ ☐ ☐ ☐ Very best care

We would also like you to comment on the overall quality of each of the clinical records you have reviewed. Definitions of the quality of record scales are included below:

Guidance for completing the quality of record scales

The patient record contains gaps in three or more significant areas. If you feel the patient record fits this description, please complete the scale as shown below:

Inadequate ☐ ☐ ☐ ☐ ☐ ☐ Excellent

The patient record contains gaps in two significant areas. If you feel the patient record fits this description, please complete the scale as shown below:

Inadequate ☐ ☐ ☐ ☐ ☐ ☐ Excellent

The patient record contains gaps in one significant area. If you feel the patient record fits this description, please complete the scale as shown below:

Inadequate ☐ ☐ ☐ ☐ ☐ ☐ Excellent

The patient records are satisfactory and only contain gaps in three or more minor areas. If you feel the patient record fits this description, please complete the scale as shown below:

☐ ☐ ☐ ☐ ☐ ☐

Inadequate Excellent

The patient records are good, and only contain gaps in one or two minor areas. If you feel the patient record fits this description, please complete the scale below:

☐ ☐ ☐ ☐ ☐ ☐

Inadequate Excellent

The patient records are excellent. If you feel the patient record fits this description, please complete the scale as shown below:

Inadequate ☐ ☐ ☐ ☐ ☐ ☐ Excellent

Appendix 6 Staff survey questionnaire

Evaluation of emergency and urgent care service provision – staff views

This is an independent survey of your experience of working at your Trust. The overall aim is to gather information that will help us to improve the working lives of NHS staff and so provide better care for patients.

Thank you for taking the time to complete this questionnaire. Your views are important. All responses are confidential and will be anonyomised by the research team. Please return the questionnaire in the enclosed envelope, which does not need a stamp.

Please answer the following questions in relation to the job you do for the service that the questionnaire was addressed to.

1. About you

a. How old are you? _____ years

b. Are you: Male ☐ Female ☐

c. How many years have you worked in the NHS? _____ years

d. What is your current profession? ECP ☐ Doctor ☐ Nurse ☐ Ambulance Staff ☐

Other, please say: _____

e. How long have you worked in your current role? _____ years _____ months

f. Which settings do you currently work in?

(Please tick all that apply)

- GP in hours ☐
- Walk in Centre ☐
- GP out of hours ☐
- Emergency Department ☐
- Minor Injuries Unit ☐
- Ambulance Service ☐
- Other ☐

Please Say:
.

g. How would you describe your clinical background?

(Please tick all that apply)

- Community nursing ☐
- Emergency nursing ☐
- Paramedic ☐
- Doctor ☐
- Other ☐

Please Say:
.

h. On average, how many patients do you see in a typical day?
Patients

i. On average, how much time do you spend interacting with each patient?
Minutes

2. Views about your current work

2.1 In your job, to what extent:

	(Please circle one number in each row)	Not at all	A little	Moderate Amount	Quite a lot	A great deal
a.	Do you have significant autonomy in making decisions?	1	2	3	4	5
b.	Does your job allow you to use your personal initiative or judgement in carrying out the work?	1	2	3	4	5
c.	Do you have considerable opportunity for independence and freedom in how you do your work?	1	2	3	4	5
d.	Does your job allow you to decide on your own how to go about doing your work?	1	2	3	4	5
e.	Do you carry out your work in the way you think best?	1	2	3	4	5
f.	Do you use a variety of skills?	1	2	3	4	5
g.	Are you challenged by your job?	1	2	3	4	5
h.	Do you feel you fully use your skills?	1	2	3	4	5
i.	Do your learn/practice skills that are important for your career?	1	2	3	4	5
j.	Do you have the opportunity to do what you do best?	1	2	3	4	5
k.	Does your job involve completing a piece of work that has an obvious beginning and end?	1	2	3	4	5
l.	Do you have the chance to compete the pieces of work you began?	1	2	3	4	5
m.	Do your work activities provide direct and clear information about the effectiveness (e.g., quality and quantity) of your job performance?	1	2	3	4	5
n.	Does your job itself provide feedback about your performance	1	2	3	4	5

2.2 How often do you find yourself meeting the following problems in carrying out your job?

	(Please circle one number in each row)	Not at all	A little	Moderate Amount	Quite a lot	A great deal
a.	I do not have enough time to carry out my work	1	2	3	4	5
b.	I cannot meet all the conflicting demands made on my time at work	1	2	3	4	5
c.	I never finish work feeling I have completed everything I should	1	2	3	4	5
d.	I am asked to do work without adequate resources to complete it	1	2	3	4	5
e.	I cannot follow best practice in the time available	1	2	3	4	5
f.	I am required to do basic tasks which prevent me completing more important ones	1	2	3	4	5

2.3 To what extent do you agree or disagree with the following statements?

	(Please circle one number in each row)	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a.	My job enables me to interact regularly with the patients who benefit from my work	1	2	3	4	5
b.	My job allows frequent communication with the patients who benefit from my work	1	2	3	4	5
c.	My job allows me to spend a good amount of time with my patients	1	2	3	4	5
d.	My job enables me to build a close relationship with the patients affected by my work	1	2	3	4	5
e.	My job allows me to form emotional connections with my	1	2	3	4	5

	patients					
f.	My job allows me to have meaningful communications with the patients I treat	1	2	3	4	5
g.	The work I do is very important to me	1	2	3	4	5
h.	My job activities are personally meaningful to me	1	2	3	4	5
i.	The work I do is meaningful to me	1	2	3	4	5
j.	I am confident about my ability to do my job	1	2	3	4	5
k.	I am self-assured about my capabilities to perform my work activities	1	2	3	4	5
l.	I have mastered the skills necessary for my job	1	2	3	4	5
m.	My job gives me the chance to make a significant positive difference to patients' lives	1	2	3	4	5
n.	My job provides opportunities to substantially improve the welfare of patients	1	2	3	4	5
o.	My job has the potential to make patients' lives much better	1	2	3	4	5
p.	My job provides opportunities to have a positive impact on patients almost every day	1	2	3	4	5
q. .	My job frequently gives me the chance to improve the lives of patients	1	2	3	4	5

3. How you approach your work and your interactions with patients

3.1 These questions concern how you carry out your job. Please rate what you actually do, not what you think you 'should' do. How frequently do you:

	(Please circle one number in each row)	Not at all	A little	Moderate Amount	Quite a lot	A great deal
a.	Perform the tasks that are expected as part of your job?	1	2	3	4	5
b.	Meet performance expectations?	1	2	3	4	5
c.	Provide quality patient care?	1	2	3	4	5
d.	Provide timely patient care?	1	2	3	4	5
e.	Provide individualised care?	1	2	3	4	5
f.	Go out of your way to help patients with their problems?	1	2	3	4	5
g.	Show genuine concern and courtesy toward patients, even under the most trying situation?	1	2	3	4	5
h.	Talk to patients before taking action that might affect them?	1	2	3	4	5
i.	Say things to patients to make them feel good about themselves?	1	2	3	4	5
j.	Encourage patients to ask questions about their care?	1	2	3	4	5
k.	Encourage patients to be actively engaged in their own care?	1	2	3	4	5
l.	Spend time planning how a patient's status and needs might change over time?	1	2	3	4	5
m.	Anticipate what the patient or their family might need to know and communicate this to them?	1	2	3	4	5
n.	Make suggestions to patients to improve their longer-term recovery and health?	1	2	3	4	5
o.	Do what is best for the patient in the long-term?	1	2	3	4	5
p.	Inform patients about what might happen next, after being in your care?	1	2	3	4	5

q.	Follow-up on patients after your initial care?	1	2	3	4	5
r.	Try to institute new work methods that are more effective?	1	2	3	4	5
s.	Try to implement solutions to pressing organization problems?	1	2	3	4	5
t.	Try to introduce new structures, technologies or approaches to improve patient care?	1	2	3	4	5
u.	Search out new techniques or ways of doing things?	1	2	3	4	5
v.	Start conversations with people from different disciplines/ professions that you need to work with?	1	2	3	4	5
w.	Go out of your way to build positive relationships with other health care professionals you work with?	1	2	3	4	5

3.2 These questions concern your interactions with patients. When caring for patients, how often do the following occur:

	(Please circle one number in each row)	Never / rarely	Occasionally	Some of the time	Much of the time	Almost always
a.	They express gratitude, thanks, or appreciation to you	1	2	3	4	5
b.	They are disrespectful, rude, or hostile towards you	1	2	3	4	5
c.	They display anger or frustration towards you	1	2	3	4	5
d.	They are overwhelmed, very anxious, or disorientated	1	2	3	4	5
e.	They are open and receptive to your help	1	2	3	4	5
f.	They voice opinions, query decisions, or make suggestions about their care	1	2	3	4	5
g.	They talk about their feelings or concerns	1	2	3	4	5
h.	They ask lots of questions about their care	1	2	3	4	5
i.	They give you positive feedback	1	2	3	4	5
j.	They are friendly towards you	1	2	3	4	5

3.3 To what extent do you agree or disagree with the following statements?

	(Please circle one number in each row)	**Strongly Disagree**	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
a.	When I see patients being taken advantage of, I feel protective towards them	1	2	3	4	5
b.	I feel concern for patients if they are suffering	1	2	3	4	5
c.	I feel compassion towards my patients when they are experiencing difficulties	1	2	3	4	5
d.	It pleases me when I see patients recovering well	1	2	3	4	5
e.	I try hard to see things from the patient's perspective, even if I don't really agree with them or like them	1	2	3	4	5
f.	When a patient has views that contrast with my own, I try to understand why they think as they do	1	2	3	4	5
g.	If I am sure I am right, I don't waste much time listening to the patient's arguments	1	2	3	4	5
h.	I sometimes find it difficult to see things from a patient's point of view	1	2	3	4	5

3.4 These questions concern how you feel about the patients you treat

	(Please circle one number in each row)	**Strongly Disagree**	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
a.	I feel that I make a positive difference in patients' lives	1	2	3	4	5
b.	I am very aware of the ways in which my work is benefiting patients	1	2	3	4	5
c.	I am very conscious of the positive impact that my work has on patients	1	2	3	4	5
d.	The patients who benefit from my work are very important to me	1	2	3	4	5
e.	I care deeply about the patients who benefit from my work	1	2	3	4	5
f.	It is very important to me to make a real difference in patients lives	1	2	3	4	5
g.	One of my most important objectives at work is to make a positive difference in patient's lives	1	2	3	4	5
h.	I really care about improving the well-being of patients	1	2	3	4	5

3.5 These questions concern how most people in your job feel about and treat patients

	(Please circle one number in each row)	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a.	People who do the work I do mostly care a great deal about patients	1	2	3	4	5
b.	My co-workers treat patients with respect	1	2	3	4	5
c.	Patients are treated positively by most of the people I work closely with	1	2	3	4	5
d.	Those I work closely with are very committed to doing the best for patients	1	2	3	4	5

4. Career Development

4.1 The following questions refer to how you feel about your future job and career in this service and other services.

	(Please circle one number in each row)	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a.	There is a job for me in this service in the future if I want one	1	2	3	4	5
b.	There will be clinical opportunities for my career advancement in the next few years	1	2	3	4	5
c.	There will be management opportunities for my career advancement in the next few years	1	2	3	4	5
d.	I am clear what my responsibilities will be 6 months from now	1	2	3	4	5
e.	I am clear about what my future career looks like	1	2	3	4	5

5. Support at work

5.1 The following questions refer to how you feel about support that you receive from your manager/supervisor, that is the person to whom you are immediately responsible for your work.

To what extent does your manager/supervisor:

	(Please circle one number in each row)	**Strongly Disagree**	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
a.	Considers your personal feelings when implementing actions that will affect you	1	2	3	4	5
b.	Take into account your personal needs	1	2	3	4	5
c.	Ensure the interests of employees are considered when making decisions	1	2	3	4	5
d.	Encourage staff to develop their job-related skills	1	2	3	4	5
e.	Suggest training to improve your ability to carry out your job	1	2	3	4	5
f.	Coach staff to improve their on-the–job performance	1	2	3	4	5

5.2 The following questions ask about the extent to which colleagues provide you with help and support.

To what extent can you:

	(Please circle one number in each row)	Not at all	A little	Moderate Amount	Quite a lot	A great deal
a.	Count on your colleagues to listen to you when you need to talk about problems at work?	1	2	3	4	5
b.	Count on your colleagues to back you up at work?	1	2	3	4	5
c.	Count on your colleagues to help you with a difficult task at work?	1	2	3	4	5
d.	Count on your colleagues to help you in a crisis situation at work, even though they would have to go out of their way to do so?	1	2	3	4	5

6. Job satisfaction

6.1 The following questions refer to how satisfied you feel with your job

	(Please circle one number in each row)	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a.	I feel fairly satisfied with my present job	1	2	3	4	5
b.	Most days I am enthusiastic about my work	1	2	3	4	5
c.	Each day at work seems like it will never end	1	2	3	4	5
d.	I find real enjoyment in my work	1	2	3	4	5
e.	I consider my job to be rather unpleasant	1	2	3	4	5

7. About your preferences

7.1 How <u>confident</u> would you feel carrying out these activities?

	(Please circle one number in each row)	Not at all	A little	Moderate Amount	Quite a lot	A great deal
a.	Stepping outside your role to help the overall workforce?	1	2	3	4	5
b.	Designing new procedures/protocols/pathways for your work area?	1	2	3	4	5
c.	Making suggestions to higher level managers about ways to improve the working of your service?	1	2	3	4	5
d.	Representing your team in meetings with higher levels of management	1	2	3	4	5
e.	Analysing a long-term problem to find a solution	1	2	3	4	5

8. How you feel at work and about your job

8.1 To what extent do you agree with the following statements?

	(Please circle one number in each row)	**Strongly Disagree**	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
a.	I often think about leaving my current role	1	2	3	4	5
b.	It is very likely that I will actively look for a new job in the next year	1	2	3	4	5
c.	I am starting to ask my friends /contacts about other job possibilities	1	2	3	4	5
d.	I feel socially valued as a result of my work	1	2	3	4	5
e.	I feel that others appreciate my work	1	2	3	4	5
f.	I feel that other people value my contribution at work	1	2	3	4	5
g.	I like this career too much to give it up	1	2	3	4	5
h.	I definitely want a career in this profession	1	2	3	4	5
i.	If I had all the money I needed without working, I would probably still continue to work in this profession	1	2	3	4	5
j.	This is the ideal profession for a life's work	1	2	3	4	5

8.2 These questions concern how you feel at work.

The following words describe different feelings and emotions. Thinking of the past week, how much of the time has your job made you feel each of the following:

	(Please circle one number in each row)	**Never / rarely**	**Occasionally**	**Some of the time**	**Much of the time**	**Almost always**
a.	anxious	1	2	3	4	5
b.	worried	1	2	3	4	5
c.	at ease	1	2	3	4	5
d.	relaxed	1	2	3	4	5
e.	depressed	1	2	3	4	5
f.	gloomy	1	2	3	4	5
g.	happy	1	2	3	4	5
h.	cheerful	1	2	3	4	5
i.	bored	1	2	3	4	5
j.	dull	1	2	3	4	5
k.	enthusiastic	1	2	3	4	5
l.	motivated	1	2	3	4	5
m.	tired	1	2	3	4	5
n.	sleepy	1	2	3	4	5
o.	active	1	2	3	4	5
p.	alert	1	2	3	4	5
q.	angry	1	2	3	4	5
r.	annoyed	1	2	3	4	5
s.	patient	1	2	3	4	5
t.	calm	1	2	3	4	5

What is the most positive thing which has happened to you this week at work?

What is the most negative thing which has happened to you this week at work?

Any other comments?

We would like to conduct a follow up interview with a small number of staff. The interview may take

30 minutes and will be arranged at a time to suit you. Would you be willing to help in this way?

☐ ☐

If '**YES**' please give your name and contact telephone number so that we may arrange a mutually convenient time for this to take place.

_____
_

THANK YOU for completing the questionnaire.

Please use the pre-paid envelope to return it to the research team at:

Heath Services Research, ScHARR,

The University of Sheffield, Regent Court,

30 Regent Street, Sheffield S1 4DA

If you have any further questions or require more information about this survey please contact

Colin O'Keeffe on 0114 22 20780 or Emma Knowles on 0114 22 20781.

Appendix 7 Interview schedules

ECP Interview schedule

Name:

Employer:

Clinical background:

Settings currently operating in:

Time spent in current role:

Number of patients seen in typical day:

Average time spent with each patient:

Time spent in NHS:

Interview questions for ECP

Good morning/afternoon, my name is [Researcher] - I would like to thank you for giving me some of your valuable time for this interview.

This is one of a series of interviews we are conducting with NHS staff in your area and other areas participating in this study. Many thanks for your co-operation in this work.

The aim is to explore work and training issues relating to your role as an ECP. We will also be interviewing some of the other health care professionals that your group has been working with in order to look at how the ECP role is integrating into the health care system in general.

Anything that you say to me or anyone else on the research team will be treated in confidence and NO individual will be identified. I only have your name to note that I have completed my interviews as planned. Following this interview you will always be referred to as an 'Emergency Care Practitioner' and the data will not be traceable to you.

The interview will take about 30 minutes. Is there anything you would like to ask before we begin?

I have received your consent to take part in the study. Are you happy for the interview to be tape recorded? OK!

Background

What impact has your clinical background had on your role as an ECP?

Training

Can you describe the training that you underwent to become an ECP?

(prompt: aspects that were challenging, difficult, enjoyable, how has it helped you in your current role, any gaps, confidence to make a diagnosis, sufficient breadth and depth of knowledge)

Settings/Integration

Can you talk about how you fit into the services where you work as an ECP?

Are there any barriers when attempting to refer patients?

(prompt: personal/procedural/organizational barriers)

Can you think of an example of where you think the ECP approach has worked well and an example where it has worked less well

ASK THIS QUESTION IF WORKING IN MORE THAN ONE SETTING

Which setting do you feel that you are most effective/least effective as an ECP?

(why: problems, solutions)

Integration

Thinking about who you work alongside, in a typical day, what does the ECP role add to the existing service?

(prompt: are you providing the same/different service provision?)

How is the ECP role generally perceived by other health care professionals within the environments that you work within?

How is the ECP role generally perceived by other health care professionals outside of the environments that you work within?

Support

Can you describe the clinical support you receive as an ECP?

(prompt: where do you go, who do you ask, inside/outside of team, how often)

If you go outside your team for clinical support, can you provide an example of when this might be?

What formal supervision do you receive?

(prompt: maintaining competences and training updates)

Can you describe the managerial support you receive as an ECP?

Impact

In your opinion, what impact has the ECP scheme had on other health services within your geographical area?

(prompt: increased/reduced demand on other services)

Role development

How do you think the ECP role could contribute to the wider NHS in a different way?

What would be needed to do this?

In your opinion, which patient group would be best served by the ECP role?

In your opinion, which setting would be best served by the ECP role?

Being an ECP

What attracted you to become an ECP?

What would you be doing had you not become an ECP?

How has this job lived up to your expectations?

What do you most enjoy or feel is worthwhile about the role?

What do you least enjoy about the role?

(prompt: solutions?)

Do you think the ECP role has brought different career options?

(prompt: positive/negative for career, why?)

Would you like to remain an ECP for the rest of your working life?

(why? If not, how would you like to develop your career?)

Are there any other issues associated with your ECP role that you wish to raise?

Other health professional Interview schedule

Interview questions for other health care professionals

Good morning/afternoon, my name is [Researcher], I would like to thank you for giving me some of your valuable time for this interview.

This is one of a series of interviews we are conducting with health care professionals who have worked with the Emergency Care Practitioners in your area. It is part of a national study. We are also talking to health care professionals in other areas of the UK. Many thanks for your co-operation in this study.

The aim of the interview is to explore your experiences of the development of the ECP role. The questions will primarily be concerned with to what extent the ECP scheme has met the needs of local unplanned services, what the subsequent impact on other unplanned services may be, how the schemes are perceived by other professionals and where they might be improved.

Our aim is to explore work and training issues relating to the ECP role from a range of perspectives and so we will also be interviewing some of the ECPs who deliver the service in your area.

Anything that you say to me or anyone else on the research team will be treated in confidence. NO individual will be identified. I only have your name to note that I have completed my interviews as planned. You will be considered as a ‘nurse’, ‘general practitioner’, ‘ambulance crew’ etc and the data will not be traceable to you.

The interview will take about 30 minutes and I have a copy of the questions for you to have a look at to help you. Is there anything you would like to ask before we begin?

I have received your consent to take part in the study.

Are you happy for the interview to be tape recorded? OK!

Background

I'd like to begin by asking you to describe your own role please?

Are you brought into contact with the ECP role?

In what way?

How is your own role affected by the ECP role?

(Prompt: changes to way you deliver care, workload, supervision)

Training

Do you know what training the ECPs receive?

Do you think the ECP training is adequate preparation for them to deliver the care they are expected to provide?

(Prompt: ongoing development post training?)

Supervision

Do you know what clinical support or supervision the ECPs can rely on?

Are you involved in providing that support?

Do you consider that clinical support to be adequate?

Integration of ECP role

How have you personally found working with the ECPs?

How do consider that the ECP role integrated into the existing urgent and emergency care services?

(Prompt: consider acceptance by other healthcare professionals, possible tensions between ECP/ other providers, procedural/organisational barriers)

Do you think the ECPs are plugging any gaps that exist in the local services?

How can the ECP role be better integrated into the existing urgent and emergency care services?

Impact

In your opinion, what impact has the ECP scheme had on other health services within your geographical area?

(prompt: increased/reduced demand on other services)

Role development

How do you think the ECP role could best contribute to the wider NHS?

What would be needed to do this?

In your opinion, which patient group would be best served by the ECP role?

In your opinion, which setting would be best served by the ECP role?

Are there any other issues relating to ECP working that you wish to raise?

Thank you for your help with these interviews

Strategic lead interview schedule

Interview Questions for Stakeholders

Good morning/afternoon, my name is [Researcher], I would like to thank you for giving me some of your valuable time for this interview.

The interview is part of a national evaluation of emergency care practitioners. The main study is a multi-site community intervention trial of Emergency Care Practitioner schemes involving the collection of data on clinical outcomes, patient satisfaction, health status and health service use. Data is being collected from six pairs of intervention (ECP) and control sites

We have already carried out interviews with ECPs and health care professionals working alongside ECPs in our study sites to find out their experiences of this new role in the urgent and emergency care setting.

This particular interview is one of a series we are conducting with stakeholder professionals who are in a position to influence decision making around ECP schemes. The aim of the interview is to explore your perceptions and experience of the ECP role from a strategic viewpoint, both locally and where possible nationally.

I'd like to assure you that anything that you say to me/us today will be treated in confidence. NO individual will be identified. I only have your name to note that I have completed my interviews as planned.

The interview will take about 45 minutes and I have a copy of the questions for you to have a look at to help you. Is there anything you would like to ask before we begin?

I have sent/will forward a consent form for you to sign and return to us.

Background

I'd like to begin by asking you to briefly describe your own role please?

Were you involved in the decisions regarding setting up the ECP scheme in your service?

And also in the implementation of the scheme?

Do you have ongoing involvement in the scheme?

Planning

How was the ECP scheme originally set up to work in your service/locality?

Which services were ECPs to work in?

How was scheme funded?

What patient groups seen?

Expectations for service?

Was there a national strategy for the development of ECP schemes that you wee aware of?

Support / management

What provision was made for the support of ECPs originally in their day to day clinical role?

-CPD

-Clinical governance/risk management

-Did this differ from the management of any other clinical staff for example, paramedics or nurse practitioners?

Within the organisation?

-Management

-Did this differ from the management of any other clinical staff for example, paramedics or nurse practitioners?

Changes to scheme

How has the ECP service worked in practice?

Is this different from how it was set up to work?

Why?

How has it changed?

-Working in different services?

What were the drivers for change (organisational mergers, local system changes)?

What provision is there currently and for the future for the ongoing CPD (keeping skills up to date, ongoing learning) of ECPs in your service?

Have there been any problems with the ECP role that you are aware of?

Benefits/disadvantages of scheme to service

Has the ECP scheme brought any benefits to your service?

What are these benefits?

- quality of care
- recruitment of staff (inc different backgrounds)
- retention of staff
- job satisfaction

Any disadvantages to the service?

- Retention of staff

Benefits/disadvantages of scheme to system

Has the ECP scheme brought any benefits to the local urgent/emergency healthcare system?

What are these benefits?

Any disadvantages to the system?

Future of schemes

Do you see a future for ECPs within your service?

If so, how do you see the ECP role working within your service in the future?

Will the ECP role work in other service types apart from your own?

What issues/problems need to be addressed to achieve their potential?

(e.g. funding, partnerships, service wide approach to overcome barriers, education and communication, management and support, CPD)?

National perspective

Is there a national vision for the future development of ECP schemes?

If you are not aware of one – what do you think it should be?

Prompt: Coherent strategy for training ECPs and for deployment

How does your organisations' strategic aim for ECPs fit with this national strategy?

Prompt: rotations, skill development and maintenance

Are there any other issues relating to ECP working that you would like to raise?

Thank you for your help with these interviews

Disclaimer

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Addendum

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The management of the Service Delivery and Organisation (SDO) programme has now transferred to the National Institute for Health Research Evaluations, Trials and Studies Coordinating Centre (NETSCC) based at the University of Southampton. Prior to April 2009, NETSCC had no involvement in the commissioning or production of this document and therefore we may not be able to comment on the background or technical detail of this document. Should you have any queries please contact sdo@southampton.ac.uk.