

**EVALUATION OF THE EMERGENCY CARE  
PRACTITIONER ROLE IN LONDON:**

**A STUDY OF THE PROCESSES AND OUTCOMES OF  
CLINICAL DECISION MAKING**

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In partnership with London Ambulance Service NHS Trust and NHS London

August 2008

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ISBN 978-0-9558329-0-1

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## ACKNOWLEDGMENTS

The authors would like to acknowledge the contribution of the following people to the conception, design or completion of this study:

### *Funding*

This study was funded jointly by the Faculty of Health and Social Care Sciences (Kingston University and St. George's University of London), London Ambulance Service NHS Trust and North East London Strategic Health Authority (now NHS London).

### *Partner organisation leads*

Mary Cooke	EMdoc
Fionna Moore	London Ambulance Service NHS Trust
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### *Data collection, data input and data analysis*

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Rosie Head	Faculty of Health and Social Care Sciences
Robert West	Centre for Biostatistics, University of Leeds

### *Clinical Reviewers, and patient and staff participants at London Ambulance Service NHS Trust and EMdoc*

These contributors to the study have not been named individually as the study was designed to protect their anonymity.



# EXECUTIVE SUMMARY

## Introduction

The present study of Emergency Care Practitioners (ECPs) in London was carried out by the Faculty of Health and Social Care Sciences (St. George's, University of London and Kingston University) with London Ambulance Service NHS Trust and the former North West London Health Authority (now NHS London) in 2005. The ECP role is well supported in NHS policy, and evidence of the positive impact of the role is steadily increasing. The present study was designed to address some of the gaps in the evidence, and aimed to specifically investigate the decision making processes and care pathway decisions made by ECPs in London, using a mixed methods approach.

## How are London's ECPs developing?

*Objectives:* The aim of these analyses was to generate a profile of the background, education and development of ECPs in London, from the commencement of the ECP scheme to the present day, and to investigate how ECPs experience the development of their decision-making skills as they become autonomous practitioners.

*Methods:* These analyses drew on data collected from: a questionnaire sent to all London ECPs (n=64) who were in post in May 2006 (n=38 respondents; 61.3%); and semi structured interviews conducted with ECPs who had been in post for more than three years in July 2006 (n=12 interviews, of 20 ECPs invited). Simple descriptive statistics were applied to quantitative data extracted from the questionnaires, while thematic analysis was applied to the qualitative interview data.

*Key findings:* Although all of the ECPs in London were formerly qualified and experienced Ambulance Practitioners (APs), they are not an homogenous group. There is widespread variation in the formal education they have received (ranging from two to eight completed modules) and in their access to/uptake of practice development (the number of days on clinical placement ranging from none to 150). These differences in education and development were even evident amongst ECPs who had been practising as ECPs for the same lengths of time. There are, however, clear signs that ECPs see themselves as working towards a common goal that involves changing their decision making processes and the outcomes associated with these decisions. Becoming a confident autonomous decision maker occurs at different paces for different ECPs, and requires extensive clinical support, not least because ECPs appear to rely upon experience and pattern recognition in their decision-making.

## **How do the care pathway decisions of ECPs compare to those made by APs?**

*Objectives:* The aim of these analyses was to strengthen the evidence provided by existing comparisons of the rates at which ECPs and APs convey patients to the hospital emergency department (ED) when working in the emergency ambulance setting within London.

*Methods:* These comparative analyses drew on retrospective data (September 2003 to July 2006) for ECP- and AP-attended cases in London, using single- and multi-level modelling. The analyses were conducted on two sets of data: n=152,796 cases (n=9,183 of which were attended by an ECP) comprising ‘all illness codes’ attended by ECPs or APs; and a subset of n=65,009 cases (n=4,497 of which were attended by an ECP) comprising the ten ‘selected illness codes’ most frequently attended by ECPs.

*Key findings:* ECPs in London convey significantly fewer patients to the ED than their AP colleagues in analyses of both the ‘all illness codes’ (ECPs: 57.4%; APs: 78.9%, odds ratio [OR] 0.36 95% Confidence Intervals [95%CI] 0.35, 0.38) and ‘selected illness codes’ datasets (ECPs: 77.9%; APs: 56.4%; OR: 0.37; 95%CI: 0.35, 0.39). This difference in conveyance rate was still evident in both datasets after adjusting for differences in case mix, and although it was slightly attenuated in the ‘all illness codes’ dataset after accounting for clustering by practitioner and practice locality, the difference in conveyance rate remained statistically significant (OR: 0.50; 95%CI: 0.46, 0.54), and the difference observed in the ‘selected illness codes’ dataset remained essentially unchanged (OR 0.36; 95%CI:0.33, 0.38).

## **How does decision making by ECPs compare to General Practitioners (GPs) and APs?**

*Objectives:* The aim of these analyses was to examine how GPs, APs and ECPs make and record their decisions within the context of GP out-of-hours (GPs and ECPs) and emergency ambulance (APs and ECPs) care.

*Methods:* These analyses drew on observations of practice (n=48 in the out-of-hours setting; n=23 in the emergency setting) and documentary analysis of clinical records (n=30 in the out-of-hours setting; n=32 in the ambulance setting). These data were analysed using content and thematic analyses.

*Key findings:* The observed process of decision making involved differences in style, depth and breadth of assessment by different practitioners working in the emergency and out-of-hours settings. Three ‘typologies of decision making’ practice emerged: ‘boundaried and non-diagnostic’; ‘condition-focused and diagnostic’; and ‘holistic and complex’. Although these were predominantly associated with APs, GPs and ECPs respectively, the three styles operated on a continuum and the observed style of decision making depended on the patient and the context in which practitioners were working.



## **How appropriate are the care pathway decisions made by GPs, APs and ECPs?**

*Objective:* The aim of these analyses was to assess the appropriateness of care pathway decisions made by GPs, APs and ECPs.

*Methods:* These analyses drew on two prospective comparisons of decision-making by GPs and ECPs (in the out-of-hours setting) and by APs and ECPs (in the emergency ambulance setting). In each of these settings, patients attended by different practitioners completed questionnaires designed to assess the process of decision making and whether patients considered the care pathway decisions to have been appropriate. Clinically-qualified reviewers made similar assessments using a proforma to analyse the decisions documented by different practitioners in their clinical records. These data were augmented with in-depth qualitative interviews conducted with a purposive sample of patients. Single- and multi-level modelling was used to analyse the quantitative data generated using the patient questionnaire and reviewer proforma, while thematic analysis was applied to the qualitative interview data.

*Key findings:* Data extracted from the patient questionnaires (n=474 respondents in the out-of-hours setting; n=512 in the emergency ambulance setting) revealed predominantly positive ratings for decisions made by all three practitioner groups, although ECPs received significantly higher scores than GPs or APs on most of the measures of decision-making processes. However, there was no significant difference in the proportion of care pathway decisions made by different practitioners that patients felt were appropriate in either the out-of-hours setting (GPs: 95.8%; ECPs: 96.7%; OR [after adjustment]: 1.26; 95%CI: 0.43, 3.71) or the emergency ambulance setting (APs: 96.8%; ECPs: 95.9%; OR [after adjustment]: 0.84; 95%CI: 0.32, 2.18). In contrast, the clinical reviewers' assessments of practitioners' documented decisions (n=300 clinical records in the out-of-hours setting; n=324 in the emergency ambulance setting;) were more critical of all three practitioner groups. Nonetheless, the reviewers judged that ECPs documented better decision making processes, and considered that a greater percentage of their care pathway decisions were appropriate as compared to those made by GPs in the out-of-hours setting (ECPs: 94.8%; GPs: 82.0%; OR: 5.04; 95%CI: 1.87, 13.60) or APs in the emergency ambulance setting (ECPs: 86.6%; APs: 58.7%; OR: 5.15; 95%CI: 2.90, 9.12), after adjustment. Indeed, reviewers expressed concern about the appropriateness of some decisions by GPs *not* to convey patients to the ED and of some decisions by APs to *convey* patients to the ED.

## **Conclusion: what does the present study add to our understanding of the ECP role?**

ECPs in London are a diverse and developing group of practitioners for whom change in practice has been both welcome and difficult. However, the observed variation in their education and development appears not to have been a problem in practice as it is clear from the multiple elements of the present study that ECPs, as a group, have shifted considerably in their practice from their AP roots towards becoming competent autonomous practitioners. This shift applies to both the processes associated with decision making, and in the decisions that they make regarding the care pathway selected for the patient's onward care. In the process, ECPs are delivering on their policy objective of reducing conveyance to the ED, although additional research is still required to establish which types of cases would be most appropriate for ECPs to attend to achieve the *maximum* impact from their change in knowledge and experience, and their different approach to decisions about conveyance.

While ECPs have successfully taken on elements of a more medically focused role, they have added a more holistic element based upon a raised awareness of the social issues patients in emergency and primary care settings face. This might provide one explanation why, in the present study, both patients and clinical reviewers judged appropriateness of ECPs' decisions making and the care pathway decisions ECPs made to be more appropriate than those of their medically qualified colleagues. However, these positive findings remain tentative in the absence of analyses on two key factors which were planned for inclusion in the present study, namely the clinical outcome of care, and the cost of care provided by different practitioner groups. Unfortunately the data required to complete these two analyses were not forthcoming and these remain important issues that will need to be addressed in future research.

These limitations aside, the present study makes a substantial contribution to published evidence on the ECP role, providing a range of robust quantitative and qualitative analyses using a mixed-methods approach that was capable of exploring the appropriateness of decision making by ECPs from different perspectives in a way that supports validation through triangulation. From these analyses, it is clear that ECPs in London are a distinct group in how they practice, provide clear benefit to patients, and have the potential to strengthen the health care system, in both the way in which they make decisions and the sorts of decisions they make.

# **1. INTRODUCTION TO THE STUDY**

## **1.1 INTRODUCTION**

This study of Emergency Care Practitioners (ECPs) in London was carried out by the Faculty of Health & Social Care Sciences (St. George's, University of London and Kingston University) with London Ambulance Service NHS Trust and the former North West London Health Authority (now NHS London), and commenced in 2005. The focus of this study was on the clinical decision making of ECPs, examining both the processes and outcomes of decisions, and comparing these with other health care professionals practising in the same settings as ECPs. In London these settings are primarily emergency ambulance calls and GP out-of-hours home visits. The underpinning principle of this study, and this report, was to inform the development of the ECP scheme in London, and to highlight where findings may have broader application across the UK.

## **1.2 BACKGROUND**

### **1.2.1 The Emergency Care Practitioner role**

“An Emergency Care Practitioner may be defined as a healthcare professional who works to a medical model, with the attitude, skills and knowledge base to deliver holistic care and treatment within the pre-hospital, primary and acute care settings with a broadly defined level of autonomy.” (ECP Team Skills for Health, 2007)

The role now termed ‘Emergency Care Practitioner’ evolved out of a growing consensus regarding the changing character of emergency care and the requirements of emergency ambulance practitioners to provide care to patients with a range of conditions, many of which do not meet the traditional view of an emergency and for which ambulance practitioners have not always been formally trained to respond. This evolving situation has been described in published expert opinion (Joint Royal Colleges and Ambulance Liaison Committee and The Ambulance Services Association, 2000, Medical Care Research Unit and the Ambulance Service Association, 1999), research studies (Snooks et al., 2004), and an initial pilot of the ‘ECP’ role (Adams et al., 2005). Since its inception, the ECP role has encompassed varied education routes and modes of operation across the UK (NHS Modernisation Agency, 2004), although the Skills for Health competency framework, outlining the knowledge, skills and core competences which all ECPs must achieve at the point of qualification, aims to standardize core elements (ECP Team Skills for Health, 2007).

The scope of practice of the ECP has recently been defined (ECP Team Skills for Health, 2007). This focuses on appropriate care aimed at meeting each patient's urgent care needs, which relies upon a medical and social assessment, administering treatment, and liaison with other professionals and organizations. The scope of practice is presented in full in Figure 1, below.

Figure 1: The scope of practice of an ECP, as defined nationally  
(ECP Team Skills for Health, 2007)

- Work across current and future organisational and professional boundaries
- Deliver care that is patient focused
- Deliver the most appropriate care in the most appropriate place and/or ensure that the patient is referred to the most appropriate health and social care professional
- Deliver care to patients in the most convenient and appropriate place for the patient
- Provide an alternative pathway for the provision of urgent care
- Provide appropriate healthcare advice to both their patients and other relevant groups and individuals
- Empower patients to take responsibility for managing their own care and treatment where safe and appropriate to do so
- Undertake physical examinations based on a whole systems approach, taking a full and appropriate patient history using a medical model
- Assess the social and mental status of a patient
- Treat less serious illness and injury in pre-hospital, primary care and acute settings
- Play a defined role at major incidents
- Request appropriate investigations, including pathological investigations and diagnostic imaging, in accordance with established procedures
- Ensure fewer inter-professional transfers for patients by enhanced communication networks and cross boundary working
- Administer and supply medication in line with local Patient Group Directions.

### **1.2.2 Underpinning NHS policy – urgent care**

Development of the new ECP role has been largely driven by the NHS policy developments in recent years in both urgent care and workforce development.

In terms of urgent care, including emergency, unscheduled and out-of-hours care, increasing emphasis on this area was seen in the early 2000s. Particular emphasis has been placed on creating an integrated system with reduced demarcation of working practices between professional groups (Department of Health, 2001, Department of Health, 2004a). Such policy increasingly noted the potential contribution of the ambulance service, with some focus on efficient, patient centred assessment and delivery of care, and an emphasis on the desire to care appropriately for those whose needs are not life threatening, rather than continuing to convey most patients to the Emergency Department (ED) regardless of their needs (Department of Health, 2001, Department of Health, 2004b, Department of Health, 2004c).

Transformation of the ambulance service into the mobile health care arm for the whole NHS was proposed, recognising the need to invest in the rapid development of ambulance clinicians, and recommending an increase to the number of ECPs educated to autonomous practitioner standards, in order to deliver safe ‘see and treat’ and home visits in the community and thereby reduce unnecessary ED conveyance (Department of Health, 2005). The significant development of the ambulance service workforce, including new roles such as that of the ECP, has been recognised as already contributing to (and needed for future) the provision of urgent care services (Department of Health, 2008a).

The delivery of out-of-hours primary health care has changed significantly in recent years and now includes a range of service models (Department of Health, 2000). Such services are now also part of the urgent care system, and improved access to services out-of-hours is a key priority (Department of Health, 2006).

### **1.2.3 Research evidence on the ECP role**

As the ECP role is new, there is a small the body of evidence about its operation and impact, although the number of publications is growing.

Publications from the early days of the ECP role focused primarily on who ECPs were and what they would be doing, and on describing the development of ECP schemes (Mason et al., 2003, Doy and Turner, 2004). These papers described a focus on educational preparation

rather than training, and a scope of practice that expanded the role of paramedics (who were the professional group most commonly becoming ECPs at that stage) to include enhanced assessment, and treatment, mainly of minor injuries. The changes in education and practice put in place at this time were described as illustrative of “the shift to practitioner status with people who are able to apply principles and concepts to a variety of different situations and be better prepared to practice in the “swampy lowlands” of broader based practice where there is often no one “right answer” (Schon, 1983).’(Doy and Turner, 2004) p.366)

Further publications examine issues that can be described as the processes of care, and influences thereon. One of the key findings reported here is that of the need for cultural change and a refined infrastructure to support new clinical decision making and referral - indicating that educating and empowering the individual ECP is not enough without associated system change (Doy and Turner, 2004). For example, Squires and Mason (2004) identified disincentives to dispatching paramedic practitioners appropriately, particularly the time target associated with dispatching an ambulance; and a need for communication and commitment to change within the ambulance service in order to achieve success. ECPs themselves have reported that training, confidence and competence “appeared to improve their decision making repertoire with a significant impact on resources.” (Cooper et al., 2004) This finding has since been supported in an observational study where ECPs were reported to have achieved high ratings using tools to measure communication competence (83%), emergency team dynamics (79%) and leadership behaviour (79%) (Cooper et al., 2007a). Moreover, more experienced ECPs had higher mean ratings (Cooper et al., 2007a).

A number of published studies have also considered the outcomes of ECP schemes, with the majority focusing initially on the rate of conveyance to the ED, either with ECP staff based within the ambulance service (Cooper et al., 2004, Cooper et al., 2007a, Mason, 2006, Mason et al., 2007a, Mason et al., 2007b) or within a GP practice (Everden et al., 2003). The changes in conveyance cited by these publications vary substantially, partially as the comparator group and ECP practice setting varied, but a general trend of a decrease in conveyance to the ED has been reported, although only a small number of referrals to agencies other than the ED have been described (Cooper et al., 2007a). More experienced ECPs have been found to treat and release a significantly higher number of patients than their trainee or newly qualified ECP colleagues (Cooper et al., 2007a).

Other measured outcomes have included patient satisfaction, subsequent health status, and subsequent service use. Improved patient satisfaction associated with attendance by an ECP is reported in controlled observational studies (Mason et al., 2007a, Mason et al., 2007b), although in London (in preliminary work for this study) it was non-conveyance rather than

type of practitioner that was found to be associated with satisfaction (Halter et al., 2006). In the out-of-hours environment, data from London suggested that most patients treated at home by ECPs appeared satisfied and compliant with the care provided, although a sizeable minority of patients were unclear about the assessments their ECP had provided (Halter et al., 2007). Finally in terms of outcomes, service use subsequent to the event for which the ECP or their comparator attended the patient has been reported. In the one prospective study considering a broad ECP caseload in the emergency ambulance, GP out-of-hours and acute (e.g. Walk-In-Centre) settings, no change in subsequent service use (at 28 days) was reported between ECP-attended patients and those attended by an AP, GP or nurse, dependent upon the work setting (Mason et al., 2007b). However, studies examining specific patient groups have noted differences. In a controlled trial of paramedic practitioners working with older people (Mason et al., 2007a) fewer subsequent services were reported as having been used. Most recently Gray and Walker (2008) have reported a decreased hospital admission rate (at 28 days) for those patients with breathing difficulties or those who have fallen, comparing ECP data with retrospective AP cases.

In summary, the ECP studies to date have provided some evidence that the role is delivering both processes and outcomes that are consistent with its overall scope and aims. That said, there are gaps in the evidence, and differences in the ECP schemes studied (as well as the methods of study used) limit the generalisability of many of the findings.

#### **1.2.4 Rationale for this study**

Further evidence on the ECP role (specifically on their clinical decision making) was sought for four reasons - published concerns about the accuracy of paramedic decision making; concerns about the safety of practice in other advanced practitioner roles; a lack of evidence about the safety of practice in GP out-of-hours settings; and evidence that decision-making in healthcare can be intuitive but a lack of evidence about how ECPs make decisions.

First, the majority of ECPs in the UK are recruited from a paramedic background (Mason, 2006), and research into the decision making ability of paramedics (and other ambulance practitioners [APs]) has highlighted concerns about the decision making / assessment and triage abilities of APs across a range of clinical conditions in several countries. Uniquely to the UK, London ECPs have occasionally been recruited directly from the ranks of Emergency Medical Technicians (EMTs) (Halter et al., 2006), and, at the point that ECPs go into practice, they are either Paramedics or EMTs who have completed just the first two modules of their eight or nine module course, these being 'The Nature of Physical Assessment' and

‘Clinical Decision Making’. A full description of the education undertaken is given in section 1.5.3 below. There have been no studies that examine whether this preparation is adequate to achieve safe and appropriate change in decision making and hence clinical practice, and this is something the present study aimed to do.

Second, evidence on the process and outcomes of decision making by healthcare practitioners operating in other ‘advanced roles’, that is, where practitioners expand and extend their practice beyond their core professional duties, have highlighted a number of potential issues for the ECP role. The (Emergency Nurse Practitioner (ENP) is one such role. Findings supportive of the ENP role, such as improved medical history taking and fewer subsequent unplanned visits to the ED (Sakr et al., 1999), increased patient satisfaction, and no evidence of any difference in clinical management, or admission or referral rates (Cooper et al., 2002) are reported by a plethora of studies. However, when considering a move from a well-defined ‘minor injuries’ role to one caring for more acutely ill patients, concerns regarding safe practice have been raised and some constraints to autonomy were reported (Norris and Melby, 2006). The present study therefore set out to explore these issues amongst practitioners becoming ECPs.

Third, there is limited evidence concerning the impact and effectiveness of different service models in the out-of-hours environment. Published studies suggest that when GP out-of-hours care was provided by deputising or cooperative services rather than by practice-based services, changes in decisions about what service to provide were observed when the patient initially requested GP care. This was mainly seen in a reduction in home visits and an increase in telephone consultations. However, subsequent medical workload, such as further consultation with the patient’s own GP, was not found to decrease, and little impact was reported on clinical outcomes, with the exception of an increase in prescribing rates in some studies (Leibowitz et al., 2003). These studies do not provide evidence as to the safety or appropriateness of decision making by GPs in an out-of-hours service such as the one in which London ECPs are working, and therefore another aim of the present study was to address this issue.

Finally, studies on decision making in healthcare have suggested that many different models of decision making exist such as the hypothetico-deductive, probability-based, or intuitive models. Within such theories, clinical decision making by health care professionals has been seen to be related to both the individual patient and the individual clinician (Evans, 2005). Intuition is considered by some to be inescapable in medical decision-making and involves personal decision rules (often described as ‘rules of thumb’) of physicians (Hall, 2002).



However intuition is also considered to be a source of error and bias (Tversky and Kahneman, 1974), and is attributed to conditions of uncertainty (Beresford, 1991) such as those present in emergency situations which result in a reliance on past experience (Cioffi, 2001, Croskerry, 2002), in the absence of other information about the patient or time to consider probability-based evidence, for example. No previous studies have been found that consider how ECPs and their comparator groups make decisions and this present study therefore also aimed to consider this.

In summary, drawing on this background, the present study was designed to address some of the areas where evidence of previous research has not been found, and where existing evidence highlights the potential for concern about the new ECP role.

### **1.3 RESEARCH AIM AND OBJECTIVES**

#### **1.3.1 Study aim**

The present study aimed to investigate the process and outcome of decision making by ECPs in London in terms of achieving appropriate pathways of care for patients, using the following measures: rate of conveyance to the ED; service use subsequent to the ECP (or comparator) decision; professional assessment whether ECP decisions are appropriate for each patient's need; patients' experience of care, including their assessment of appropriateness of ECP decisions relating to their needs; and practitioners' accounts of practice and observations of practitioners' practice.

#### **1.3.2 Study objectives**

- To create a profile of London's ECPs' education and development
- To understand the ECP's perspective on their decision-making
- To compare the use of care pathways (conveyance rates) by ECPs and ambulance practitioners in the emergency ambulance setting
- To describe the processes involved in decision-making by ECPs, APs and GPs
- To compare the appropriateness of the care pathway decisions made by ECPs with APs in the emergency ambulance setting and ECPs with GPs in the out-of-hours setting
- To understand the patient's perspective on how and why decisions about their care and care pathway are made.

The original study proposal contained slightly different study objectives and these have been modified to reflect the data that were available as the study progressed. The two noteworthy points of difference are the original plans to assess the appropriateness of ECPs' decisions on clinical outcome data; and the cost - benefit analysis of the ECP scheme in London. These objectives could not be addressed as access was not granted by participating NHS Trusts to clinical outcome data at the ED and to cost data relating to ECPs.

#### **1.4 RESEARCH ETHICS AND RESEARCH GOVERNANCE**

This study received research ethics approval from the South East Main Research Ethics Committee and research governance approval from London Ambulance Service NHS Trust, and from Brent, Bromley, Croydon and Hillingdon Primary Care Trusts.

#### **1.5 STUDY SETTING**

This study was carried out in London, where ECPs are employed by London Ambulance Service NHS Trust, with subcontracted services to Croydon Walk-In Centre and Bromley Primary Care Trust (PCT) for out-of-hours provision at the time of this study.

##### **1.5.1 Operational settings**

The ECP scheme in London was set up on a PCT-based model, and PCTs have adopted the scheme as part of a rolling programme of development. Eleven PCTs operated ECP schemes at the time of this study. In most of these PCTs ECPs only responded to emergency ambulance calls; in one PCT they also worked in a Walk-In-Centre (as contracted members of staff) and in one other PCT they carried out GP home visits at weekends (again as contracted members of staff).

##### **1.5.2 Dispatch of ECPs to their patients**

In the emergency ambulance setting in London the aim was to dispatch ECPs to calls that were considered most appropriate to their skill and knowledge set, although they have always been dispatched to all types of calls. Emergency calls in this setting are classified using the Advanced Medical Priority Dispatch System (AMPDS), which assigns a code and a descriptor (a 'determinant') on the basis of an algorithm completed by the call-taker. Each

AMPDS code is assigned to one of three ‘call categories’ set nationally in the UK as Category A (potentially life threatening), Category B (serious) and Category C (neither life threatening nor serious). If the call is prioritised as Category A, a Fast Response Unit (a single EMT or Paramedic responder in a car) is usually dispatched prior or simultaneous to an ambulance (usually staffed by one EMT and one Paramedic). In January 2007, immediately prior to the case control study period for this study the operational policy for ECPs in London was changed to include their role as Fast Response Units.

In the GP out-of-hours setting the policy was to dispatch ECPs to a particular set of conditions for which their skill and knowledge set was considered appropriate, although the list (see Figure 1.1) was not intended to be exhaustive.

Figure 1.1 List of ‘ECP-suitable’ cases provided to GPs in the out-of-hours setting

<u>Cases to refer to ECPs</u>	<u>Cases not for ECP referral</u>
Collapse/Dizziness/Syncope	<p><b>If immediate care is needed (call 999 instead), especially if delay will compromise patient care</b></p> <p>Children 12 or less</p> <p>Psychotic patients</p> <p>Deaths</p> <p>Potentially dangerous situations (e.g. risk of violence).</p> <p>Acute coronary syndrome</p> <p>Terminal patients</p> <p>Catheter patients</p>
Difficulty breathing	
COPD exacerbation	
Suspected chest infections	
Musculoskeletal pains	
Allergic reactions	
Wounds	
Cellulitis	
Impetigo	
ENT complaints	
UTI's (women >16yrs)	
Abdominal pain (inc. ureteric colic)	
Diarrhoea and vomiting	
Diabetic Problems (inc. hypoglycaemia)	
Headaches	
Pyrexia	
Post epileptic fits	
Pregnancy Complications (happy to see but would generally refer on)	
Strokes	
Overdoses (Can assess, ring poisons unit and liaise with Mental Health teams)	
Elderly fallers	
Social needs problems	

### 1.5.3 Development of ECPs

ECPs in London undertake a two year modular education course to qualify as an ECP. This is undertaken at university and comprises eight modules leading to an award of a Diploma in Health Care Practice if undertaken at academic ‘level two’, or nine modules leading to a Degree in Health Care Practice if undertaken at academic ‘level three’. Prior to entering practice as an ECP, students undertake the first two modules – ‘The Nature of Physical Assessment’ and ‘Clinical Decision Making’ – and have to pass an Objective Structured Clinical Examination (OSCE) in history taking, decision making, and in the assessment and examination of patients. The remaining six modules (detailed in Figure 1.2) may be undertaken in any order and at any speed within the remainder of the two year period. To

date, ECPs have been encouraged to seek out their own appropriate clinical placements to achieve the competencies for each module and to undertake supervised or mentored practice. The principles underlying this model are not unlike those espoused in continuing professional development (CPD), where agreement is usually reached between the individual and their manager about what training or experience is required or likely to be beneficial (Department of Health, 2007). Although similar part time models have been adopted elsewhere (Cooper et al., 2004, Dawson et al., 2004), the ECP education model used in London is at odds with the ‘upfront’ model of education, training and supervised practice undertaken by many other ECPs elsewhere in the UK (Mason et al., 2003, Doy and Turner, 2004). However, the model used in London was chosen to encourage wide participation in the scheme, and the Trainee ECP job description and person specification (see Appendix A) both suggest that personal development and the ability to be self directive have been seen as requisite skills for the new clinical role.

## **1.6. REPORT STRUCTURE**

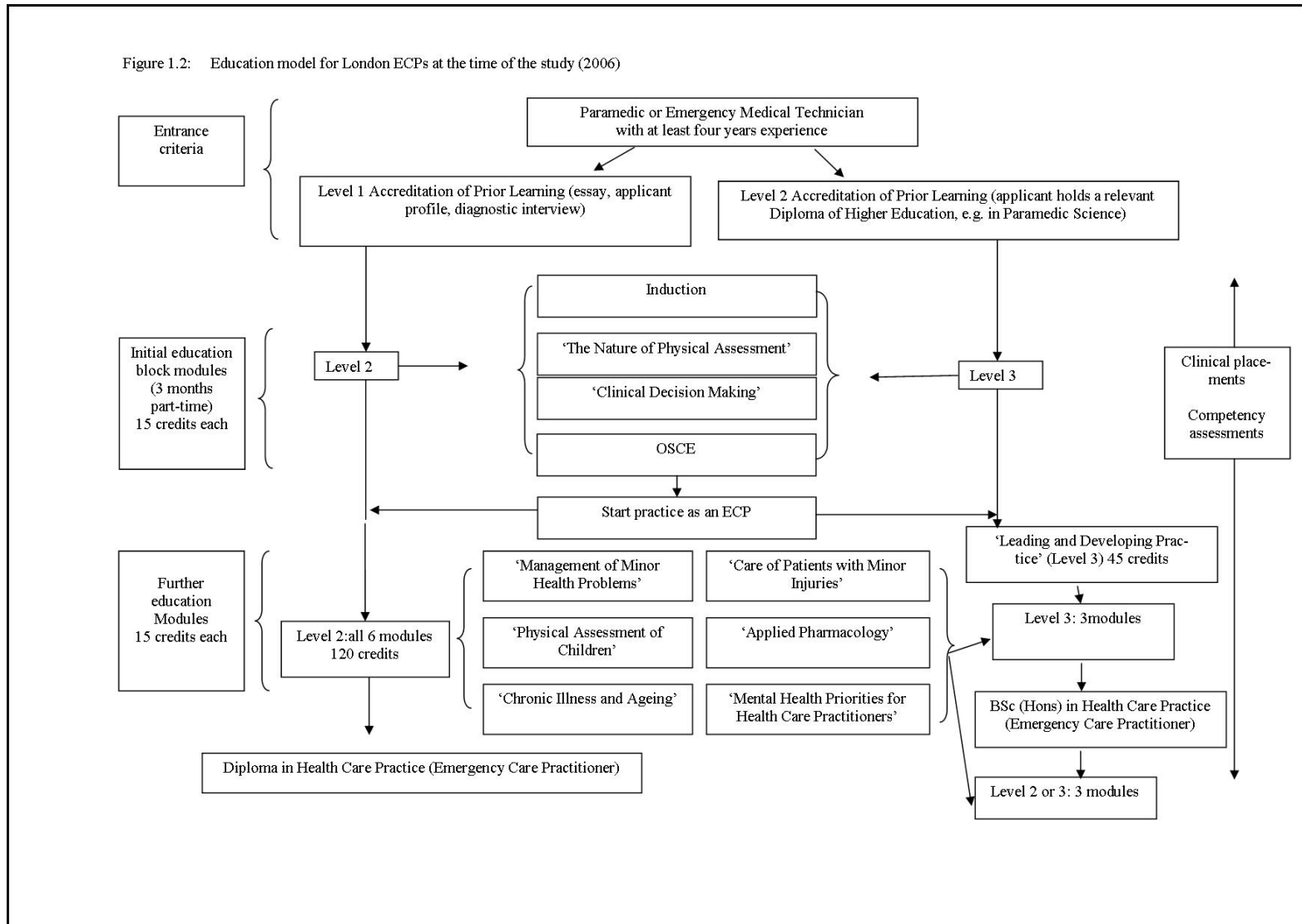
The remainder of this report is structured into four sections:

- ‘Who are London’s ECPs?’ (using a survey-based profile of London ECPs, and interviews with ECPs)
- ‘What do London’s ECPs do?’ (using a retrospective analysis of conveyance rates amongst ECPs and APs)
- ‘How do ECPs and their comparators make decisions?’ (using documentary analyses and observations of practice)
- ‘How appropriate are the processes and outcomes of ECPs’ and their comparators’ decisions?’ (using questionnaires and interviews with patients, and clinical case reviews).

Each of these sections presents the relevant background literature, and its objectives, methods, findings, and brief discussion.

The report concludes with an overall discussion section which draws together the findings from each section and its related objective/s.

Figure 1.2: Education model for London ECPs at the time of the study (2006)





## 2. HOW ARE LONDON'S ECPs DEVELOPING?

### *What we already know*

- Practitioners working as 'ECPs' in London undertake modular education
- Clinical placements for ECPs are reported to be disorganised at a central level

### *What this study adds*

- There is extensive variation in the educational modules and clinical placements undertaken by practitioners titled 'ECPs' in London
- ECPs developed in London may not meet all the competencies of the national competency set when they first enter practice
- Variation in education and practice development may undermine the ability of ECPs, as a group, to meet the policy objective of safely reducing conveyance to the ED.
- Becoming a confident autonomous decision maker occurs at different paces for individual ECPs, and requires extensive clinical support
- Experience and pattern recognition is of key importance in the decision-making of ECPs

### 2.1 SUMMARY OF RELEVANT BACKGROUND TO THIS CHAPTER

As noted in the introductory chapter, a number of papers (Mason et al., 2003, Doy and Turner, 2004) described the focus on educational preparation rather than training for ECPs, and a scope of practice that expanded the role of paramedics to include enhanced assessment, and treatment, mainly of minor injuries, to achieve practitioner status. This shift was described as preparing them for broader practice, where uncertainty would be common (Doy and Turner, 2004).

ECPs themselves have reported that their decision making improved with training, confidence and competence (Cooper et al., 2004), and observations of ECP practice have shown positive changes in their communication, team dynamics and leadership as they become more experienced as ECPs (Cooper et al., 2007a).

London ECPs have previously reported concern with an entirely self-directed system of organising clinical placements, and a sense that their education had not prepared them for practice (Halter and Marlow, 2005).

### 2.2 OBJECTIVES

The objectives of the research presented in this chapter were to generate a profile of the background, education and development of ECPs in London, from the commencement of the ECP scheme to the present day, and to investigate how ECPs experience the development of their decision-making skills as they become autonomous practitioners.

## **2.3 METHODS**

### **2.3.1 ECP development profile**

#### *Sample*

The research participants comprised all staff practising as ECPs in London (n = 64) at the time the research took place in July 2006.

#### *Data collection*

A questionnaire (see Appendix B) was developed to collect data on the prior clinical experience of ECPs in London and on their clinical and educational development. Two ECPs with clinical development roles were asked to pilot the questionnaire to identify any areas where this might potentially be improved. Once their input had been incorporated, the questionnaire and a covering letter were subsequently sent by email and post to all ECPs practising in London. Two reminders were sent to non-respondents over a three month period.

#### *Analysis*

The data collected on each questionnaire were coded and entered into a database for analysis using SPSS for Windows V.14.0. Simple descriptive statistics were used to identify trends in the background, educational and practice development experiences of ECPs. Case studies were also selected to illustrate differences within groups of ECPs with a similar length of experience.

### **2.3.2 ECP interviews**

#### *Sample*

The subjects invited for interview were 20 ECPs, all of whom had worked as ECPs since before February 2004, and all of whom had previously taken part in an evaluation interview (Halter and Marlow, 2005). ECPs were contacted by post and email, with a letter explaining the study objectives and seeking consent for interview (see Appendix C).



### *Conduct and content of the interview*

A topic guide (see Figure 2.1) was constructed by the researcher, drawing upon data related to decision making in the transcripts of previous interviews conducted with these and other ECPs (Halter and Marlow, 2005). Face-to-face, audio-recorded interviews were carried out with ECPs who consented to take part in the study either at their workplace or at the researcher's institution.

### *Analysis*

All interview recordings were transcribed verbatim and closely read. A thematic index was developed and these data were indexed manually according to the themes. Quotes that were illustrative of the themes were also selected.

Figure 2.1: Topic guide for interviews with ECPs

*Icebreaker*

- Where the interviewee is working and in what role
- Where interviewee came from / prior experience
- How the interviewee got to being an ECP
- What being an ECP has been like
- What has changed over time?
- What is the key difference between being an ECP and the type of practitioner the interviewee was before?

*Decision making*

- What does the interviewee understand by the term ‘decision making’?
  - Theoretically
  - In practice
- Focus on how ECPs make decisions and what may have changed over time:
  - At start of the scheme
  - Now – how has interviewee’s practice changed?
  - How does the interviewee compare this to non-ECPs?

Use two vignettes:

1. *60 year old man, ex-alcoholic, fallen, neighbour made call.*

2. *New Year’s eve. 24 year old woman with three children, youngest 3 months with an ear infection. Woman very worried, baby never stops crying, thinks baby might die. Crying.*

- Influences on decision making
- Where does ECPs’ decision making have an impact?
- What is the best and worst thing re-decision making as an ECP?
- How would the interviewee change education in relation to decision making?
- How would the interviewee change practice in relation to decision making?

*Responsibility and autonomy*

What does the interviewee understand by the terms ‘responsibility’ and ‘autonomy’?

- Theoretically
- In practice – how does the interviewee experience this?

*Leaving the scheme/not being an ECP and relationship to decision making*

- For those who have left
  - How does the interviewee (ex- ECP) function as a decision maker now?
  - How does the interviewee (ex- ECP) feel about still using or not using ECP decision skills?
- For those remaining as ECPs
  - How does the interviewee function as a decision maker when working in non-ECP roles, e.g. overtime as Paramedic?
  - How does the interviewee feel about still using or not using ECP decision skills?

## **2.4 RESULTS 1: ECP DEVELOPMENT PROFILE**

### **2.4.1 Recruitment of participants**

A completed questionnaire was returned by 38 (61.3%) of the 64 staff on the ECP scheme (including those recently joined and undertaking their initial education block) in London at July 2006. It is unclear why most of the remaining 26 ECPs failed to return their questionnaires. However, three ECPs notified the study that they had just left or were planning to leave their ECP posts and, although they were informed that their responses would still be useful to the study, none of these ECPs returned their questionnaires. Likewise, five other ECPs made contact and stated they would be returning the questionnaire, but these were not received. It therefore seems likely that responders were predominantly those ECPs who planned to continue working as ECPs for the foreseeable future, and those who were most willing or able to participate in the evaluation of their education and development.

### **2.4.2 Range of prior experience, education and development amongst respondents**

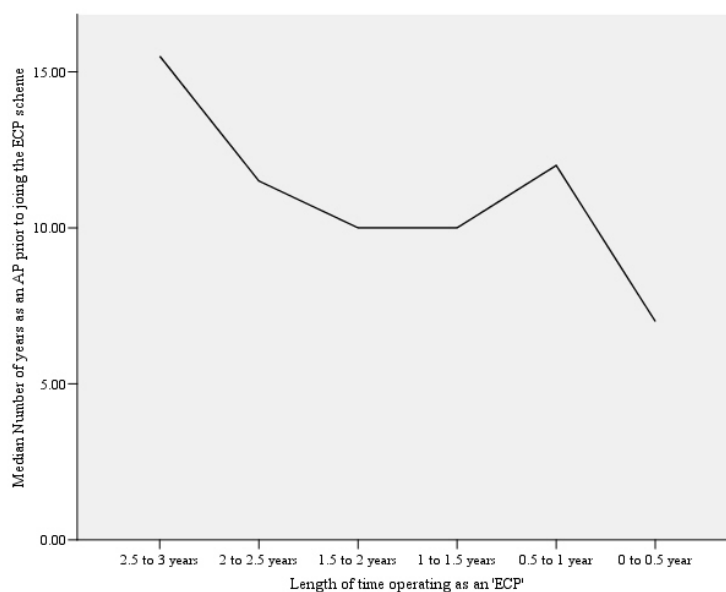
#### *Prior experience and education*

The respondents were, on average, an experienced group of ambulance practitioners with a median of three years (range one to 15 years) experience as an Emergency Medical Technician (EMT), and a median of an six years (range six to 23) as a Paramedic (additional to their time as an EMT) prior to embarking upon the ECP role. However, respondents described a wide range of prior education qualifications, one having no formal qualifications, six holding postgraduate degrees, and the largest number (though fewer than half) holding an undergraduate degree (n = 17).

#### *Length of time as an ECP*

The respondents had been in the ECP role for varying lengths of time, ranging from three months to three years. This evaluation therefore includes ECPs who were still undertaking their two year modular education and associated supervised practice, as well as those who had completed this course up to a year beforehand. The levels of prior education were well dispersed across the ECPs when grouped by length of experience as an ECP, but those who had been in the ECP scheme for longer also reported longer experience as an AP prior to joining the ECP scheme (see Figure 2.2 overleaf).

Figure 2.2: Line graph showing the median years of experience as an AP prior to joining the ECP scheme, plotted against the length of experience as an ECP



### *Education and development as an ECP*

Respondents had undertaken a varied number of educational modules ranging from just two (n = 1) - the minimum number required to practice as an ECP - to the full diploma's eight (n = 2; see Table 2.1). The largest number of respondents, albeit fewer than a third of respondents, had completed six modules (n = 11), while 19 respondents had modules in progress.

Table 2.1: ECP development – education modules undertaken

<b>Module</b>	<b>Number of ECPs having completed the module</b>	<b>Number of ECPs currently undertaking the module</b>
'The Nature of Physical Assessment'	37	0
'Clinical Decision Making'	35	2
'Care of Patients with Minor Injuries'	29	0
'Management of Minor Health Problems'	22	6
'Working with Older People'	23	5
'Physical Assessment of Children'	8	12
'Applied Pharmacology'	31	0
'Mental Health Priorities for Health Care Practitioners'	5	1
'Leading and Developing Practice'	5	0

The median number of days ECPs reported having spent on placements was 42. However, this also varied widely amongst the responders from 0 days to 150 days. Likewise, placements were reported to have taken place in a range of settings and with a range of health and social care providers, as summarised in Table 2.2.

Table 2.2: ECP development – placements completed

<b>Placement setting</b>	<b>No. of ECPs</b>	<b>Range of days</b>	<b>Who placements were with</b>
Emergency Department	29	0 - 125	Nurses (often Emergency Nurse Practitioners) and doctors (mostly Senior House Officers and Specialist Registrars)
Minor Injury Unit	19	0 - 29	
Walk In Centre	18	0 - 40	
General Practice	19	0 - 20	GPs and nurses
District Nursing	16	0 – 14	Nurses
Specialist Clinics (e.g. diabetes, paediatrics, respiratory, tissue viability, urology, ophthalmology – in hospitals and community)	16	0 – 11	Consultants, nurses, physiotherapists
Community Health Care	13	0 – 10	Community Matron, Physiotherapist, Occupational Therapist, discharge team, falls team, Health Visitor
Intermediate Care	12	0 – 17	Nurses, Physiotherapists, Occupational Therapists
Social Services	7	0 – 2	Social workers
Other (Outreach, ECP car, Psychiatric Crisis, Physician Response Unit, Royal Marine Combat Medic Team, Hospice, NHS Direct)	1 each of 14	0 - 10	Advanced Medical Practitioner, ECP clinical lead/GP lead, mental health nurse, Social Worker, nurse, doctors

Twenty five ECPs also reported having received mentoring, and although the median number of days involved was 14, this ranged from just one to 130 days, and 18% (n = 7) of the respondents reporting having yet to receive any mentoring. Not surprisingly, mentors included a range of professionals but most were nurses or doctors, as shown in Table 2.3. The mentor's role was reported by the respondents as predominantly taking the form of 'supervised practice' (n = 19), with assessment (n = 2), study guidance (n = 2), peer support (n = 1), teaching (n = 5), and combinations thereof described by a smaller number of ECPs.

Table 2.3: ECPs' reported mentor profession and time spent with the ECP

<b>Mentor's professional group</b>	<b>Range of reported days spent with mentor</b>
Nurse	0-33
Emergency Nurse Practitioner	8-60
Advanced Medical Practitioner	0-6
Community Matron	0-4
ECP	0-1
Combinations of nurses, doctors, Physiotherapist, Occupational Therapist, other ECPs	15-130

### **2.4.3 ECP development according to length of time in practice**

#### *Intra-group variation in education modules undertaken*

When ECP development was considered in groups according to length of service and stage of development as an ECP, the variation seen in the whole group decreased but was not eliminated completely. The box plot presented as Figure 2.3 shows that those ECPs who had been in practice for longest displayed greater consistency in the number of education modules they had undertaken / completed than that observed amongst those who were at an earlier stage in their educational pathway.

#### *Intra-group variation in the number of days spent on clinical placement*

The box plot presented as Figure 2.4 shows that although ECPs who had been in practice longer had a higher median number of days in placements, the range within this group and amongst less experienced ECP groups was still large. In particular, the 0.5 to one year experience group shows wide individual variation, with one mild and one extreme outlier. Additionally there appears to be a much smaller number of placements undertaken by those respondents with just one to 1.5 years experience, compared to that reported amongst those with more than 1.5 years experience.

Figure 2.3: Median education modules and the range in number undertaken by ECPs grouped by their length of experience as ECPs

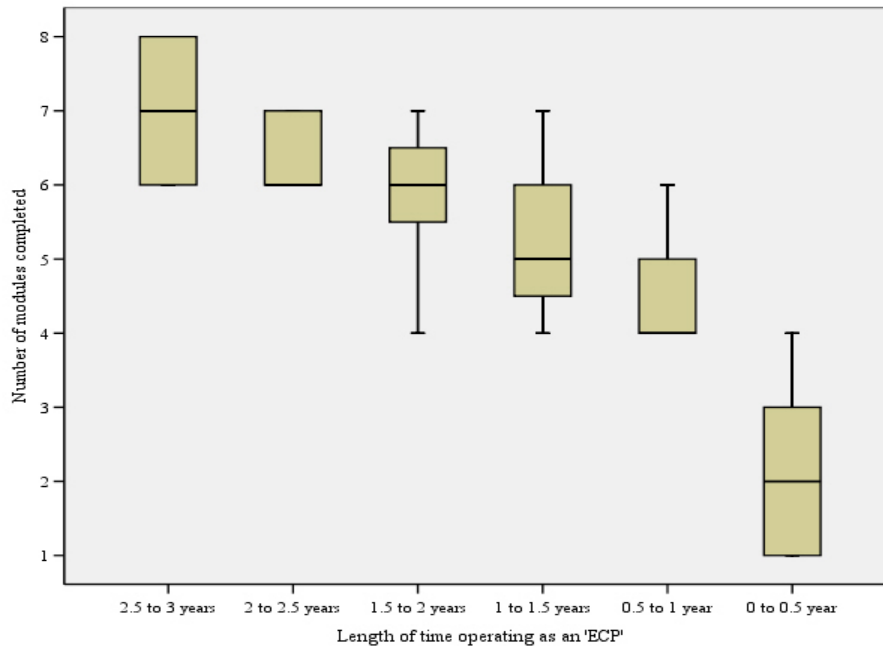
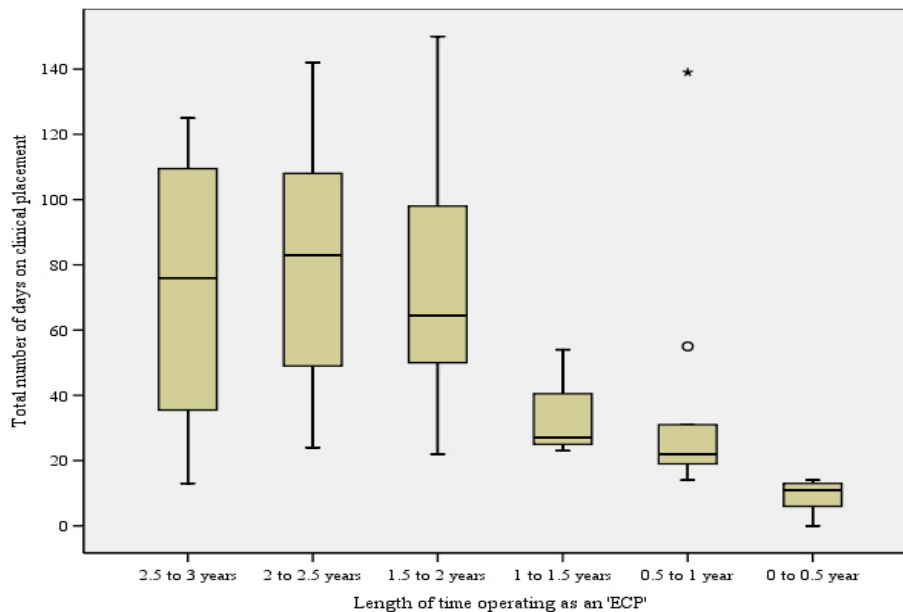


Figure 2.4: Median days in placement and the range in number reported by ECPs grouped by their length of experience as ECPs



\*Each box on the box plot illustrates the median value as its middle line, the first quartile in the data as its lower line and the third quartile in the data as its upper line. The vertical lines leaving the upper and lower limits of the box connect the box to any data considered to be 'outliers'. A circle indicates a 'mild outlier', that is an observation in the data which lies more than 1.5 times the inter-quartile range below the first or above the third quartile. A star indicates an 'extreme outlier', that is an observation in the data which lies more than three times the inter-quartile range below the first or above the third quartile.

### *Case studies*

Figures 2.3 and 2.4 mask somewhat the variability seen within each group of more versus less experienced ECPs at specific points in time. For example, the ECP group in practice for 2.5 to three years had all completed between six and eight education modules, but these modules had been completed at very different times and in a different order. The same pattern of variation in the timing of the modules taken, as well as in the number of clinical placements undertaken, holds true for the other ‘experience level’ groups. To illustrate the variation in development over time the experiences of two ‘new’ ECPs (who had been on the ECP scheme for 6 months at the time of the survey) and two ‘experienced’ ECPs (who had been on the ECP scheme for 2.5 years at the time of the survey) are summarised in Figures 2.5 and 2.6 respectively. These case studies highlight the variation in educational and professional development evident not only amongst all practitioners who are termed ‘ECPs’, but also amongst ECPs with a similar length of experience.



Figure 2.5: Case study - two 'new' ECPs (in post for six months at the time of the survey)

<i>ID 8*</i>	<i>ID 58*</i>
<ul style="list-style-type: none"> <li>- Twenty years as an EMT/ Paramedic</li> <li>- Holds a higher degree</li> <li>- Modules completed (n=5):               <ul style="list-style-type: none"> <li>o 'The Nature of Physical Assessment' (December 2005)</li> <li>o 'Clinical Decision Making' (December 2005)</li> <li>o 'Applied pharmacology' (May 2006)</li> <li>o 'Care of the Patient with Minor Injuries' (July 2006)</li> <li>o 'Management of Minor Health Problems' (July 2006)</li> </ul> </li> <li>- Modules underway: (n=1) 'Physical Assessment of Children'</li> <li>- Clinical placements (19 days):               <ul style="list-style-type: none"> <li>o ED 11 days</li> <li>o MIU 6 days</li> <li>o ECP clinical lead 1 day.</li> </ul> </li> <li>- Mentoring: 2 days, in an assessment role, mentor's profession not recorded on survey</li> <li>- Other development: Team Leader course</li> </ul>	<ul style="list-style-type: none"> <li>- Fourteen years as an EMT/ Paramedic</li> <li>- Holds a diploma in higher education</li> <li>- Modules completed (n=4):               <ul style="list-style-type: none"> <li>o 'The Nature of Physical Assessment' (December 2005)</li> <li>o 'Clinical Decision Making' (December 2005)</li> <li>o 'Applied Pharmacology' (January 2006)</li> <li>o 'Chronic Illness and Ageing' (June 2006)</li> </ul> </li> <li>o Modules underway: (n=1) 'Management of Minor Health Problems'</li> <li>- Clinical placements (17 days):               <ul style="list-style-type: none"> <li>o ED 5 days</li> <li>o WIC 6 days</li> <li>o District nursing 3 days</li> <li>o Community health 3 days.</li> </ul> </li> <li>- Mentoring: 10 days, in an assessment role, by a nurse and a community matron</li> <li>- Other development: None</li> </ul>

\* A survey respondent ID number was used to ensure anonymity of the respondent on the returned survey and any analysis

Figure 2.6: Case study - two 'experienced' ECPs

<i>ID 49</i>	<i>ID 59</i>
<ul style="list-style-type: none"> <li>- Nine years as an EMT/ Paramedic</li> <li>- Holds an undergraduate degree</li> <li>- Modules completed (n = 6)               <ul style="list-style-type: none"> <li>o 'The Nature of Physical Assessment' (December 2004)</li> <li>o 'Clinical Decision Making' (December 2004)</li> <li>o 'Applied pharmacology' (December 2004)</li> <li>o 'Chronic Illness and Ageing' (December 2004)</li> <li>o 'Care of the Patient with Minor Injuries' (December 2005)</li> <li>o 'Management of Minor Health Problems' (December 2005)</li> </ul> </li> <li>- Modules underway: (n = 2) 'Physical Assessment of Children' and 'Mental Health priorities for Health Care Practitioners'</li> <li>- Clinical placements (59 days):               <ul style="list-style-type: none"> <li>o ED 32 days</li> <li>o WIC 2 days</li> <li>o GP 10 days</li> <li>o District nurse 3 days</li> <li>o Social Services 2 days</li> <li>o Intermediate Care 2 days</li> <li>o Specialist outpatients 3 days</li> <li>o Community health 6 days.</li> </ul> </li> <li>- Mentoring: None</li> <li>- Other development: None</li> </ul>	<ul style="list-style-type: none"> <li>- Ten years as an EMT/ Paramedic</li> <li>- Holds an undergraduate degree</li> <li>- Modules completed (n = 6)               <ul style="list-style-type: none"> <li>o 'The Nature of Physical Assessment' (April 2004)</li> <li>o 'Clinical Decision Making' (June 2004)</li> <li>o 'Applied pharmacology' (September 2004)</li> <li>o 'Chronic Illness and Ageing' (February 2005)</li> <li>o 'Care of the Patient with Minor Injuries' (May 2005)</li> <li>o 'Management of Minor Health Problems' (July 2006)</li> </ul> </li> <li>- Modules underway: (n = 1) 'Physical Assessment of Children'</li> <li>- Clinical placements (93 days):               <ul style="list-style-type: none"> <li>o ED 88 days</li> <li>o WIC 2 days</li> <li>o GP 3 days.</li> </ul> </li> <li>- Mentoring: 48 days: In a supervised practice and study guidance role, with a nurse and occupational therapist</li> <li>- Other development: Management &amp; Personal Development course</li> </ul>

## **2.5 RESULTS 2: LONDON ECPs' EXPERIENCES OF THEIR DEVELOPING DECISION MAKING**

### **2.5.1 Participants**

A positive response to an invitation to interview was received from 12 ECPs, while another one responded that they did not feel they had anything to contribute. No response was received from the remaining seven, five of whom were no longer working as ECPs. Interviews were successfully arranged and carried out with 11 respondents. Eight of these were still practising as ECPs in London, and had been working on the ECP scheme for between two and three years at the time of interview. Two other interviewees had left the ECP scheme but remained in practice as paramedics in London and another had left the London ECP scheme and was practising outside London as an ECP.

### **2.5.2 Thematic index**

Analysis of the interviews with ECPs revealed five main themes, as follows:

- Changes in decision making: conveying less, with an increased understanding of why
- Contextual issues have a large impact on decision making
- Complex, non-linear and intuitive decision-making with individual variation amongst ECPs
- High levels of uncertainty and concern about making the 'wrong' decision
- ECPs are clear about what they need to develop their decision making further.

### **2.5.3 Thematic analysis**

The themes emerging from the interviews with ECPs give an overall picture of a group of practitioners who have made substantial changes to their decision making practice within their new role, have continuing issues and doubts regarding the decisions they currently make, and want to make such decisions with greater ease in future. The sections below describe the key findings that emerged within each of these themes.

*Changes in decision making: conveying less, with an increased understanding of why*

The ECPs described a distinct difference in their decision making from what they had experienced as APs. On the whole this difference was described as revolving around whether to take patients to the ED or not. While this difference was attributed to many factors that will be described in more detail below – including experience, education, access to advice, confidence, and placement-based experience – there appeared to be something fundamental

about what had been expected of them as APs as opposed to what was expected from others and from themselves in their role as ECPs. As APs they had felt that any decision to take patients to the ED would not have been questioned, whereas as ECPs they felt they were more responsible for making the most appropriate decisions for patients. This involved not allowing themselves to default to what many of them referred to as the ‘easier option’ of taking patients to the ED. Instead it meant making an effort to find something more appropriate wherever possible, such as referring patients to community care, or to inpatient services. One ECP described this, citing the example of a patient with abdominal pain, as moving from a “sense of incompleteness about what you’re doing” (that is, as an AP simply conveying such a patient to hospital) to a “more complete sense of completeness about the work I’d done than if I’d just conveyed and deposited at the hospital” (that is, as an ECP who had made a surgical referral before arrival at the ED [ID 55]). This same phenomenon was also described as “a wait and see approach” (ID 21) that had been unfamiliar in their AP environment. This change in practice was reported as developing over their time as an ECP, with increasing knowledge and rising confidence in their own decisions. Even ECPs who appeared less confident in interview stated that as their experience increased, the need to seek advice decreased, as did the use of the ED.

“I look back at patients that I would have left at home being a paramedic and now how did I, you know how did I come to that decision that they were safe to be left at home, well the answer is I probably didn’t, I never assessed what, the way as I do now, which is quite worrying.” (ID 25)

This new style of decision making was reported as having many roots, but two principal influences were cited in the interviews, namely placements/supervised practice, and feedback on their practice and its outcomes. These were complimented with reference to the education provided to ECPs, together with their increasing knowledge and understanding of pathophysiology.

Interviewees who worked in the GP out of hours setting or at the Walk-in-Centre repeatedly referred to the impact this experience had had on their decision making, either by increasing their exposure to certain types of patient complaints, or by modelling from mentors and the ethos of the environment, both of which had encouraged them not to take as many patients to the ED. Placements were also described as environments where hands on teaching could take place, providing opportunities to have one’s examination of a patient, for example, checked by a more experienced clinician. This was reported as crucial to decision making – being able to differentiate a clinical finding that needed attention immediately from one that could wait, or was normal.

“placement and experience where I’ve seen that condition before and I’ve seen how other people have behaved so if I’ve seen another clinician deal with a particular scenario then I might copy that pattern if its suitable, I might copy that pattern of behaviour...” (ID 55)

Alongside this, placements were also reported as having raised the ECPs' awareness that uncertainty in decision-making also exists for all health care professionals, but that a lack of definitive knowledge does not preclude other clinicians from making decisions about patient management.

Feedback on patient outcomes was also described as particularly influential in the changes in practice interviewees experienced as an ECP. Interviewees reported phoning patients later in a shift or the next day to check they had been safe following non-conveyance, or professionals to follow up on referrals they had made. The increase in confidence as an ECP was attributed by some ECPs to this type of feedback.

The change in decision making was also attributed partially to the ECP's additional education, particularly the newly acquired knowledge of the pathophysiology associated with a presenting complaint. Attributing this to the additional education they had received was acknowledged by some as being retrospective in that they had only noticed some time later that their knowledge had increased, once it had been combined with increasing experience in practical settings. The following quote sums up the sentiment expressed by many of the interviewees about an increased level of certainty that they could make an accurate differential diagnosis from a presenting complaint.

“Now when I make decisions about patients it's based on good anatomy and physiology, good disease process, physiology, etc.” (ID 21)

The combination of the above three influences on the interviewed ECPs' decision making is summarised by the following respondent:

“I think I must have a bit more confidence than I had at first and the fact that I'm, I have made the right decisions sometimes. I've done something and I've referred them somewhere and when I've spoken to that team again they've said 'oh that was a really good referral'. And it does work and patients aren't dropping dead because I leave them at home and they are benefiting from what I've been able to do. So it's just experience and possibly the continuing education. As you pick up knowledge you get a bit braver, you can make the decision that all ambulance crews think they can make until they're put in the situation to make them (laughs)”. (ID 11)

### *The impact of contextual issues on decision making*

Throughout the interviews it was evident that changes in context applied some pressure to decisions that ECPs made, with the most frequently referenced influences being as follows:

- *Pressure to non convey*: Some ECPs described feeling pressure at the beginning of the ECP scheme to reduce conveyance to the ED, with this being evident unambiguously in the following quote:

“You know you’re asking us to sort of work miracles and reduce A&E attendances by I don’t know a ridiculous amount of percentage but you’re saying ‘Right, you’re all, out you go as ECPs’ and we’ve only just done two modules.” (ID 64)

Although ECPs appeared to be suggesting that they felt they could defend their decisions now (as opposed to at the beginning of the ECP scheme) even if this involved conveying a lot of patients, they still described non-conveyance as an *expectation*.

- *Patient age*: The patient vignettes used in the interviews revealed concerns with decision making for both older people and young children. ECPs described a particularly risk averse approach when working with children, the assessment of whom many ECPs felt unprepared for.
- *Patient setting*: The setting in which the ECP was working was often reported as influential in their decision making. Within the emergency ambulance setting, ECPs noted that they always carried their ECP knowledge and experience with them, whether working from an ECP vehicle or as an AP on an ambulance. That said, ECPs also described how they assess very differently in these two roles, not least as a result of the differences in time pressure. Likewise, they described the difference that the availability of diagnostic tools made, such as urine dipsticks, otoscope, auroscope, which were not available when working from an ambulance. Although history taking and even the overall decision convey or not was reported to be essentially unaffected by setting, the finer detail (such as a diagnosis) was described as more reliant on such tools. In a similar way, the ECPs who worked on a rotational basis in a Walk-In-Centre or GP out-of-hours services noted differences in their practice in these settings to that in the emergency ambulance setting. This was partly attributed to access to direct clinical support in the primary care settings, but also to the sense of urgency prevailing in the emergency ambulance setting (and in EDs). This difference of approach by setting was described as follows:

“It’s like if you get one patient, sometimes you approach it from two different angles. Sometimes, this is if I’m an ECP, I think, what would they do in primary care with this patient? What would they do in A&E with this patient? And they are two completely different ways of practising. In a A&E department they spend all their time, efforts and money to ruling out serious pathology and they do blood tests and x-rays and all the test whereas in the primary care side of things they would work to statistics and they would say that, actually the symptoms you’ve got 80% of the time are not serious and we’ll go with that until proven otherwise. And where we’ve worked in both settings sometimes I find myself sitting on the fence. What do I do with those patients? Do I take the gutsy decision and act like a GP or do I take the really risk averse decision and send to A&E?” (ID 21)

- *Referral pathways available locally*: A lack of easily accessible referral pathways to services and professionals who may be able to support patients was described as frustrating, particularly where written/agreed pathways did not work in practice. The

length of time spent with the patient trying to make an appropriate referral was also reported as off-putting at times.

*Complex, intuitive and non-linear decision-making with individual variation amongst ECPs*

The ECPs interviewed were not homogenous in either their prompted or unprompted descriptions of what decision making meant to them and how they made decisions in practice. That said, a picture did emerge of a complex process of decision making with intuition playing an important role, particularly early on in patient assessments.

The description of decision making ranged from simply whether to take the patient to the ED or not (although this was not a common description), to a more holistic process covering the entire episode of patient care. The various descriptions of the latter can be summed up as deciding ‘what you have in front of you’, ‘what you will do’ and ‘where you finish up with the patient’, which the following quote exemplifies:

“Obviously I think it’s the whole job. So going in and assessing and deciding what you’ve got in front of you, then deciding what’s best for that individual and it could be different for each one. And plus deciding where you’re gonna send them or refer them. I think for each individual patient the decision making is six or seven different decisions all in the time you’re with that individual. I don’t think it’s one, oh making the diagnosis or referring. It’s everything all the way along from the minute you arrive to the minute you leave. And hopefully get at least one right” (ID 11)

Decision making was also described as almost coterminous with the assessment process in which information is obtained about the patient’s condition and environment and pulled together to form an impression of the urgency associated with the patient’s condition.

Decision making in practice appeared to have some common linear elements, particularly in initially distinguishing between the seriously ill and those for whom there was time available for detailed assessment prior to making a decision about whether to convey to the ED or not. This initial decision was not considered to be substantially different from AP practice, being made on the basis of visual cues or a first impression. This initial decision appeared to be intuitive or a “gut instinct” (ID 25), described as based on years of experience of working in this type of environment, and appeared to be the result of assessing the patient’s presentation *and* the situation in which they were found. However, beyond this initial point, decision making was described as moving into a different phase, and one that was felt to be particular to ECP practice, where a fact finding, information gathering exercise began, described by one interviewee as ‘fine tuning’ (ID 64). This assessment process was described somewhat differently by different interviewees, but it was clear that most had a *system* in mind. This involved layers of questions, and terms such as a ‘flow chart’ or ‘checklist’ were used, although ECPs noted that these were not simple, linear or uni-directional processes, but were

flexible and responsive to the information provided by the patient. This process perhaps reflects the ruling out of potential problems. The attachment ECPs reported to their experiential learning during clinical placements, and to feedback from mentors on outcomes, has been interpreted, and was explicitly described, as the use of 'pattern recognition' by ECPs, particularly in being able to delineate between levels of severity within a condition, and knowing how to act at each of these levels.

The following quote illustrates how information relevant to an ECP's decision can often be presented in a haphazard manner:

"Decision making it starts off with the questions, ..... you've got to ask the right question and you've really got to hear what they're saying back to you as well, because sometimes you ask one question and they say something else and you think well that's not the answer to the question I've just asked. But actually what they've said is more relevant than the question that you've perhaps asked, and you know you could sometimes just sweep that under the carpet and move on but you've got to really hear what they're saying back to you sometimes. Sometimes they're embarrassed just to say straight away and you could choose to ignore that or choose to really hear it and explore it" (ID 55)

Changing one's mind in the process of making a decision was therefore described as part and parcel of ECP practice. This flexibility was described as allowing the ECP to shift either way from an early decision to convey to the ED or not to its opposite. One ECP applied the phrase 'reflection in action' to this type of behaviour, as explained in the quote below:

"...when you're reflecting in action you're actually going through, you have to change your, depending on what is happening there and then you reflect on it to change your outcome and sometimes it's people that maybe I'm thinking the decision process I was in was heading down an A&E route or a referral route and actually as things go on and actually sometimes that swings back the other way..." (ID 51)

Decision making was also described as having both a physical and a social element of assessment. The role of the social elements in any particular case was something that ECPs felt they took more into account as ECPs than they had as APs, not least because, as ECPs, they were now concerned about the consequences of their increased incidence of non conveyance.

Following the assessment that started the decision-making process, ECPs portrayed the actual decision about 'what to do' as a balancing act between what the assessment had revealed, and meeting the needs and wishes of the patient.

"It's [decision making], I suppose weighing up the pros and cons, weighing up risks and benefits, er what the patient wants, what their expectations are, erm, what's available to me." (ID67)

As such, decision making in practice appeared to be an autonomous process although ECPs' definition of autonomy did vary. The following quote, however, is representative of an overall sense of how ECPs reported their decision making autonomy:



“...you’re making decisions about what and when and how and who else needs to be involved rather than having perhaps a strict protocol that you, you follow to the letter saying you must speak to, you must do this, you must do that. It’s bringing in lots of different guidelines and ideas and concepts and picking what’s relevant to the patient and being able to direct them through them and help and support them through that process without necessarily relying on someone else to make that decision for you.” (ID67)

The interviewees’ responses to the patient vignettes are illustrative of the above-described process and content of decision-making by ECPs. In the first scenario (60 year old man, ex-alcoholic, fallen) all ECPs described an assessment process involving history taking, with the questions they used being seen as dependent on the specific situation. In general however, these questions covered why the event happened, the patient’s history, the presence of any injuries, the patient’s mobility and vulnerability, what the patient wanted, what community support was available to the patient, other social problems, and the role of any carer. Some ECPs referred to their attempts not to pre-judge the situation, particularly when they had been given information about alcohol. In the main, ECPs expressed a desire to maintain this man’s care at home, excluding the presence of injuries or other immediate medical issues that might necessitate conveyance to the ED. This scenario also elicited descriptions of an initial assessment of whether conveyance to the ED was required immediately and, if this was not considered to be the case (that is, if the patient was not seriously ill) how time could be taken to further assess the need for the ED or what alternative care or support could be instigated in the home.

The second scenario (a baby, ear infection, screaming, mother crying) elicited greater variation in decision making amongst the ECPs, particularly in the care pathway the ECP appeared to default to. Some ECPs confidently described how they would try to manage this situation at home, beginning with instigating some treatment (analgesia) for the baby and trying to calm the situation down before carrying out a more detailed assessment. Others expressed a desire to maintain the child at home due to the circumstances (particularly pressure on EDs on New Year’s Eve, and the presence of other children in the home) but also expressed some caution with this related to a lack of confidence in assessing such a young child. In these cases, the ECPs described the possibility of making use of GP services, in or out of hours, for decision making support, or to arrange a visit. Some felt that the ED would have to be an option for this scenario.

#### *High uncertainty and concern about making the ‘wrong’ decision exists*

Although, as described above, ECPs described an increase in their confidence level and improved understanding of patient conditions, much was also made of the sense that they did not know enough about enough about the breadth of presenting complaints they can face.

This was particularly associated in the interviews with patients whose conditions were described being neither ‘very ill’ nor obviously ‘not very ill’.

“I remember on a particular placement I was on I was talking to a doctor and he was saying what areas are you interested in and I said well chest infection, we go to chest infections a lot and although I carry antibiotics for chest infections, I know about deep breathing, not smoking and all that, sometimes I, see it’s not the people who aren’t dreadfully ill and it’s not the people who are terribly ill, I know what to do with them, it’s the ones in the middle I said and sometimes I’m just not sure what the cut off is, where somebody absolutely has to go to hospital for IV antibiotics or when they can be managed at home on their oral medication....”  
(ID 55)

Some ECPs reported that they had ‘courage in their convictions’, whilst others retained a lack of confidence in their own ability to differentiate which patients could safely be left at home. Decision making as an ECP was variously described as stressful, uncomfortable, and “it’s quite a big step” (ID 20). The overall sense gained in the interviews was of a heavy responsibility for the ECPs associated with their new practice.

“It’s just that fear that I’ve completely missed something or I haven’t made a connection that would be obvious say to a GP because you know the, the underlying, underpinning knowledge isn’t there, and I also think in some things you’re more confident than others. (ID 40)

“..you make your own decisions and you live or dies by it!” (ID25)

#### *ECPs are clear about what they need to develop their decision making further*

The themes presented above indicate that the ECPs were clear about how their decisions and decision making practices have changed, and were able to identify some of the influences that have contributed this change and to their current practice. ECPs, however, also reported that they would have liked to further develop their decision making, based upon an improved baseline of clinical knowledge, improved clinical support, more feedback on their decisions and increased access to supervised clinical practice. All of these issues have been illustrated in the quotes cited above, but each warrants a brief description here.

##### *- Improved baseline clinical knowledge*

Education is seen as useful but not always easy to translate to practice. For example, many of the ECPs stated that they required more underpinning knowledge, especially around anatomy and physiology, to become more comfortable in piecing together findings from their own assessments, thereby becoming more definite in distinguishing between a series of potential diagnoses.

“there is a medical there’s sort of empirical foundation of knowledge that says you know if something’s wrong with someone and they have X symptoms then these are the things you should be looking for so you can kind of guess that’s the kind of frame that we are following but in order to follow that kind of framework you need a better training a better

understanding of the human anatomy which I don't feel I have so that's why I kind of say I don't really have that framework but those are the things that feel are involved in making decisions on how to deal with a patient." (ID 52)

- *Supervised clinical practice*

All of the interviewees talked about the need for more placements and experiential learning and many mentioned a desire for this to be upfront in their training as ECPs, for example having more time in supervised clinical type environments.

- *Clinical support*

The support currently available to ECPs was reported on positively, particularly that which occurred at the point that they were with the patient. Ironically, it was the use of this support that led ECPs to suggest that their baseline clinical knowledge is limited, and to express a desire for more.

- *Feedback on decisions*

The desire to receive greater feedback on the outcomes of their clinical decisions was unanimously expressed by the interviewees. Where such feedback had been received, from senior colleagues at the ambulance service or occasionally from mentors in clinical practice, it was reported on as having a positive influence on subsequent decision making.

## **2.6 DISCUSSION**

ECPs in London are a diverse group. They are termed 'ECPs' after they complete two core educational modules, yet they continue their development for up to two more years, and, in practice, for some while longer according to the data collected in the present study. The speed with which an individual ECP's development takes place, and the order in which particular subjects are taught, seems to vary from one ECP to the next. This is a finding which, in part, reflects the stage at which the London ECPs were evaluated in this study. That is, all of the fully trained ECPs had completed all of the modules required to complete their Diploma or Degree while those currently in training had one or more modules (and associated placements) to complete. However, it also reflects the flexible modular nature of the education and development model adopted by the London ECP scheme, in which ECPs are able to complete post-core modules in any sequence that suits their developmental needs and availability.

Uptake of clinical placements, which aim to consolidate and operationalise classroom-based learning, was also very varied, not least in the frequency, duration and setting of these. This finding suggests that placements do not necessarily form a substantive component of the development of ECPs until later in their development. This is an issue that may be at odds

with the intended schedule of placements (which are supposed to occur throughout the 2 year education programme) and may therefore present a cause for concern relating to both the practical and supervised/mentored experience of ECPs during the first 18 months in which they are practising as ECPs. It is clear that this contrasts with the placements provided for many ECPs elsewhere in the UK, who complete a longer period of core training and a related programme of placements *before* they start practising as ECPs.

Given the variation in background, education and training of ECPs in London it is difficult to know whether all achieved the national competency set before they started practising as ECPs, or at which point in their two years (or more) of post-basic training this might occur. Meanwhile, the intra-group variation in background and training may also restrict the ability of ECPs to practice substantially differently, as a group, from their AP colleagues in the emergency ambulance setting, and therefore to achieve related policy objectives, such as safely reducing conveyance to the ED.

What we do not know yet is whether the background, education and related experience of ECPs in London will become less variable over time, but this seems likely given the lower level of variation – both in completed education modules and placements undertaken – evident amongst ECPs practising for more than two years, most of whom had completed their modular Diploma. If staff turnover is low it is likely that a larger proportion of ECPs will, in the future, have at least undertaken all of the prescribed educational modules by the time they complete their first two years as an ECP. However, the design of the London modular education and development model will still mean that London ECPs will have completed education modules and placements in a range of different orders and a range of different settings. Given the gradual roll out of ECP education and operation, the range of expertise between new and experienced ECPs will, paradoxically, increase over time.

The themes that emerged from the interviews with ECPs are complimentary to the findings of the development survey. Even though all of the ECPs interviewed were in the ‘experienced ECP’ group (and therefore might have been expected to exhibit greater homogeneity than if a cross section of all the London ECPs had been interviewed) differences were observed amongst them. This appeared to be particularly obvious in the level of confidence they described in their own clinical decisions in practice. It was clear from the interviews that clinical placements, support at the point of care delivery, and feedback on patient outcomes were considered a crucial part of the ECPs’ development. Given the variation in clinical placements reported in the development survey, the different levels of confidence in decision making, and the different decisions described in response to the patient vignettes, reported in the interviews, are not entirely unexpected.

The results of this part of the study could therefore be interpreted as reflecting a somewhat haphazard developmental route for ECPs in London, but this is inevitable given that these findings relate to a scheme with a fundamental underpinning of just two modules (and an OSCE examination) of the eight or nine in their education programme prior to practice and further development as an ECP. Moreover, the results reflect how the concept of life long learning has been embraced by the London ECP scheme, and how this has successfully encouraged individual ECPs to develop autonomously. However, it is also possible that circumstances, such as access to placements and provision of the education modules, beyond the control of the individual ECPs, have contributed to the variation observed.

While all of the above described variation clearly exists, it is important to draw attention to the finding that the interviewees report a process of decision making that highlights both a common method of practice amongst these ECPs, and a significant change from the style of decision making and the decisions they made as APs. This might be interpreted as suggestive that, in spite of the heterogeneity of the ECPs' development experiences, and the issues they report with this, that a core development experience (that enables practice change) is being successfully delivered.

What is clear is that both the findings of both the ECP development survey and the interviews with ECPs indicate that this evaluation is of a scheme still under development and ECPs are not a homogenous group, although there are clear signs that they see themselves as working towards a common goal of changed decision making processes and outcomes.



### 3. HOW DO THE CARE PATHWAY DECISIONS OF ECPs COMPARE TO THOSE MADE BY APs?

#### *What we already know*

- ECPs convey fewer patients to the ED, and use an expanding number of alternative referral pathways

#### *What this study adds*

- ECPs in London are sent to a different case-mix of emergency ambulance calls to their AP colleagues
- A lower rate of conveyance to the ED by ECPs is still evident even after matching and adjustment for available markers of case mix
- The lower conveyance to the ED by ECPs is slightly attenuated after accounting for clustering by locality and practitioner

#### *What else we need to know*

- How ECPs make care pathway decisions
- Whether the care pathway decisions ECPs make are appropriate

#### 3.1 SUMMARY OF RELEVANT BACKGROUND TO THIS CHAPTER

The background chapter to this report described the results of studies on the ECP role in the UK. Many of these studies have included reference to the ‘conveyance rate’, or to ‘care pathways’ used by ECPs. In summary, all of the studies reporting data on conveyance rates have found a decrease in conveyance to the ED in comparison to other practitioners (usually Ambulance Practitioners [APs]) (Cooper et al., 2004, Cooper et al., 2007a, Mason, 2006, Mason et al., 2007a, Mason et al., 2007b), although there is substantial variation in the extent of the decrease reported. Among these five papers there was a wide range of data used, from the crude conveyance rate calculated for a whole ambulance trust (including ECP-attended cases) to that calculated within a prospective randomised trial. A summary of these papers – their setting, participants, methods and findings related to conveyance – is presented in Table 3.1 overleaf. None of these papers reported adjusting their analyses for case mix *within* the emergency ambulance setting, nor for potential clustering of the data, and these remain two substantial limitations of the findings reported. These are issues that the present study set out to address in the analyses that follow.

#### 3.2 OBJECTIVE

The objective of the analyses presented in this chapter was to strengthen the evidence provided by existing comparisons of the rates at which APs and ECPs convey patients to the ED when working in the emergency ambulance setting within London.

Table 3.1: Description of studies containing data regarding ECP conveyance rates to the ED amongst ECPs working in the emergency ambulance setting

<b>Paper</b>	<b>ECP profile</b>	<b>Subjects</b>	<b>Comparator group</b>	<b>Differences between ECP and comparator group sample</b>	<b>Limitations noted by the author</b>	<b>Care pathway decisions</b>	<b>Data in ED/ not categories used in the present study<sup>1</sup></b>	<b>Limitations to comparison with the present study's analyses</b>
(Cooper et al., 2004, Cooper et al., 2007a)	4 paramedic graduates of BSc Emergency Care with mean 10 years experience	331 paramedic cases 168 ECP cases (with known pathway) A range of medical, trauma, social and unspecified conditions 51% male, age range <1 year to 99 years	11 paramedics with mean 8 years experience	ECPs more likely to be self activated or requested by AP than dispatched by control. ECPs see more trauma and less 'other medical' than APs	Not a prospective comparative study. ECPs dispatched to types of cases that would be less likely to be conveyed	Treat on scene ECPs 28% (n=48), APs 18% (n=59). ECP case to ED/MIU 50% (n=85), APs 64%. Other referrals/non conveyance ECPs (n=35)	Not able to separate ED/MIU	Cooper et al conveyed to the ED and MIU as one group. Conveyed to the MIU is in 'not conveyed to the ED' in our study. Cannot quantify impact of this. Also AP conveyance rate only described (presumed all others as non conveyed)
(Cooper et al., 2007a)	25 Certificate level ECP trained over 3 months (level 1) or graduate level over 2 years (level 3)- BSc in emergency care or masters in Advanced Healthcare Practice	611 patients for which audit data were available	Overall ambulance Trust non conveyance rate	Not known but authors describe a "random nature and allocation of calls to ECPs."	Nil	ECP non conveyance 62% (336/539). Seen and discharged 285/595, 38% referred for further care (including n= 139 to ED). Differences in 'treat and release' amongst ECPs – ECPs in training 36%, short course ECPs 49%, BSc ECPs 48%) Overall trust non conveyance 32%	N/A	N/A

<sup>1</sup> Carried out only for studies with comparison data from the emergency ambulance environment



Table 3.1: Description of studies containing data regarding ECP conveyance rates to the ED amongst ECPs working in the emergency ambulance setting, continued

<b>Paper</b>	<b>ECP profile</b>	<b>Subjects</b>	<b>Comparator group</b>	<b>Differences between ECP and comparator group sample</b>	<b>Limitations noted by the author</b>	<b>Care pathway decisions</b>	<b>Data in ED/ not categories used in the present study*</b>	<b>Limitations to comparison with the present study's analyses</b>
(Mason, 2006)	Not given	2724 patients calling for emergency ambulance. 2617 with destination known to the study.	None	Not known – used routinely collected data	Voluntary data submission resulting in limited patient contact data	ECPs 1184 (43.5%) assess, treat and discharge; discharge to other care pathway 387 (14.2%), immediate ED 1046 (38.4%)	N/A	N/A
(Mason et al., 2007b)	Not given	Patients eligible for ECP care (eligibility criteria not described). 125 ECP attended and 108 AP attended	APs (controlled prospective observational study)	No difference reported in presenting complaints with comparator. ECP patients (over 999, OOH and acute settings) older, less likely living in own home or have incident at home.	Selectivity in recruitment (applies to ECP and comparator groups)	ECP disposal to own place of residence 70 (56%), other referral 24 (19.2%), ED 31 (24.8%) APs 5 (4.6%), 103 (95.4%) and 0 (0%) respectively	Not conveyed to the ED: ECPs 49.4% (n=83), APs 36% (n=119) Conveyed to ED: ECPs 50.6% (n=85), APs 212 (64%)	Mason's study includes a specified range of 'ECP suitable' conditions only, which differ from the 'selected illness codes' in the present study
(Mason et al., 2007a)	7 experienced paramedics (experience not defined), called 'Paramedic Practitioners' (PPs)	Patients aged 60 and above with a minor acute condition within the PPs' scope of practice. 1549 PP-attended, 1469 controls. 88.9% attendances for a fall	As subjects, but attended by other APs during control weeks	None by gender, age, living in own home, incident occurring at usual residence, or presenting complaint	29.6% of the intervention group) were not attended by a PP, potentially weakening the measured impact of the PP service.	PP-attended patients using ED at day of incident to 28 days 970 62.6%, control weeks 1286 87.5%	Not conveyed to the ED: ECPs 37.4% (n=579) , APs 12.5% (n=119) Conveyed to ED: ECPs 62.6% (n=970), APs 1286 (87.5%)	Mason's study includes attendance at the ED at the time of incident and up to 28 days as one category. Present study's data is for attendance at the time of the incident only and may be a lower estimate as a result.

### **3.3 METHODS**

#### **3.3.1 Sample**

Ambulance control centre and clinical records data, routinely collected by London Ambulance Service NHS Trust, were obtained from the Trust's electronic in-house database, using MS Access. These data covered the period 22 September 2003 (the date the ECP scheme started in London) to 31 July 2006 (the date on which data were collected). The data included all recorded 'activations' of an ECP and/or AP to incidents initiated by a 999 call to the emergency ambulance service in the 11 PCTs in which ECPs operated during this period. After examining the whole dataset available for these analyses, a series of exclusions were applied to reduce the likely impact of any contextual factors that routinely differed between ECP- and AP- led cases, and to remove cases where conveyance decisions were unclear. In the first sub-sample selected for analysis, cases involving any type of incident or illness were included, and these data are referred to in the remainder of this chapter as the "All Illness Codes" sample. This dataset was subsequently examined using the 'illness codes' assigned to each case by the attending practitioner, to best describe the patient's condition *after* their assessment. Those cases with an illness code attended most frequently by ECPs were then selected. In the absence of an operational list of illness types to which ECPs should be dispatched/ are most suited, the cases ECPs attend most were selected as the basis for a second set of comparisons with the AP-attended data for cases with the same illness codes. This second sub-sample of data is referred to in the remainder of this chapter as the "Selected Illness Codes" sample.

The sample size was calculated to be sufficient to allow exploratory modelling of the primary outcome variable. The sample size calculation method used was that of multiplying by 10 each of the covariates and factors to be placed in the model (Peduzzi et al., 1996), these being age, gender, DH call category, type of practitioner, individual practitioner cluster and PCT cluster. The number of ECP practitioner clusters was estimated at 64 and the AP clusters were an unknown prior to data collection; and there were 11 PCT clusters. The minimum required sample size was therefore estimated at 800 cases, although the maximum sample was sought in order to allow for a large number of AP clusters.

#### **3.3.2 Outcome measure**

The primary outcome being considered in the analyses that follow is the conveyance rate, determined with reference to the pre-determined list of 'destination codes' used by APs and ECPs to describe where the patient is either taken or referred to. In the dataset supplied by

London Ambulance Service these destination codes were already grouped into four categories, as described in Table 3.2 overleaf. For the analyses that follow, these categories were grouped once more to form a binary outcome of ‘conveyed to the ED’ or ‘not conveyed to the ED’ to reflect the outcome of most interest to policy makers involved in development of the ECP role.

Table 3.2: Care pathways and their classification for analysis

<b>Example codes allocated by the AP or ECP</b>	<b>Classification on the ambulance database</b>	<b>Classification for analysis in this report</b>
Hospital name codes (hospitals with an ED)	Taken to the ED	Conveyed to the ED
Declined aid against advice Treated but not conveyed Taken (to the ED) by another ambulance <sup>1</sup> Taken by other means <sup>2</sup> Deceased, not removed Police arranging removal Assisted but not conveyed GP to call/ left in care	Patient not conveyed	Not conveyed to the ED
Assisted and referred Treated and referred	Patient not conveyed – referred	
Hospital or other health facility name codes (hospitals with a MIU <sup>3</sup> ; or a WIC <sup>3</sup> )	Care pathway conveyed	
Cancelled-no further action Cancelled to another ambulance	Cancelled	Excluded data
N/A (identified from call dispatch codes)	Clinical Telephone Advice	
Gone before arrival False alarm/not required No trace Standby Cancelled-no further action Cancelled to another ambulance Apparent hoax	No patient	
Unrecognised code or blank	Unknown	

<sup>1</sup> This would have been recorded as ‘conveyed to the ED’ on the other ambulance’s record

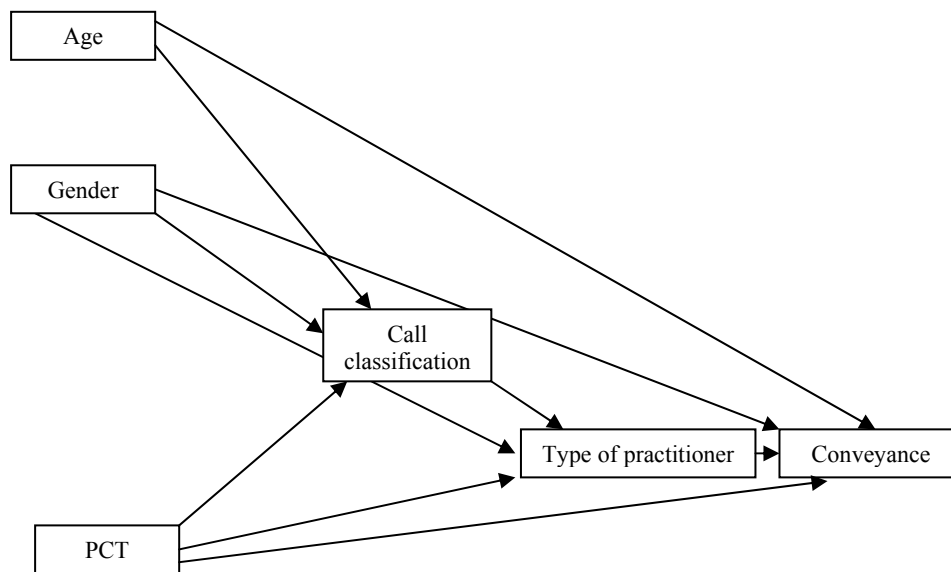
<sup>2</sup> The patient was not conveyed by the ambulance practitioner but may have attended the ED later

<sup>3</sup> MIU = Minor Injuries Unit; WIC = Walk-In-Centre

### 3.3.3 Analysis

Initially an unadjusted conveyance rate for ECPs and APs was calculated, using descriptive statistics. The exposure variable in this analysis was ‘practitioner type’ and the outcome variable was ‘conveyed to the ED or not conveyed to the ED’. A Directed Acyclic Graph (DAG) (see Figure 3.1) provided the theoretical framework that informed the statistical models used in the analyses that follow. That is, any socio-demographic and clinical characteristics that were available in the dataset supplied, and that were associated with the exposure variable (the practitioner who attends the patient) or the outcome (conveyance to the ED or not) were identified as the variables (representing potential confounders) to be placed in the multivariable analysis. The variables selected for inclusion were PCT, patient age group, patient gender, and DH call category.

Figure 3.1: Directed Acyclic Graph identifying the covariates for analyses of the impact of practitioner type on conveyance



Multivariable logistic regression and multi-level multivariable logistic regression were then conducted. The multivariable analyses included adjustment for the operating area (PCT), patient characteristics (age group and gender), and pre-visit assessment of the severity of the condition (DH call category). The multi-level analysis entered the same variables into the analysis as fixed effects, which assumed that these variables had inherent heterogeneity that was constant over time. In addition, the multi level analysis took into account the likelihood that some of the data were ‘clustered’ into groups, in particular that individual incidents were clustered by individual practitioners (that is, one practitioner attended more than one incident in the dataset), and that individual practitioners were clustered in geographical areas (that is,

there was more than one individual practitioner working within each PCT). Restricted Iterative Generalised Least Squares (RIGLS) analysis was applied to tighten estimates of variance that might otherwise have been increased in analyses such as these where the number of clusters was small.

Unadjusted and multivariable analyses were conducted using SPSS for Windows V.14, and multi level analyses using MLWin.

### 3.4 RESULTS: DESCRIPTION OF THE SAMPLES AND EXCLUSIONS

#### 3.4.1 Complete dataset

Data for emergency ambulance events within PCTs where ECPs operated were available for a total of 308,133 activations, comprising 239,998 incidents. However, only a small proportion of these cases had been attended solely by an ECP (see Table 3.4). Even smaller numbers again had been attended by a combined ECP and AP response, with these cases falling into two groups: those where an ECP and an AP appeared to have been simultaneously dispatched (termed ‘ECP and other response’), and those where an AP response was dispatched after the ECP arrived on scene (termed ‘ECP requests AP response’).

Table 3.4: Number of calls attended by different types of responding practitioners

<b>Response mix</b>	<b>Number</b>	<b>%</b>
ECP response only	15,437	6.43
‘ECP and other’ response	2,186	0.91
‘ECP requests AP’ response	2,164	0.90
<i>Subtotal ECP- attended cases</i>	<i>19,787</i>	<i>8.24</i>
AP response only	220,211	91.76
Total	239,998	100

#### 3.4.2 Sample 1 for analysis: ‘All Illness Codes’

In the first set of analyses, all cases, with any of the ‘illness codes’ assigned by the APs or ECPs, were included. However, to improve the similarity of cases attended by APs and ECPs within this sample, a series of data exclusions were applied, in which the aim was to achieve a dataset where the geographical boundaries of attended incidents were the same, the outcome was clear, the individual practitioner who made the outcome decision could be unambiguously identified, and the patient involved was not likely to have died at the scene

(see table 3.5). This last group was identified by examining in more detail the calls assigned the LAS category of 'Red 1' (the most serious) but that had not been conveyed. A large proportion of these cases had been assigned an illness code describing 'cardiac arrest', 'purple' (LAS terminology where the patient is already known to have died), or a 'hanging'. It is assumed that these patients were not conveyed because they had died at the scene, as LAS procedures would advise, regardless of the type of attending practitioner. The resultant sample size was 152,796 cases, 9,183 of which were attended by an ECP.

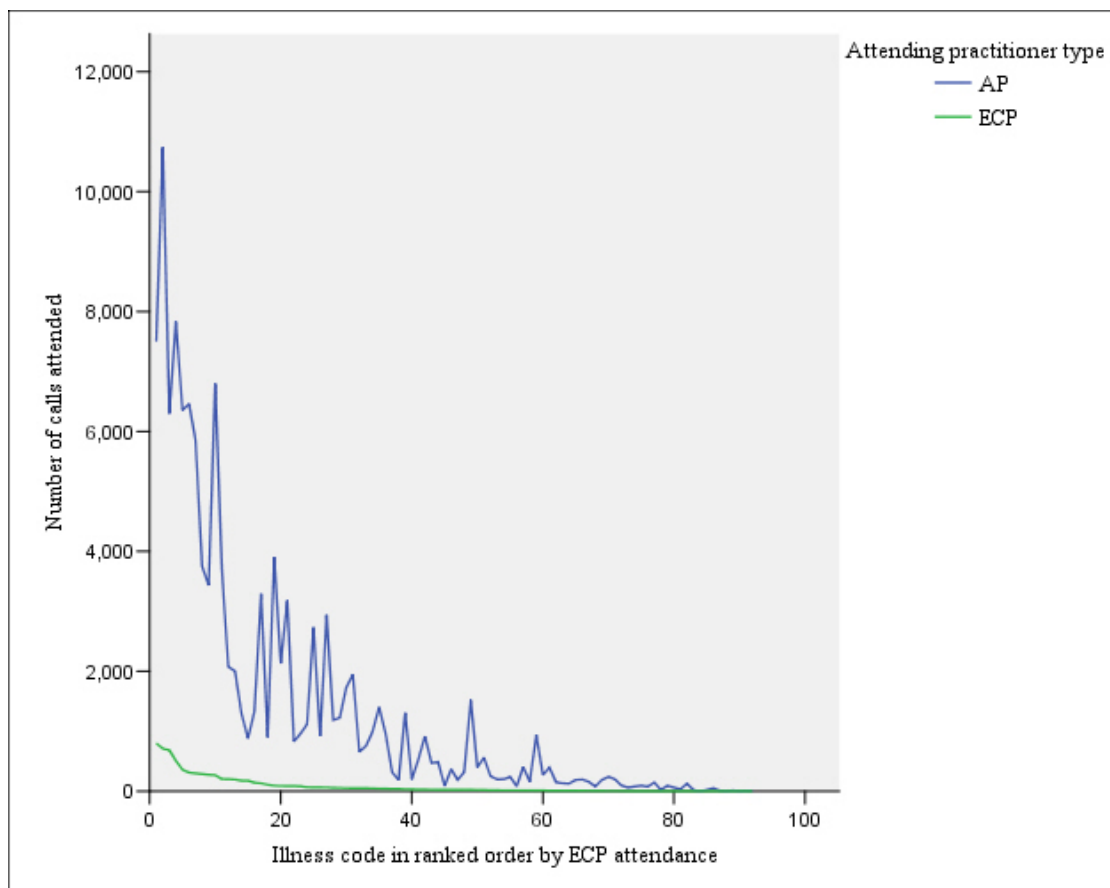
Table 3.5: Reasons for data exclusions, and resultant sample numbers available for analysis

<b>Objective</b>	<b>Data exclusion category</b>	<b>Number of cases in the exclusion category</b>	<b>Number of cases in the exclusion category following the prior exclusions listed in this table</b>	<b>Resultant numbers in the dataset</b>
Contextual factors were similar	ECP-attended case outside of their host PCT	7,575	n/a	232,423
The care pathway decision was clear	Care pathway unknown, or no patient attended	19,136	18,397	214,026
The individual practitioner making the outcome decision could be identified	Unclear whether an ECP or AP made the care pathway decision	2,186	1,922	212,104
	AP-attended case, with more than one ambulance response	60,352	58,457	153,647
Patient not likely to have died at the scene	Illness coded as ‘cardiac arrest’, ‘purple’ or ‘hanging’	2,664	851	<b>152796</b> <b>(9183 ECP-attended)</b>

### 3.4.3 Sample 2 for analysis: Selected illness codes

There were substantial differences in the proportions of cases assigned to different ‘illness codes’ by type of practitioner evident in the ‘All Illness Codes’ dataset described above. These are shown in the line graph (Figure 3.2) which arranges the cases included in the ‘All Illness Codes’ dataset in order of the codes most frequently to least often attended by ECPs, from left to right. The lines drawn show the number of AP- and ECP-attended cases with each of the illness codes, and shows that APs and ECPs attended a different case mix of patients. However, as the illness codes are applied by the individual practitioners it is not possible to assess whether the types of cases APs and ECPs attend were actually different, or whether their classification of essentially similar cases results in the pattern seen in Figure 3.2.

Figure 3.2: Line graph of the number of AP- and ECP-attended cases for each illness code



It is clear from Figure 3.2 that most of the patients attended by ECPs (and APs) involved a relatively small number of illness codes, and there was a long tail comprising a large number of illness codes associated with relatively smaller numbers of cases. The ‘Selected Illness Codes’ sample was generated using those cases with the top 10 illness codes attended by an



ECP – a sample comprising 45.3% of those cases attended by an AP and 48.9% of those attended by an ECP (see Table 3.6).

Table 3.6: Frequency of ‘illness codes’ within the ‘Selected Illness Codes’ sample

‘Illness code’	Attending practitioner type					
	AP			ECP		
	n	% of the selected set	% of the ‘all illness set’	n	% of the selected set	% of the ‘all illness set’
Abdominal pain	7501	11.5	5.2	799	17.8	8.7
Other medical condition	10740	16.5	4.4	710	15.8	7.5
?Fracture	6296	9.7	4.4	685	15.2	3.9
Pain (other than chest or back)	7832	12.0	4.1	507	11.3	3.2
Generally unwell	6534	9.8	2.6	357	7.9	3.1
Head injury	6461	9.9	7.5	310	6.9	7.7
Minor cuts & bruising	5846	9.0	2.4	298	6.6	3.0
Minor injuries (other)	3746	5.8	5.5	287	6.4	5.5
Back pain	3435	5.3	4.5	275	6.1	3.4
No injury or illness	6798	10.5	4.7	269	6.0	2.9
Total	65009	100.0	45.3	4497	100.0	48.9

### 3.5 RESULTS: DEMOGRAPHIC PROFILE

A demographic profile of the two samples is given in Table 3.7 overleaf. This shows that calls categorised as ‘C’, women, and those in the age group ‘5-15’ are proportionally more likely to appear in the ‘Selected Illness Codes’ sample than in the ‘All Illness Codes’ sample.

Table 3.7: Demographic profile of the two sub-samples generated for the comparison of conveyance rates amongst APs and ECPs

Sample characteristic		Sample name			
		All illness codes		Selected illness codes	
		n	%	n	%
Age group	0-4	7424	4.9	3539	5.1
	5-15	7295	4.8	3986	5.7
	16-24	15371	10.1	6848	9.9
	25-34	17841	11.7	7587	10.9
	35-44	16458	10.8	6681	9.6
	45-54	12678	8.3	5244	7.5
	55-64	11627	7.6	4972	7.2
	65-74	14877	9.7	6690	9.6
	75-84	22422	14.7	10630	15.3
	85 & over	17268	11.3	9156	13.2
	Not known	9535	6.2	4173	6.0
Gender	Male	69601	45.6	30942	44.5
	Female	78162	51.2	36451	52.4
	Not known	5033	3.3	2113	3.0
DH call category	A	27249	17.8	7686	11.1
	B	95446	62.5	44059	63.4
	C	30101	19.7	17761	25.6
Primary Care Trust	Barnet	7,088	4.6	7088	4.6
	Brent	7055	4.6	7055	4.6
	Bromley	18,207	11.9	18207	11.9
	Croydon	35296	23.1	35296	23.1
	Ealing	7169	4.7	7169	4.7
	Harrow	4283	2.8	4283	2.8
	Havering	16,879	11.0	16879	11.0
	Hillingdon	7834	5.1	7834	5.1
	Hounslow	15161	9.9	15161	9.9
	Newham	3785	2.5	3785	2.5
	Wandsworth	30039	19.7	30039	19.7

### 3.6 RESULTS: CARE PATHWAY DECISIONS

In the ‘All Illness Codes’ sample the unadjusted rate of conveyance to the ED was lower in the ECP-attended cases (57.4%), as compared to AP-attended cases (78.9%) (OR 0.36 [95% CIs 0.345, 0.377]). This is also true for the ‘Selected Illness Codes’ sample where 77.9% and 56.4% of AP- and ECP-attended cases respectively were conveyed to the ED (OR 0.37 [0.35, 0.39]). A significant difference between the two practitioner groups was found in each of the 10 illness codes included, although the conveyance rate and the difference varied by condition (see Table 3.8).

Table 3.8 Rate of conveyance to the ED for each ‘Selected Illness Code’ for APs and ECPs

Selected illness code	Rate of conveyance to the ED (%)	
	AP-attended	ECP-attended
Abdominal pain	93.8	68.1
Other medical condition	83.9	51.3
?Fracture	96.7	87.2
Pain (other than chest or back)	88.2	55.0
Generally unwell	87.8	58.8
Head injury	86.9	56.1
Minor cuts & bruising	67.4	35.2
Minor injuries (other)	69.9	45.3
Back pain	89.1	42.2
No injury or illness	11.4	7.1

After adjustment for potential confounders (PCT, age group, gender, and DH call categorisation), the lower conveyance rate observed amongst ECP-attended cases is still evident in both the ‘All Illness Codes’ and ‘Selected Illness Codes’ datasets - patients attended by an ECP are 2.7 times less likely to be conveyed to the ED than AP-attended cases (‘All illness codes’ OR 0.37 [95% CI 0.35, 0.38] and ‘Selected Illness Codes’ OR 0.36 [95% CIs 0.34, 0.38]). The full results of this analysis are shown in Table 3.9 for the ‘All Illness Codes’ sample and Table 3.10 for the ‘Selected Illness Codes’ sample. The first of these models explains 50% (Nagelkerke R square 0.5) of the variance in conveyance rate (for the ‘All Illness Codes’ sample) while the second explains 52% of the variance (for the ‘Selected Illness Codes’ sample).

After adjusting for clustering at the level of the practitioner and the PCT, multi-level logistic regression found the same pattern of findings as those reported above, that is, that ECPs

convey fewer patients to the ED (two times fewer in the ‘All Illness Codes’ sample and 2.7 times in the ‘Selected Illness Codes’ sample). However, the difference in conveyance rate by practitioner type was lower in the multi-level analyses of the ‘All Illness Codes’ sample than in the single level analyses (OR 3.6 reducing to OR 0.50), although this was not evident in the ‘Selected Illness Codes’ sample (see Tables 3.9 and 3.10). These analyses also revealed substantial variation at the level of the attending practitioner, indicating that different individual APs and ECPs convey different proportions of their patients to the ED. Likewise, variation in the conveyance rate accounted for at the level of the PCT in which the call was attended was found.

Table 3.9: Conveyance decisions – univariate, multivariate and multi-level analyses – for the ‘All Illness Codes’ sample

Sample characteristic		Care pathway use				Unadjusted (univariate)		Adjusted (multivariate)		Adjusted (multi level)	
		Conveyed to ED		Not conveyed to ED		OR	95% CIs	OR	95% CIs	OR	95% CIs
		n	%	n	%						
Type of practitioner	AP	113259	78.9	30354	21.1	-	-	-	-	-	-
	ECP	5268	57.4	3915	42.6	0.36	0.35, 0.38	0.37	0.35, 0.38	0.50	0.46, 0.54
Age group	0-4	5894	79.4	1530	20.6	-	-	-	-	-	-
	5-15	5813	79.7	1482	20.3	1.03	0.96, 1.10	1.34	0.95, 1.12	1.02	0.94, 1.11
	16-24	12003	78.1	3368	21.9	1.05	0.98, 1.12	0.90	0.84, 0.97	0.90	0.84, 0.97
	25-34	13546	75.9	4295	24.1	0.95	0.90, 1.00	0.78	0.73, 0.84	0.78	0.73, 0.84
	35-44	12591	76.5	3867	23.5	0.84	0.80, 0.89	0.80	0.75, 0.86	0.79	0.74, 0.85
	45-54	9889	78.0	2789	22.0	0.87	0.83, 0.92	0.88	0.82, 0.94	0.85	0.79, 0.91
	55-64	9215	79.3	2412	20.7	0.95	0.90, 1.00	0.95	0.88, 1.02	0.91	0.85, 0.98
	65-74	12009	80.7	2868	19.3	1.02	0.96, 1.08	1.03	0.96, 1.11	0.99	0.92, 1.06
	75-84	18129	80.9	4293	19.1	1.12	1.06, 1.18	1.06	0.99, 1.13	1.01	0.94, 1.08
	85 & over	13630	78.9	3638	21.1	1.13	1.07, 1.18	0.95	0.88, 1.10	0.90	0.84, 0.96
Gender	Male	53950	77.5	15651	22.5	-	-	-	-	-	-
	Female	61419	78.6	16743	21.4	1.06	1.04, 1.09	1.06	1.04, 1.09	1.06	1.03, 1.08

Table 3.9: Conveyance decisions – univariate, multivariate and multi-level analyses – for the ‘All Illness Codes’ sample, continued

Sample characteristic		Care pathway use				Unadjusted (univariate)		Adjusted (multivariate)		Adjusted (multi level)	
		Conveyed to ED		Not conveyed to ED		OR	95% CIs	OR	95% CIs	OR	95% CIs
		n	%	n	%						
Call category	A	22622	83.0	4627	17.0	-	-	-	-	-	-
	B	73775	77.3	21671	22.7	0.70	0.67, 0.72	0.74	0.71, 0.77	0.71	0.69, 0.74
	C	22130	73.5	7971	26.5	0.57	0.55, 0.59	0.61	0.59, 0.64	0.60	0.58, 0.63
Primary Care Trust	Havering	12640	74.9	4239	25.1	-	-	-	-	n/a	
	Bromley	14617	80.3	3590	19.7	1.37	1.30, 1.44	1.35	1.28, 1.42		
	Barnet	5500	77.6	1588	22.4	1.16	1.09, 1.24	1.13	1.06, 1.22		
	Hillingdon	4890	62.4	2944	37.6	0.56	0.53, 0.59	0.54	0.51, 0.58		
	Newham	2890	76.4	895	23.6	1.08	1.00, 1.18	1.11	1.02, 1.21		
	Ealing	5427	75.7	1742	24.3	1.05	0.98, 1.11	0.94	0.88, 1.01		
	Hounslow	10826	71.4	4335	28.6	0.84	0.80, 0.88	0.83	0.77, 0.91		
	Brent	5490	77.8	1565	22.2	1.18	1.10, 1.26	1.18	1.10, 1.26		
	Harrow	3082	72.0	1201	28.0	0.86	0.80, 0.93	0.84	0.77, 0.91		
	Croydon	28531	80.8	6765	19.2	1.41	1.35, 1.48	1.41	1.35, 1.48		
	Wandsworth	24634	82.0	5405	18.0	1.53	1.46, 1.60	1.50	1.42, 1.57		

Table 3.10 Conveyance decisions – univariate, multivariate and multi-level analyses – for the ‘Selected Illness Codes’ sample

Sample characteristic		Care pathway use				Unadjusted (univariate)		Adjusted (multivariate)		Adjusted (multi level)	
		Conveyed to ED		Not conveyed to ED		OR	95% CIs	OR	95% CIs	OR	95% CIs
		n	%	n	%						
Type of practitioner	AP	35042	76.0	11093	24.0	-	-	-	-	-	-
	ECP	1960	57.8	1432	42.2	0.37	0.35, 0.39	0.36	0.34, 0.38	0.36	0.33, 0.38
Age group	0-4	1381	72.2	531	27.8	-	-	-	-	-	-
	5-15	2244	80.2	554	19.8	1.18	1.08, 1.29	1.24	1.10, 1.38	1.21	1.08, 1.37
	16-24	4156	80.6	998	19.4	1.42	1.30, 1.56	1.13	1.02, 1.25	1.11	1.00, 1.23
	25-34	4407	77.0	1319	23.0	1.34	1.25, 1.45	0.96	0.87, 1.06	0.96	0.86, 1.06
	35-44	3843	77.3	1127	22.7	1.15	1.07, 1.23	1.01	0.91, 1.11	0.97	0.88, 1.08
	45-54	2891	78.3	803	21.7	1.20	1.12, 1.29	1.09	0.98, 1.21	1.02	0.92, 1.14
	55-64	2694	77.7	774	22.3	1.30	1.20, 1.41	1.10	0.99, 1.22	1.07	0.96, 1.20
	65-74	3590	75.5	1166	24.5	1.33	1.22, 1.44	1.00	0.90, 1.10	0.98	0.88, 1.09
	75-84	5596	73.5	2014	26.5	1.23	1.14, 1.32	0.95	0.86, 1.04	0.93	0.85, 1.03
	85 & over	4695	69.6	2046	30.4	1.17	1.10, 1.25	0.80	0.73, 0.88	0.79	0.72, 0.87
Gender	Male	15835	74.2	5508	25.8	-	-	-	-	-	-
	Female	20502	76.0	6471	24.0	1.06	1.02, 1.09	1.12	1.07, 1.16	1.10	1.06, 1.15

Table 3.10 Conveyance decisions – univariate, multivariate and multi-level analyses – for the ‘Selected Illness Codes’ sample, continued

Sample characteristic		Care pathway use				Unadjusted (univariate)		Adjusted (multivariate)		Adjusted (multi level)	
		Conveyed to ED		Not conveyed to ED		OR	95% CIs	OR	95% CIs	OR	95% CIs
		n	%	n	%						
Call category	A	4094	81.4	937	18.6	-	-	-	-	-	
	B	22567	75.0	7520	25.0	0.72	0.68, 0.77	0.75	0.70, 0.80	0.76	0.71, 0.81
	C	10341	71.8	4068	28.2	0.59	0.55, 0.63	0.64	0.59, 0.68	0.63	0.58, 0.68
Primary Care Trust	Havering	4213	74.3	1454	25.7	-	-	-			n/a
	Bromley	4747	76.5	1458	23.5	1.12	1.04, 1.20	1.11	1.03, 1.20		
	Barnet	1636	75.3	538	24.7	0.96	0.87, 1.06	0.91	0.82, 1.01		
	Hillingdon	1350	58.3	967	41.7	0.47	0.43, 0.51	0.42	0.38, 0.46		
	Newham	857	77.1	255	22.9	1.06	0.93, 1.21	1.02	0.89, 1.18		
	Ealing	1619	72.7	607	27.3	0.90	0.82, 1.00	0.77	0.70, 0.85		
	Hounslow	3030	65.4	1604	34.6	0.66	0.61, 0.71	0.62	0.57, 0.67		
	Brent	1736	77.1	515	22.9	1.01	0.91, 1.11	0.95	0.85, 1.06		
	Harrow	1017	67.1	499	32.9	0.68	0.61, 0.75	0.66	0.59, 0.74		
	Croydon	9004	77.3	2648	22.7	1.18	1.11, 1.26	1.13	1.05, 1.21		
	Wandsworth	7793	79.7	1980	20.3	1.29	1.20, 1.38	1.19	1.11, 1.28		



### 3.7 DISCUSSION

Although direct comparison with the previous studies summarised in Table 3.1 remains difficult due to differences in samples and methods used, the analyses presented in this chapter broadly confirm the findings of previously published similar studies, namely that patients attended by ECPs are less likely to be conveyed to the ED. While separate analyses of the two subsets of data supplied by the LAS ('All Illness Codes' and 'Selected Illness Codes') showed some socio-demographic and clinical differences from the total dataset supplied, the effect of differences would have been ameliorated by adjusting for these in our analyses and, as such, these findings are likely to be robust.

However, these analyses also looked beyond the simple difference in conveyance rates amongst AP- and ECP-attended patients and adjusted for potential socio-demographic and clinical confounders, and for clustering within the data at the levels of individual practitioners and PCTs. What these additional analyses have found is that the difference in conveyance rate does not diminish after these adjustments, even though call category, PCT, patient age and gender are also associated with conveyance rates. However, after taking into account clustering at the individual practitioner and PCT levels the difference in conveyance rate was slightly reduced for the 'All Illness Codes' sample, but remained the same for the 'Selected Illness Codes' sample. ECPs therefore appear to have a greater impact on conveyance rates when sent to calls that they attend most frequently – calls that include a higher proportion of those assigned a 'less urgent' call categorisation.

Another important finding of these analyses is that there is significant variation in conveyance rates amongst attending practitioners, and between PCTs, even after adjustment for call category, and the age and gender of the patients concerned. However, these analyses do not allow us to determine the extent to which this variation is attributable to APs or to ECPs. Notwithstanding this limitation, it might be speculated that the full impact of the ECP group may not have been realised in the retrospective data analysed in the present study, should the variation be reduced (assuming that the higher non conveyance amongst some practitioners and some PCTs is desirable). Clearly additional research will be required in the future to assess whether differences in conveyance increase or decline in the future, amongst both APs and ECPs. At the same time the analyses presented in this chapter cannot assess whether the observed conveyance decisions made by either AP or ECPs were appropriate, and this is considered in chapter 5 of this report, following an analysis of how these care pathway decisions are made.



## 4. HOW GPs, APs and ECPS MAKE DECISIONS

### *What we already know*

- Decision-making theory has identified a range of different models in health care practice, with the use of ‘intuition and’ personal ‘decision rules’ seen as inescapable due to the existence of uncertainty in emergency care situations
- The decision making process associated with non-conveyance by APs is complex, with the patient, practitioners, family and carers taking part in negotiating the decision made.

### *What this study adds*

- A description of the process of decision making observed in practice, with differences in style, depth and breadth of assessment by GPs, APs and ECPS working in out-of-hours and emergency ambulance settings
- A clearer indication of how situational factors can impact on decisions made in these settings.

### *What else we need to know*

- Whether the decisions ECPS and others make in emergency and out-of-hours settings are appropriate

### 4.1 SUMMARY OF RELEVANT BACKGROUND TO THIS CHAPTER

As described in chapter one, no studies have been located that have described *how* ECPS make decisions about care they provide or their patient’s pathway of care. Limited evidence is available regarding AP decision making in situations where they have decided not to convey patients to the ED. Porter et al (2007) suggest that the patient’s capacity to make decisions together with joint decision making by the practitioner, patient and any relatives/carers present, render straightforward guidance on non-conveyance decisions difficult to apply. Elsewhere, the ways in which other health care professionals make decisions has been more widely studied, with theories about the role of hypotheses, probability and intuition most widely discussed, the latter seen as particularly prevalent in emergency care, where a high level of uncertainty often prevails (Cioffi, 2001, Croskerry, 2002). In terms of documentation, again limited evidence is available in the emergency ambulance setting. Amongst APs, it has been suggested that a lack of recording, particularly in cases where the patient has not been conveyed to the ED, might be attributed to difficulties obtaining information from patients, the clinical dimension of the case not being recognised by the AP, and a lack of managerial monitoring, although APs have also reported a sense that they needed to ‘cover their backs’(Porter et al., 2008).

## **4.2 OBJECTIVE**

The objective of the analyses presented in this chapter was to examine how ECPs, APs and GPs make and record their decisions within the context of emergency (APs and ECPs) and out-of-hours (GPs and ECPs) care.

## **4.3 METHODS**

The methods used to meet the objectives for this chapter involved two components: observations of practice and documentary analysis. Both of these were used to assess similarities and differences amongst the three different groups of practitioners. The specific methods used for each of these components are now described in turn.

### **4.3.1 Observations of practice**

#### *The sample*

ECPs were approached directly by email by the researcher with a request to participate in the study. APs were approached via members of ambulance station management teams, and GPs by members of the GP out-of-hours service clerical team. All those approached were provided with an explanatory letter and a consent form (see Appendix D). The purposive sample aimed to include 20 ECP- and 20 AP-attended cases in the emergency ambulance setting and 20 ECP- and 20 GP- attended cases in the out-of-hours setting. The cases observed in practice were those involving patients who were attended by an AP, GP or ECP during the periods spent by the researcher observing their practice and who consented to their care being observed.

#### *Development and pilot of the observation method*

The first observation shift carried out with an ECP in the out-of-hours setting provided an opportunity for the researcher to become familiar with the out-of-hours environment. Each of the cases attended were discussed with the ECP throughout the shift, and were observed during the practitioner's consultation, with field notes being written up after each patient visit. Reflection on this first shift led to the formulation of the observation method used which was piloted on the next ECP and the first GP observation shift. As the method proved satisfactory

for capturing the practitioner's decision making processes, and was not reported as obtrusive by practitioners or patients, the pilot cases have remained in the analyses which follow.

#### *Conduct of the observation*

The observations conducted are formally described as non-participant (since the researcher was not part of the clinical team), although on rare occasions the researcher was involved in some aspects of the practitioner's management of the patient or situation particularly when it would have been unethical not to do so. Consent for the researcher to access the patient's environment and take notes was sought from the patient by the practitioner as they entered the patient's environment, and an information leaflet was given to the patient at the end of the practitioner's consultation (shown as Appendix E).

The researcher discussed the case with the practitioner prior to arrival with the patient, took notes during their interaction with the patient, discussed the case with the practitioner after the patient consultation had finished, and wrote a reflection on each case after each observation period was complete.

#### *Analysis*

All observation notes and reflections were closely read, and a thematic index drawn up and refined throughout the period of analysis. Data were initially indexed according to these themes, and components of observed cases identified which best illustrated the themes.

### **4.3.2 Documentary analysis**

#### *The sample*

The material used for the documentary analysis was drawn in a two stage process. These documents were selected from those completed by practitioners attending patients who had responded positively to an invitation to participate in the prospective study examining the appropriateness of decision making described elsewhere in this report (see Chapter 5). These documents (n = 909 in the 'emergency ambulance' and n = 473 in the 'out-of-hours' setting) comprised the full clinical record of each of the cases involved. To select documents for cases containing a range of patient and practitioner characteristics a purposive sample of documents was taken, as described in Figure 4.1 overleaf. This involved selecting two cases at random within each set of sample characteristics shown on Figure 4.1's flowchart, using the random selection (exact number of cases) function of SPSS for Windows.

Following the selection of appropriate documents, any information that identified the patient, their age, gender, and the attending practitioner(s) was removed prior to analysis.

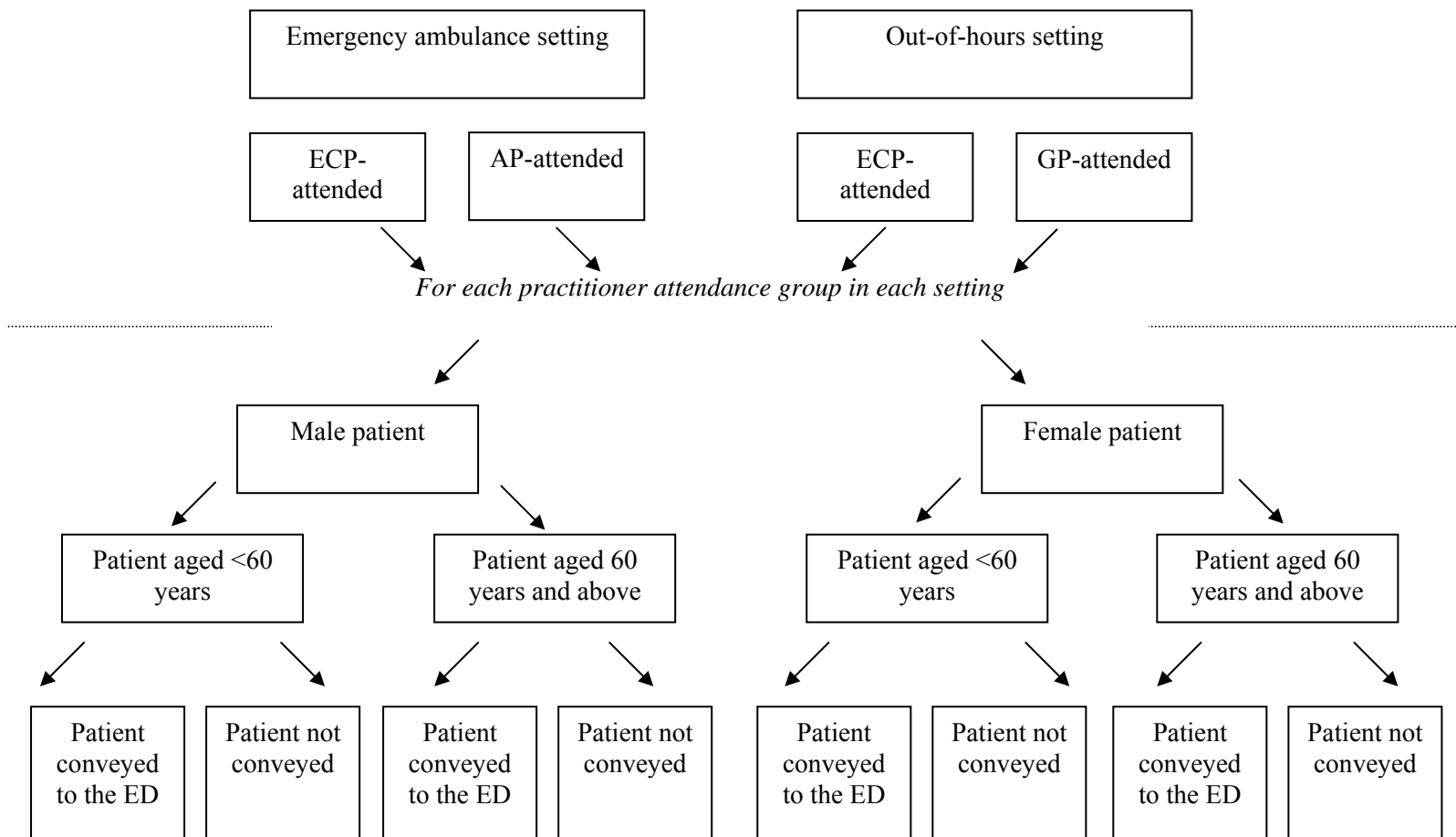
### *Analysis*

The documents were closely read until familiarity with their content was achieved. A content analysis was then carried out to quantify the prevalence of recording of particular components of a standard patient assessment (in a medical model). During this process notes were taken and used to develop a thematic index. Data were initially indexed according to these themes, and excerpts from documents were identified that were illustrative of each of the themes.

### *Combining analysis of observations of practice and documentary analysis*

Analysis and initial write up of the observations of practice and documentary analyses, using each of their independent thematic indices, revealed patterns that encompassed both datasets. The independent analyses of the two datasets are not presented in this report; rather the focus is on the further analysis in which the themes were ‘collapsed’ into overarching concepts.

Figure 4.1: The purposive sampling frame used to select documents from patients with different characteristics for use in the documentary analysis



A set of sample characteristics is formed by following the flow chart, for example a patient attended in the emergency ambulance setting by an ECP, patient is male and aged <60 years and was conveyed to the ED

## 4.4 RESULTS

### 4.4.1 Description of the samples

#### *Observations of practice*

A description of the 48 observed cases in the out-of-hours setting (25 ECP- and 23 GP-attended) and the 23 observed cases in the emergency ambulance setting (12 ECP- and 11 AP-attended) is given in table 4.1. Table 4.1 indicates that the observed cases displayed a wide range of presenting conditions in both settings, even though no purposive sampling was possible. In the out-of-hours setting the majority of the observed patients receiving a home visit were female and in the older age groups. In contrast the patient group observed in the emergency ambulance setting is more diverse.

#### *Documentary analysis*

Thirty clinical records from the out-of-hours sample and 32 from the emergency ambulance sample were examined. The purposive sampling method achieved the desired sample constitution of a mix of care pathway, and patient age and gender, with two randomly selected cases in each 'characteristic set', except for those sets in which there were two or fewer cases. Although the sample was not sought to be representative of patients with different presenting complaints, the purposive random selection procedure used also succeeded in producing a range of presenting conditions from both settings, as follows (with one case of each unless otherwise stated):

*Out-of-hours setting* - Confusion/bizarre ideas; vomiting; abdominal pain; acute confusion; shortness of breath (n = 3); post operative swelling to lower leg; thoracic back pain; pain in back; pain left shoulder blade; known cardiac, speaking slowly; unwell, lethargic; dark urine, sweats, head pain; flu like symptoms; chesty and bubbly; lethargic and productive cough; head pounding, vomit, known brainstem CVA; acute confusion, known bone cancer; incoherent, poor mobility; urinary tract infection, lethargic, pyrexial; chesty productive cough; severe headache; not eating, breathless, known cardiac failure; hip pain; diarrhoea and shortness of breath post colonoscopy; chesty; post colostomy; swollen leg; severe diarrhoea and vomiting; facial rash, fever; dizziness, nausea; recurrent vomiting with abdominal pain.



Table 4.1: Brief description of observed ‘cases’ by setting and practitioner type

Patient /case characteristic		Setting			
		GP out of hours		Emergency ambulance	
		ECP	GP	ECP	AP
Place of incident	Place of residence (own home or care home)	25	23	9	4
	Public space	0	0	2	5
	Work space	0	0	1	-
	Healthcare facility	-	-	-	2
Gender	Male	6	8	4	6
	Female	19	15	8	5
Age group	Less than 60	3	2	4	3
	60 and over	22	21	8	8
Presenting complaint	Shortness of breath/difficulty in breathing	4	6	1	-
	Nausea/diarrhoea/vomiting	7	3	-	1
	Back/knee/hip pain	3	1	1	-
	Fall / faint / collapse	2	-	2	2
	Cystitis	1	-	-	-
	Abdominal pain	1	1	2	-
	Dizziness	1	2	-	-
	Swollen/discoloured limb/joint	2	-	-	1
	Head injury	1	-	-	-
	Calf pain	-	1	-	1
	Rash	-	2	-	-
	?Fit	-	1	1	-
	Migraine	1	-	-	-
	Cold/cough/chesty	2	2	-	-
	Ascites	-	1	-	-
	R.I.P.	-	1	-	-
	Abnormal taste	-	-	1	-
	Laceration	-	-	2	-
	Twisted ovaries	-	-	1	-
	Chest pain	-	-	1	3
Vaginal swelling	-	-	-	1	
Suicidal	-	-	-	1	
Slurred speech	-	-	-	1	
Destination	Remain at home	21	16	8	10
	Emergency Department / hospital admission	4	7	3	1

*Emergency ambulance setting* - Generally unwell; migraine; parkinson's crisis; fall, head injury and dislocated shoulder; urinary tract infection; unwell; chest tenderness post-road traffic accident; unwell, depressed; ?fractured ankle; drug overdose; head injury and laceration (n = 2); epistaxis; diarrhoea and vomiting; fall and toe injury; shortness of breath; headache & fainted; laceration to knee; leg pain; hypertension; hypoglycaemia (n = 2); back pain; fall with no injury; fall; hypochondrium pain; passed out & head injury; urine retention (n = 2); fainted/shaking; fainted; and knee and thumb pain.

In the out-of-hours sample, one case was classified as an 'emergency', five as 'urgent', twenty three as 'less urgent' and one was not classified. In the emergency ambulance sample seven cases were classified as 'Category A', 16 as 'Category B' and nine as 'Category C'.

#### **4.4.2 Contextual differences for the practitioner groups in practice**

##### *Observed differences in working contexts*

Observed differences in the working environment of ECPs, GPs and APs were striking, and are described here to set the scene for the analyses that follow.

##### – GP out-of-hours setting

*Shift pattern:* The observed GPs worked between two and five hours undertaking home visits, and the ECPs worked 12 hour shifts. The observed GPs arrived at the out-of-hours base just before the start of their shift (unless they were already working at the base undertaking the other GP out-of-hours roles of telephone or face to face consultations as the first part of their shift). The GPs were met by a driver who had prepared the car and its equipment. In contrast, ECPs started their shift from the local ambulance station, picking up an ambulance equipped car, which they checked for stock and equipment.

*Allocation of calls:* GPs were allocated a number of cases at the start of their shift, ranging from three to seven in the observed shifts. On some shifts an additional call or two, assessed as having greater urgency for a visit, was transmitted electronically to the GP's car and this was added to the GP's list. The end of the shift was also perceived to influence the calls attended – on one occasion the GP was unable to fit the last allocated patient into their shift whilst allowing for time to return to base, and this patient was allocated to another GP whose shift was continuing. On

other occasions however, the last calls were 'timed' in terms of how much shift time remained. For example, two GPs who had spent a long time with several previous patients during their shift carried out very rapid assessments and consultations on the final patient, a prior discussion having taken place with their driver about the time available for the visit. In contrast, calls were allocated to ECPs via mobile phone from the out-of-hours call dispatch team. The highest number of calls observed being allocated at any one time to an ECP was three. As for GPs, the number of calls allocated towards the end of a shift was influenced by the need for ECPs to finish their shift 'on time'.

*Response to calls:* ECPs drove themselves to all calls, while GPs were accompanied by a driver.

*Documentation:* Most records were completed after the patient consultation had been completed, in the practitioner's car. Some GPs completed their records whilst being driven to the next call. ECPs finished their paperwork before driving to the next call or to the base.

*Breaks:* During their shift only one of the observed GP stopped (briefly) for a drink and a comfort break; the remaining three working throughout their shifts without break. In contrast, In the course of the 12 hour shift (or the part thereof observed) ECPs had a number of 'breaks', such as a coffee stop, a lunch break, a 'comfort' stop, usually when no calls were allocated, but sometimes negotiated with the out-of-hours call dispatchers if it was perceived that a call 'could wait'.

- Emergency ambulance setting

*Shift pattern:* All of the observed practitioners worked 12 hour shifts, and collected their ambulance vehicles from their ambulance station base.

*Allocation of calls:* For both APs and ECPs in this setting one call is allocated at a time – either by telephone (if the practitioner is known to be at the station base) or by Mobile Data Terminal in the vehicle. ECPs were also observed contacting the emergency operations centre, from where emergency calls are dispatched, asking if there was any work available for them to attend. APs presented these (usually brief) times as a 'bonus' prior to the next call being allocated, whilst ECPs expressed frustration when they were not attending patients.

*Response to calls:* ECPs were observed in two roles. First, attending 'Category A' calls as a 'fast response unit', with an ambulance simultaneously dispatched. Second, attending as the only response to calls categorised as having a lower priority. Within each observed shift the proportion of cases attended in the fast response role varied from around 75% to 0%. The APs observed worked in AP pairs, whilst ECPs worked alone.

*Documentation:* Both APs and ECPs started to write their clinical record whilst with the patient, completing it prior to the hand over of the patient (if a patient was conveyed to the ED) or prior to leaving the patient (if a copy was to be left with a patient who was not conveyed to the ED).

*Breaks:* Both structured breaks sanctioned by the control centre and ‘unofficial’ breaks between calls were observed in both APs and ECPs.

#### *Differences in documentation materials available by practitioner group*

Documentation materials differed between both of the settings studied and between each of the practitioner groups in each setting. The main differences related to the style of the documentation. In the out-of-hours setting GPs and ECPs both used documentation that was solely free text but GPs were restricted to just eight lines while ECPs have an unlimited area. In the emergency ambulance setting the APs completed a document that was mainly ‘tick box’ with a limited free text area, while ECPs completed the same but also had access to an additional documentation sheet with an extensive free text area.

### **4.4.3 Analytical tools**

#### *Observation thematic index*

The initial thematic index drawn up reflected the original focus of the observation and the issues that emerged as important during the observations of practice. These were the impact of the setting on the practitioner’s decision; assessment style and depth and how these influenced decisions regarding diagnosis and destination for the patient; and similarities and differences between practitioners and practitioner groups. The thematic index is shown in Figure 4.2 overleaf. Reading and indexing of the data revealed that the patient interactions observed contained at least three dimensions, these being the chronological process of care, the process of decision making at particular points within the chronological process, and cross cutting situational processes.

The analysis using these dimensions is not presented separately here, but these dimensions are described within the typologies of decision making which form the main findings of this chapter (see section 4.4.5 below).

Figure 4.2: Observation of decision making in practice: initial thematic index

<p><b>Approach to patient:</b></p> <ul style="list-style-type: none"><li>- Prior assumptions<ul style="list-style-type: none"><li>- Confirmed by findings</li><li>- Discrepancies with findings</li></ul></li><li>- Communication: humour/familiarity versus ‘distance’</li><li>- Physical contact: proximity versus distance</li><li>- Empathy/compassion shown to patient and others</li></ul> <p><b>Context of case (and perceived impact on decision/destination):</b></p> <ul style="list-style-type: none"><li>- Physical location - street / home</li><li>- Sense of urgency – ‘emergency’ through to ‘can wait’</li><li>- Practitioners’ working environments</li><li>- Service decisions impacting on practitioner</li><li>- Sharing of ‘service’ information with the patient</li><li>- Division of labour vs. total role (e.g. driving/attending/conveying to hospital)</li><li>- Interaction with other care providers</li><li>- Practitioner reflection</li></ul> <p><b>Assessment &amp; decision making:</b></p> <ul style="list-style-type: none"><li>- Assessment style<ul style="list-style-type: none"><li>o From ‘mixed history taking and conversation’ to ‘focused medical’</li><li>o From ‘responsive to patient’ to ‘directive’</li></ul></li><li>- Assessment depth<ul style="list-style-type: none"><li>o From ‘standard obs’ to ‘focus on presenting complaint’ to ‘review of all systems’</li></ul></li><li>- Care pathway decision<ul style="list-style-type: none"><li>o From ‘pre-determined’ to ‘hands – tied’ ‘directed’ to ‘negotiated’ to ‘patient-led’</li><li>o From ‘vulnerable to criticism’ to ‘safety netted’</li><li>o From ‘effort’ to ‘easiest option’.</li></ul></li></ul> <p><b>‘Diagnosis’:</b></p> <p>From ‘none explicit’ to ‘tentative and shared with patient’ to ‘explicit and shared with patient’</p> <p><b>Reflections:</b></p> <ul style="list-style-type: none"><li>- My reaction to the case / practitioners / environments</li><li>- Impact of research role and/or myself on the case and the observation</li></ul>
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*Documentary analysis - content analysis (quantitative)*

There are a number of components of a standard assessment using a medical model, these being the presenting complaint, history of the presenting complaint, past medical history, family/social history, medication history, a review of systems (e.g. respiratory, neurological) and examination,

an impression of the condition, and the care pathway used, each of which might be expected in some form, on all clinical documentation. The presence or absence of these in the records was quantified, as was the presence of any records of the reasons for the practitioner's 'impression' and care pathway decision.

*Documentary analysis thematic index (qualitative)*

The initial thematic index reflected the emergence of issues relating both to the style and the content of records in these analyses (see Figure 4.3 overleaf). Data indexed using this thematic index were then collapsed into a smaller number of themes that reflect variation and continuum within and between each, as follows:

- Record style and structure: from 'narrative' to 'structured defence'
- Recorded assessment: from 'minimal dataset' to 'comprehensive record'
- Recorded decision making: from 'white space' to 'full justification'
- Recorded treatment: from 'prescriptive conveyance' to 'dispensing prescriptions'
- Recorded destination and onward care: from 'statement' to 'explanation'.

These themes are not presented separately in detail here but have been integrated with the observation data, and collapsed into the 'typologies of decision making' which are described in section 4.4.5 below.

Figure 4.3: Initial thematic index for documentary analysis

1. Structure of the documentation
  - 1.1. Medical history taking model
  - 1.2. Free text
2. Style and tone of the documentation
  - 2.1. Objectivity
  - 2.2. Opinion
  - 2.3. Story telling
  - 2.4. Document written defensively
  - 2.5. Document written for professional handover
  - 2.6. Document written for patient
3. Assessment depth
  - 3.1. Presenting complaint
  - 3.2. History of presenting complaint
  - 3.3. Past medical history
  - 3.4. Social/family history
  - 3.5. Medication history
  - 3.6. Review of systems
  - 3.7. Examination
  - 3.8. Allergies
4. Impression / diagnosis
  - 4.1. Statement of 'diagnosis'
  - 4.2. Justification of 'diagnosis'
  - 4.3. Expression of uncertainty
  - 4.4. Expression of complexity
5. Treatment
  - 5.1. Medication/other intervention
  - 5.2. Advice / reassurance
  - 5.3. Functional / service specific
6. Destination and onward care
  - 6.1. Statement of decision
  - 6.2. Justification of the decision
  - 6.3. Patient's role in the decision
  - 6.4. Onward care

#### 4.4.4 Content analysis

Analyses of the content of clinical records (summarized in table 4.2) showed that ECPs consistently documented more components of a standard assessment, although APs were also consistent in those areas that were prompted by headed sections and tick boxes on their documentation (such as ‘presenting complaint’ and ‘past medical history’). In contrast, GPs, as a group were, despite a lack of detail in their recorded assessments, more likely to document a differential diagnosis than ECPs.

Table 4.2: Content analysis of records completed by APs, GPs and ECPs, illustrating variation in the presence of components of a standard assessment

Setting	Type of practitioner	Recorded components of a standard assessment										
		Presenting Complaint	History of presenting complaint	Past medical history	Family/social history	Medication history	Review of systems/ Examination	Allergies	Impression (differential diagnosis)	Reason why impression formed	Care pathway	Reason for care pathway choice
GP out-of-hours	GP	10	11	3	0	4	13	0	15	0	15	2
	ECP	15	15	15	12	15	15	14	9	1	15	10
	Total	25	26	18	12	19	28	14	26	1	30	12
Emergency ambulance	AP	16	16	12	3	10	13	12	1	0	16	7
	ECP	16	16	16	10	15	15	15	11	0	16	9
	Total	32	32	28	13	25	28	27	12	0	32	16



#### **4.4.5 Emerging typologies of decision making**

##### ***Introducing the typologies***

The observed patterns emerging from analysis of the observations of practice and documentation allowed the data to be collapsed into three classifications of decision making, termed ‘decision-making typologies’ in this chapter. These typologies (summarised in Figure 4.4) are characterised by key processes of care that were observed to be associated with decision-making, these being the assessment carried out, the care/treatment offered, the care pathway used, the approach/style of the practitioner, and ‘decision points’ in the practitioner’s interaction with the patient. Although there are distinct differences between each of these typologies, they appear on a continuum, and no judgment is implied as to which of these typologies might be more or less appropriate in clinical practice.

##### ***Typology 1: ‘Boundaried and non-diagnostic’***

*Overview:* This typology was only observed in the emergency ambulance setting and involved decisions that appeared to be either predetermined or made within tight constraints. On initial receipt of information about the patient’s condition immediate decisions were made about how urgently to respond to the call and what equipment was required. What these decisions appeared to disclose was that an implicit decision had been made about the seriousness of the call and its likely outcome. It was difficult to assess how much this affected the later acquisition or analysis of assessment information from the patient, but it was clear that none of the cases were considered by the attending practitioners to be as serious as the call information suggested. Based on discussions with the practitioners exhibiting this typology, such decisions were based upon prior experience and a deep distrust of the emergency ambulance call prioritisation system and of the judgments of other health care professionals, when calls were received, for example, from a Walk-in-Centre. Case study 1, presented after the description of the components of this typology, is illustrative of this typology.

*Assessment:* Assessment of the patient started with an opening question to start the patient talking about what their presenting complaint was. In all of the observed cases this initial assessment phase comprised brief questions about the presenting complaint and its history. These questions could be described as ‘following the patient’s story’, picking up clues from answers to preceding

Figure 4.4: Summary description of the ‘decision-making typologies’ identified from analyses of observed practice and documentation amongst APs, GPs and ECPs

Characterisation of the typology	Decision-making typology		
	← Boundaried and non-diagnostic ↔	Condition-focused and simple diagnostic ↔	Holistic and complex diagnostic →
Assessment	<ul style="list-style-type: none"> <li>- Eliciting a story</li> <li>- Set of LAS prescribed patient observations<sup>1</sup></li> <li>- Occasional condition-specific examination</li> <li>- Follows documentation prompts</li> <li>- Open-ended/undetermined diagnosis</li> </ul>	<ul style="list-style-type: none"> <li>- Focused on presenting complaint</li> <li>- Elements of medical history taking model<sup>2</sup> – limited PMH, DH, F/SH</li> <li>- Limited examination of body system<sup>3</sup> associated with presenting condition</li> <li>- Confident / certain diagnosis</li> </ul>	<ul style="list-style-type: none"> <li>- Initial focus on presenting complaint</li> <li>- Full medical history taking model with examination</li> <li>- Review of all body systems</li> <li>- Likely but uncertain diagnosis</li> </ul>
Care and treatment	<ul style="list-style-type: none"> <li>- Limited e.g. wound cleaning, nutrition</li> <li>- Transport</li> </ul>	<ul style="list-style-type: none"> <li>- Definitive e.g. prescription of medications</li> <li>- Some transport/arranging transport</li> <li>- Limited self care advice</li> </ul>	<ul style="list-style-type: none"> <li>- Definitive at times e.g. use of Patient Group Directives</li> <li>- Some transport / arranging transport</li> <li>- Self care advice</li> </ul>
Care pathway use	<ul style="list-style-type: none"> <li>- ED</li> <li>- Other guideline-led e.g. Maternity Unit</li> </ul>	<ul style="list-style-type: none"> <li>- ED with referral to in-hospital clinicians</li> <li>- Remain at home, mostly without referral to community clinicians</li> </ul>	<ul style="list-style-type: none"> <li>- ED without referral to in-hospital clinicians</li> <li>- Remain at home, some with referral to community clinicians</li> </ul>
Consultation style	<ul style="list-style-type: none"> <li>- Familiar, with use of humour</li> <li>- General conversation interspersed with assessment questions</li> <li>- Compassionate but ‘playing down’ seriousness</li> </ul>	<ul style="list-style-type: none"> <li>- ‘Professional’ / focused on assessment questions / no ‘chat’</li> <li>- Concerned</li> </ul>	<ul style="list-style-type: none"> <li>- Focused assessment interspersed with some familiarity</li> <li>- Compassionate</li> <li>- Concerned</li> </ul>
Recording style	<ul style="list-style-type: none"> <li>- Narrative and chronological</li> <li>- Lack of detail (reflecting limited examination or history taking)</li> <li>- Limited</li> </ul>	<ul style="list-style-type: none"> <li>- Adhering to some elements of the medical history taking model</li> <li>- Some narrative</li> <li>- Limited</li> </ul>	<ul style="list-style-type: none"> <li>- Adhering to the medical history taking model</li> <li>- Detailed / comprehensive</li> </ul>
Case study	1	2	3

<sup>1/2/3</sup> see overleaf for explanation

Figure 4.5 symbol explanation

<sup>1</sup> Prescribed set of observations: AVPU (level of consciousness – alert, responsive to verbal stimulus, responsive to physical stimulus, unresponsive), respiratory rate, respiratory depth, pulse rate, pulse character, colour, oxygen saturation, peak flow, blood pressure, blood glucose, pain score, temperature, pupil reaction, pupil size, Glasgow Coma Score

<sup>2</sup> Medical history taking model: Presenting complaint (PC), history of presenting complaint (HPC), past medical history (PMH), drug history (DH), allergies, family and social history (F/SH), examination (OE), impression (IMP), plan

<sup>3</sup> Body systems: cardiovascular (CVS), respiratory (RS), gastrointestinal tract (GIT), genitourinary (GUS), musculoskeletal (MSS), central nervous (CNS)

questions to guide what question to ask next. The questions asked were therefore not standard for each patient, but aimed to explore and identify the patient's condition in a case-by-case manner. Following this initial assessment (and the care pathway decision, as described below), assessment continued with an examination of the patient, usually in the form of taking a set of 'patient observations' (including blood pressure, pulse, blood sugar level, respiratory rate and oxygen saturations) carried out in the ambulance. This examination was very occasionally augmented by a condition-specific physical examination where any injury site was examined. A further verbal assessment of the patient followed (with questions regarding past medical history, history of the presenting complaint, allergies, a review of body systems [occasional] and family history [occasional]) usually following the order in which these elements were presented on the pre-printed Patient Report Form provided for APs (and ECPs in the emergency ambulance setting).

*Care and treatment:* On-scene treatment was uncommon in this typology, with wound care observed only once, although, on occasions, health advice was offered.

*Care pathway use:* Early in the assessment a decision was formed as to what the care pathway was most likely to be. This was most clearly seen where the patient was moved into the ambulance. The decision appeared to be essentially one of whether to convey the patient to the ED or not. This was usually a verbalized decision and delivered in a directive style, for example "right, let's get you down to the hospital". Although an assessment of the patient had begun at this point – a 'by sight' first impression and initial questions about the presenting complaint – this decision always seemed rapid. In some cases the conveyance decision was accompanied by an explicit decision to rule out or suggest particular diagnoses, and a 'tentative diagnosis' or 'diagnostic opinion' was offered to the patient either during or after the assessment. In some cases the purpose of relaying this to the patient appeared to be

to assist in persuading them that the decision to go to the ED was the best one, while in other cases there appeared to be an effort to 'play down' the patient's concerns. In all of the cases covered by this typology the patient was conveyed to a hospital unit (usually the ED and, occasionally, a maternity unit). Travel to the ED had usually started before the second stage of assessment commenced. In most cases the patient was told that the ED was the preferred destination and, in some cases, the decision was based upon service-specific regulations, for example, conveying all pregnant women to a maternity unit regardless of the presenting condition.

*Consultation style:* Much of the assessment was carried out using a conversational style, with questions widely interspersed with 'general conversation', covering a range of topics as appeared to fit the individual patient.

*Recording style:* Records fitting this typology were characterised by scant recording of any examination of the patient, typically limited to a partial set of 'patient observations' (according to the prescribed set laid out on the pre-printed documentation) and to a tick box recording of airway, breathing, and circulation status. Any additional free text records usually took the form of a narrative, involving a chronological description of the patient's story, as shown in the excerpt below:

Ankle gave way on Friday and since then leg has been very painful+ leg + beginning to turn blue (*indexed as HPC*). Pt has ongoing problem of blocked veins/arteries in right leg. 18 mths ago has similar problem-toes went black, had surgery at St Thomas had tubes inserted into right leg to keep arteries open. Unable to locate distal pulse. Comfortable en route (A045)

'Diagnostic' decision making was usually absent, with records commonly containing a destination decision only, recording no treatment and no conclusion to the history taking and examination, as illustrated below:

Pt felt ok during day today Suddenly felt dizzy & nausea & fainted. Pt thinks he was unconscious for less than 1 minutes, no injuries/pains from the fall reported. O/A pt sitting up & alert, not c/o any pains & stated he feels normal now Pt didn't vomit. (A1772)

*Case study:* See case study 1, presented overleaf.

## **Case study 1: Boundaried and non-diagnostic decision making**

### *Call information*

A 39 year man whose condition was assigned call 'Category C', presenting with a non-recent traumatic injury having hit his elbow the previous day, and now experiencing swelling and pain. The patient had received clinical telephone advice with a decision having been made that the patient needed an ambulance to convey him to the ED.

### *Practitioner's view at this stage*

The practitioner described this as a 'taxi service' as the operations centre had said 'you will be conveying'.

### *Patient interaction*

#### 1. Initial contact in the home

The patient was asked initial questions about the presenting complaint and its history e.g. Is it sore to touch? Have you taken any painkillers?

The practitioner looks at, and touches the patient's elbow and asks him to move it. The patient expresses pain and explains that the swelling has been intermittent over the past year, worsening since the knock yesterday. He also expresses concern as his work is physical and his knees are also swollen.

The practitioner states several times that the history is 'weird' and 'puzzling', but that a break can be eliminated.

The practitioner asks who the patient's GP is, then says "Let's get you down the road, might as well get you seen to'. The patient agrees, again expressing concern about losing his ability to work. The patient walks to the ambulance accompanied by his partner.

#### 2. On the ambulance

The patient sits. The practitioner records the pulse, BP, respiratory rate and temperature while talking to patient and his partner, asking the following questions (with the patient's responses here in brackets) – have you got kids? (Four) Are your parents alive? (Yes) Have they got any medical problems? (Diabetes) What type of diet do you have? (West Indian) The consultation then progresses to a discussion about cricket, with the patient and practitioner laughing, e.g. Can I gloat about the cricket? The practitioner then states that the 'BP's a bit high but not too high' and takes another BP measurement, telling the patient it is usually the machine that is wrong, not the patient's actual BP. They then have a discussion about Jamaica and patient's and practitioner's families while driving to hospital. The patient expresses some pain, and the practitioner tries to make arm more comfortable by positioning it on a pillow. The patient expresses fear about the condition, and the practitioner acknowledges the patient's concern about livelihood, also telling the patient a story of a woman attended previously who thought something was much more serious than it turned out to be.

The practitioner recorded information on the documentation whilst talking as above. During this, the patient volunteers that he has been diagnosed with arthritic gout. The practitioner asks the history of the presenting complaint again e.g. 'so you basically woke up this morning with it?'

The practitioner offers a tentative diagnosis 'You might have been unlucky and caught a nerve'

The practitioner asks questions about allergies which leads to a discussion about anti inflammatory medication and the need to eat with it. He asks if the patient has had night sweats or fever (no), and then the ambulance arrives at the ED.

*Continued overleaf*

### **Case study 1 continued: Boundaried and non-diagnostic decision making**

#### 4. Arrival at hospital

The patient walks into ED with the practitioner, and says that he feels dizzy. The practitioner offers a chair, but the patient declines. He asks the patient to sit on a chair outside the 'majors' area of the ED, then waits five minutes to handover to a nurse. The nurse goes out to see the patient, asks the patient if he has been abroad and touches the patient's skin over the elbow. The nurse asks the practitioner if he has a sling and suggests the possibility of an embolism, although the limb has not lost colour. The practitioner says 'Bet it's not'. The nurse repeats that it could be. The practitioner asks the patient if he can phone the next day to see what the diagnosis was as practitioner is puzzled, then leaves the ED.

#### *Post-case discussion*

The practitioner states that this patient could have had a taxi, and that this was not a case suitable for this type of practitioner. The patient was described as nice and had respected the profession so the 'taxi service' was not expressed as a problem. The practitioner restates desire to find out what the problem was.

### ***Typology 2: 'Condition- focused and diagnostic'***

*Overview:* This typology was characterised by an assessment that was tightly focused on the patient's presenting condition and retained a medical focus. The typology was particularly (but not exclusively) observed in cases where the patient was not conveyed to the ED in the emergency ambulance setting and amongst some GPs throughout their shift and other GPs attending cases towards the end of their shift in the out-of-hours setting. As in the first typology, an early impression was formed as to the patient's condition and, particularly, whether they should travel to the ED or not. However, although potential diagnoses and care pathways were discussed prior to reaching the patient, these comments did not appear to carry the same assumed inevitability that the case would *not* be serious. Some implicit decisions were made about the seriousness of the presenting condition, such as prioritising the patients in a particular order or responding using blue lights and sirens, but practitioners were also observed to hold back on a decision about the condition until they had reached the patient. Case study 2, presented after the description of the components of this typology, is illustrative of this typology.

*Assessment:* A broad assessment was covered rapidly and on immediate contact with the patient. In particular, the initial assessment was observed to include questions about medications, allergies and past medical history. The full assessment was also completed prior to conveyance starting or, more obviously, before the patient was left at home. However, this

assessment could be impacted upon by situational factors, and was particularly evident in the emergency ambulance cases attended by an ECP where this initial assessment was seen to be extremely limited if another ambulance resource arrived rapidly at the scene, resulting in a care pathway decision that could be influenced either by implicit behaviour, such as an AP colleague bringing the ambulance trolley bed directly to the patient, or by explicit discussions with AP colleagues.

*Care and treatment:* Treatment in these cases might involve the administration or prescription of medications, or wound closure.

*Care pathway use:* Although the initial decision whether to convey the patient to the ED or not appeared to be rapidly reached, it was often explicitly discussed with the patient and accompanied by an early tentative diagnosis or an ‘explanation of the presenting symptoms’. A change in the decision on which care pathway to use from that which the practitioner might have stated as likely at the start of the assessment was also observed on occasion. This change apparently resulted from their further assessment of the case (particularly the examination of the patient).

*Consultation style:* This typology was characterised by fairly brief interactions with the patient, with some ‘professional distance’ evident in the way the consultation remained very focused on the immediate presenting condition rather than on gathering information on, or becoming involved in, conversation about broader health-related or other issues. It was observed that many of the cases the practitioner might have described as ‘simple’ or amenable to being ‘protocol-led’ (such as the management of a urinary tract infection by an experienced practitioner in out-of-hours care) were more frequent in this typology.

*Recording style:* Limited data recording was characteristic of this typology, with scant recording of the patient’s history observed. These cases typically commenced with recording a review of body systems and/or an examination of the patient, but did not include other areas of assessment such as past medical history or medication history, for example:

Colonoscopy Thurs, since then profuse rectal bleed every 2 hrs feels dizzy, no pain O/E [on examination] pale but mobile, alert, HR [heart rate] 90, BP [blood pressure] 100/60. Abdo [abdomen] OK Rectal bleed post colonoscope Admit X Hospital... D/W [discussed with] surgical reg [registrar, at hospital], will see (232)

Specific treatments, including advice, might be briefly described, for example “Advised, inc. [including] fluids” (402), and, in most cases, a differential diagnosis, in an explicit statement of an ‘impression’, was recorded, for example:

Imp [*impression*] Depression Paracetamol OD [*overdose*] (A2050)

However, in some cases (most commonly the records completed by GPs) no explicit diagnostic or care pathway statement was recorded, particularly where the patient was not conveyed to the hospital, though a plan of care, for example, for the patient to see their own GP in the coming days, was.

*Case study:* See case study 2.

### **Case study 2: Condition-focused and simple diagnostic decision making**

#### *Call information*

A 78 year old woman whose presenting complaint is a burning sensation on urination, and who has a history of urinary tract infection, but no increased frequency of micturition.

#### *Practitioner's view at this stage*

Overall this practitioner stated importance of not judging the condition until they arrived at the patient, but this case was perceived to be simpler in that the practitioner agreed to fit it in at the end of a shift, with very limited consultation time available.

#### *Patient interaction*

The patient presented in her own home, in sheltered accommodation, and met the practitioner at the door to her flat. The practitioner started with a series of questions and statements (with the patient's responses in brackets): 'I got a message you had some pain' (The pain comes and goes, and she also suffers from stress and anxiety). Did you get a urine sample? (Yes, she goes to fetch this from the bathroom as the practitioner continues with questions) How long have you been having trouble, been unwell? (Suffer from stress and anxiety) How long's the pain been there? (Comes and goes). The practitioner went into patient's bathroom and tested the urine.

He told the patient: "There are some changes there, I'm going to send it to the hospital for the laboratory to look at in more detail."

At this point the warden of the sheltered accommodation arrived and expressed surprise that the GP had already started the consultation.

The practitioner asked the patient if he can examine her abdomen. The patient lay down and the practitioner asked the patient to show him where the pain is. The practitioner palpated and percussed the abdomen, palpated the kidney area, and asked the patient if the examination was painful. She said it was not. He thanked the patient and she got up from the bed. The practitioner stated again "There are changes in the urine." The patient asked if there was blood and the practitioner said there was, and infection, which he intended to sort out whilst waiting for the full results of the urine sent to the hospital. He informed the patient that the results would be with her GP in three days, after 2pm, and appeared pleased that the patient already had an appointment booked with her GP for that day.

The practitioner asked the patient if she was allergic to any antibiotics. She said that some result in thrush for her, and the practitioner asked if this happens with Trimethoprim. The patient did not know the medication name so the practitioner showed her the tablets he was intending to leave with her, and she got out some tablets she took previously to compare. The practitioner confirmed they were different and explained how many tablets to take each day for the number of days, and left her what he described as the 'short course'.



### **Case study 2 continued: Condition-focused and simple diagnostic decision making**

The practitioner advised the patient to start the course that evening, and to take the tablets morning and evening. He reiterated the need for the patient to see her GP about the results of the urine test later in the week.

The practitioner leaves the patient's home; the patient being in the company of the warden.

#### *Post-case discussion*

The practitioner suggests that this 'type of cases' is suitable for 'protocol-led' decision making, in turn being suitable for practitioners with particular levels of training. He described the cases as 'clear cut' in the first instance (the out-of-hours visit), although the patient needs follow-up with her GP to check for any underlying problems shown in the microscopy.

### ***Typology 3: 'Holistic and complex'***

*Overview:* The third typology can best be summarized as taking elements of both the 'boundaried' and the 'medically focused' typologies described above, together with the addition of further components. This typology was particularly (but not exclusively) observed in cases where the patient was attended by an ECP alone and not conveyed to the ED in the emergency ambulance setting, and in cases attended by ECPs and occasionally GPs in the out-of-hours setting. Case study 3, presented after the description of the components of this typology, is illustrative of this typology.

*Assessment:* Assessment in this typology appeared to 'dig for the underlying issue', containing noticeably lengthy and in-depth questioning that was responsive to the patient's story. The assessment questions were accompanied by a physical examination of both the affected body system, and a review of other body systems, most commonly the cardiovascular and respiratory systems. The examination frequently included auscultation and percussion of the chest, as well as carrying out 'patient observations' including pulse rate, blood pressure, respiratory rate and body temperature.

*Care and treatment:* In some of these cases, assessment was also accompanied by what might be described as 'treatment', including the administration of medication, advice or wound closure. The distinguishing feature of this typology was an explicit process of fitting together the assessment (including the examination and any response to treatment that had been administered by the practitioner) and an increasingly formed idea as to what the cause of the presenting condition might be. However, the process of diagnosing the complaint appeared to contain complexity and was not presented as definitively as in many of the more 'medically-

focused' cases. Some uncertainty was observed, with potential diagnoses or an 'impression' of the patient's condition confidently applied, but falling short of a *definite* diagnosis.

*Care pathway use:* Although an early decision as to whether the patient should be conveyed to the ED or not was made (either implicitly or explicitly) a full assessment was completed before conveyance started or, more obviously, before a statement was made about leaving the patient left at home. In some cases the need to go to the ED or not was discussed with the patient. Other referral pathways were also observed, including referral to the GP or to specialists within the hospital. Some of the latter were unsuccessful attempts at referral (particularly those made by ECPs) and resulted in conveyance to the ED, whilst others (particularly those made by GPs) were successful in that they were accepted by the specialist.

*Consultation style:* These cases were observed to be more conversational than the medically focused cases, although the conversation remained focused on the continuing assessment of the patient rather than being general in nature. Nonetheless, a lengthy time was often spent with the patient.

*Recording style:* The records provided examples of faithful adherence to the medical history taking model, comprehensively recording the various aspects of a patient's history and examination. The absence of findings in particular body systems were also occasionally recorded, and diagrammatic records were sometimes observed, as seen in the following example:

CVS ° [absence of] chest pain ° oedema ° SOB [shortness of breath] ° palpitations  
RS ° cough ° wheezing ° SOB ° pleuritic pain  
CNS ✓ [presence of] headache, ° vision distortion ° confusion ° weakness  
GIT ✓ epigastric pain (mild), ° diarrhoea ° vomiting ✓ mild nausea Appetite good, BO [bowels open] yesterday normal  
GUS ° dysuria ° frequency ° nocturia  
MSS ° new joint/muscle pain  
OE [on examination] Appears well, alert & orientated. Colour good normal. ° pallor ° sweating. Abdo [abdomen] soft non tender symmetrical ° rashes/pulsations. Normal sounds throughout. CNII-XII [cranial nerves] all tested and normal. Normal visual acuity. Throat appears red, tonsils swollen +++ but no exudate seen. Obs [observations] as PRF [patient report form] NAD [nothing abnormal detected] except temp [temperature] (A1570)

Differential diagnoses were recorded as an 'impression', and a question mark next to these was not an uncommon finding. Treatment, including advice, was included in the recorded

plan of care, and, in some cases this provided an explanation of the care pathway decision, as seen in the following examples:

Ambulance arrange within 1 hour for acute confusion and dehydration. Considered home treatment but (patient's name) would not be easy for NOK [*next of kin*] to care for in this state ∴ A&E [*accident & emergency/ ED*] for further investigation + treatment. (419).

“Plan 1) Take own Solpadol [*an analgesic medication*] but now two tablets qds [*four times daily*] rather than prn [*as required*]. Be very aware of side effect such as dizzy/unsteady especially as already c/o [*complaining of*] poor coordination. See if this helps reduce pain, if it does continue and contact own GP on Monday for review. \*If no relief of pain, or pain worsens, or crushing chest pain, difficult in breathing, bloody cough, or any other event that causes you concern please use Careline and ask for Ambulance. Will need to attend A+E”

(536)

*Case study:* see case study 3, overleaf.

### **Case study 3: Holistic and complex diagnostic decision making**

#### *Call information*

89 year old woman, call category C, sick person with no priority symptoms – woke up with a funny taste in mouth, not eaten for 3 days.

#### *Practitioner's view at this stage*

Could be manky dentures!

#### *Patient interaction*

Sheltered accommodation, leisurely pace of entry to the flat. Patient greeted at own door and asked if she minded being called by her first name.

Starts with questions: what's the problem today, when did it start, feel unwell in what way, what is the bad taste in your mouth, does it taste like metal or something rotten, have you got dentures, have you seen a dentist?

Asks to look at patient's gums.

More questions – what are you eating (nothing), drinking (little), been vomiting (no), any diarrhea, any pain?

Patient gives practitioner a hospital letter – referral for tinnitus.

Asks to look in mouth again, says 'looks like a bit of gingivitis there'. Feels neck and looks in patient's eyes. States patient looks pale, asks if always pale and asks again about vomiting and diarrhoea. Takes patient's blood pressure, pulse, temperature and blood sugar, oxygen saturation.

While doing observations, asks about attendance at blood clinic (patient has given practitioner a pile of hospital letters to look through) – patient says it's for blood pressure. Pulse and blood pressure elevated. Asks about blood pressure tablets and if taken today.

Repeats again think it's gingivitis.

Asks patient how many visitors she gets, and about friends in the sheltered accommodation.

Patient says not many friends. Ask to see patient's medications and if changed recently, what time take the sleeping tablets. Advise the patient she's taking them a little late, also that can be associated with a dry mouth.

Ask about chest pain (no), last time she saw the GP and any problems breathing. Patient says she gets short of breath, practitioner asks if she gets anxious and if anxiety is happening now. Patient says she worries. Questions focus on this area: do you feel a bit low (yes), tearful (doesn't know how she feels), sad (yes), how does she feel when family visits (they've got own problems, grandchildren grown up, used to live with them), have you spoken to GP about how sad you feel? (no). Questions from patient – am I depressed? (It could be that), do I need tablets (they might help, can sometimes be chemical). Practitioner advises that a lot can be done for the patient – assess need for antidepressants, perhaps physiotherapy or occupational therapy to get confidence up, perhaps a befriender scheme in the area to enable the patient to get out. Patient expresses resistance to all ideas. Practitioner asks if the patient is okay with writing to the GP.

Patient expresses concerns about health; practitioner states 'Today can see no real reason to take you to A&E. I can arrange to see your GP tomorrow.' States to patient that A&E doesn't have the right experience, today's problem is part of the bigger problem about being on her own, not going out, feeling sad. Think it's something the GP can help with. Patient states that GP is not interested, and no-one cares. Practitioner suggests trying another GP in the practice. Offer to make patient some tea. Patient declines, concerned about tinnitus. Practitioner check British National Formulary to see if tinnitus is a side effect of any of patient's medications. Recommend putting quiet noise on in background e.g tv or radio.

### **Case study 3: Holistic and complex diagnostic decision making, continued**

#### *Patient interaction continued*

While talking as above, asks permission to and examines patient's chest – breath and heart sounds, states that one heart sound is irregular but breath sounds are good. Talks to patient about the building and the immaculate state of her accommodation.

Patient states she feels cold. Practitioner says temperature is fine, recommends walking about, patient expresses anxiety again. Practitioner talks again about visiting the GP. Patient again resistant about going out, and refers again to feeling cold. Practitioner recommends more clothing, frequent warm drinks and getting out to see neighbours.

Practitioner questions whether the patient needs a thyroid function test due to cold limbs and low mood.

Asks patient if would like practitioner to speak to patient's son. She agrees and a message is left on an ansaphone.

Asks patient to do a urine test, and discusses possibility this is depression whilst testing the urine. Urine shows leucocytes, ketones and blood, no protein and practitioner states it's clear the patient really hasn't been eating. Discuss the need for the patient to have at least tea with sugar, or whatever drink the patient wants, preferably warm and sweet. Ask patient about urinary symptoms (none) and ask her to have a drink now. Patient wants only water. States she won't get her old self back, talks again about grandchildren not visiting often, and states 'I think it's depression'.

Practitioner says 'It seems like it'.

Asks further questions about patient's siblings, what she worked as, and what she did since.

Patient's answers include reference to her husband dying some years ago and the loss of her daughter. Practitioner asks if these things play on her mind (yes), and acknowledges these are not things easily fixed. States again will let the GP know what they have discussed in general, that is, the patient feels low and sad, and a thyroid test may be needed. Reiterates advice to have hot drinks with sugar even if the patient's appetite for food is low. Practitioner states will deliver the letter to the GP and hope GP will get in touch the next day (Monday).

Practitioner is starting to leave the accommodation; patient states again about loss of appetite and fear of dehydration. Practitioner states that she is keeping fluids down so there is no need for hospital.

Practitioner states is leaving and says 'I'm sorry we haven't cured you.' Patient asks if there is any treatment and practitioner says there may be, and explains again has asked GP to come and visit the patient, and advises her to talk to her son.

Practitioner leaves.

Hand delivers the letter to the GP surgery.

#### *Post-case discussion*

Patient was very 'flat', feeling she had nothing to look forward to, classic depression in that anything practitioner suggested the patient did not feel could work. Nothing obviously physical wrong, even with the patient's mouth.

This was a sad case, feel got to the bottom of it being depression but the patient didn't want to focus on it. This is GP follow up work.

Practitioner remains concerned that the patient potentially 'could die tonight' but feels A&E would not be able to pick up the detail of the case and the patient would be sent home.

Suggest the patient might benefit from counselling.

## 4.5 DISCUSSION

The qualitative analyses presented in this chapter provide an in-depth understanding of how ECPs and their comparator groups make, record and describe decisions that they make in clinical practice. In summary these analyses have found a continuum of decision-making style on which the three groups of practitioners can be placed – albeit with some overlap evident – in a way that complemented descriptions of decision-making provided in the interviews with ECPs (presented in chapter 2).

Two key points arise for discussion from the findings, namely that some commonality exists between the three groups of practitioners and between the observed settings, and that ECP practice remains constrained.

First, the process of making and recording decisions was observed to involve aspects that are common amongst all three groups of practitioners. As such, when presenting the findings of these qualitative analyses as if they lie along a continuum, it is clear that some elements of all the observations of practice and of the analysed documents are universal in their form and content. In particular the headings that are given to the information that is gathered from the patient and recorded following assessment, the chronology of decision steps in the care episode, the characterisation of ‘digging for gold’ in assessing patients, and the apparent use of both intuition and objectivity in decision-making showed similarities between the three groups of practitioners, regardless of typology. However, the depth and breadth of assessment and both implicit and explicit constraints surrounding care pathway decisions varied according to practitioner type, with clear evidence that the way in which ECPs make and record their decisions had changed from their baseline practice as APs, if only in having fewer constraints to their professional judgment - something that is an artefact or self-fulfilling prophecy stemming from the shift in practice intended for their new role as ECPs. Nonetheless, ECPs continue to practice and record in a more cautious, outwardly ‘novice’ manner than their GP colleagues when working in the out-of-hours setting.

Second, observations of practice revealed that ECP decision making remained constrained at times by a range of internal (e.g. ECP knowledge and confidence) and external (e.g. case-mix and available referral routes) factors. The internal factors might well be expected in such a new role, particularly in the London model where autonomous independent practice has been expected from ECPs at an early stage in their education and practice development. These analyses also show that both the individual patient situation and the work setting are influential in what decisions are made, and how. The impact of individual patient situations on decision making might be both expected and desirable, since this may well equate to ‘patient-centred care’. However, the impact on decision making of the different work settings, be this the emergency ambulance or the GP out-of-hours setting, may highlight an

area of potential concern – and opportunity - for those concerned with the effectiveness of the ECP role as it appears that different settings can produce different practice in the same ECPs. Many of this study's findings relating to the processes involved in decision making are not necessarily surprising in view of the very different expectations placed upon the different groups of practitioners and their different levels of education and experience. ECPs are afforded more autonomy than APs and they assess and document in more depth, and, as a result, appear more reflective. GPs have autonomy and assess and record with apparently less depth and comprehensiveness, although they appeared focused and objective. The ECP role is, however, a novice role, and the state of transition that ECPs appeared to be in during this study (as evident from the observations made in this chapter, and in the interviews conducted in chapter 2) may well be appropriate to ensure safe practice from practitioners who are essentially learning a new method of working and related decision making. These analyses therefore provide a backdrop for the assessment of the appropriateness of the decisions ECPs make which will be examined in the following chapter.





## 5. HOW APPROPRIATE ARE THE CARE PATHWAY DECISIONS MADE BY ECPs AS COMPARED TO GPs AND APs?

### *What we already know*

- ECP care has been reported to receive higher patient satisfaction ratings than that provided by other practitioners attending similar cases
- No differences in subsequent service use have been reported for patients attended by ECPs or other practitioners

### *What this study adds*

- Both patients and professional reviewers judge that ECPs display and record better decision making processes than GPs or APs
- The care pathway decisions that ECPs make in both of the emergency ambulance and GP out-of-hours settings are considered more appropriate than those of GPs and APs
- There is some cause for concern about some of the non conveyance decisions made by GPs and some of the conveyance decisions made by APs.

### *What else we need to know*

- Data on the clinical outcomes of patients attended by ECPs, GPs and APs are required to assess the appropriateness of the care pathway decision they make.

### 5.1 SUMMARY OF RELEVANT BACKGROUND TO THIS CHAPTER

As described in Chapter 1 of this report, a number of published studies have considered various aspects of the ‘appropriateness’ of ECP schemes, including patient satisfaction and subsequent health status. Improved patient satisfaction has been found to be associated with attendance by an ECP (Mason et al., 2007a, Mason et al., 2007b), although this has also been found to be impacted upon by non-conveyance rather than simply the type of practitioner (Halter et al., 2006). In the out-of-hours setting patients treated at home by ECPs have been found to be satisfied and compliant with the care provided, although some patients were unclear about the assessments their ECP had provided (Halter et al., 2007). Compared to patients attended by other practitioners, those attended by ECPs have been found to have reduced rates of subsequent service use (Mason et al., 2007a, Gray and Walker, 2008) or rates of subsequent service use that are no different (Mason et al., 2007b). No studies have been found that have used professional judgments of the appropriateness of care delivered by ECPs.

## **5.2 OBJECTIVE**

The objective of the research presented in this chapter was to assess the appropriateness of the decisions made by ECPs, APs and GPs in terms of how these decisions were made and what outcome (care pathway) decisions were recorded. To this end, the ‘appropriateness’ of decision making processes and the care pathway decision itself were judged by both patients and clinically qualified professional reviewers.

## **5.3 METHOD**

The methods used in the analysis that follows – which comprises a prospective quantitative case control study, from which some subjects were recruited for in-depth qualitative interviews – were applied to patients attended in both the emergency ambulance and GP out-of-hours settings.

### **5.3.1 Patient questionnaire**

#### *Questionnaire design and administration*

A 26 item, closed-question postal questionnaire was sent to all patients meeting the study inclusion criteria within two weeks of their GP out-of-hours visit or within three weeks of their emergency ambulance setting visit. A reminder was sent if a response had not been received within two weeks. The questionnaire was designed specifically for the study, with attitudinal statements related to the experiences and perceived appropriateness of decision-making based upon quality standards that were defined by patients attended by an ECP in a previous evaluation of the ECP service in London (Halter and Marlow, 2005). The questionnaire also asked the patient what other services they had used in the two weeks following their GP out-of-hours or emergency ambulance visit. Two versions of the questionnaire were developed – one for patients who were ‘conveyed’ to the ED, the other for those who were not conveyed, and these are reproduced in Appendix F.

#### *Samples*

In the GP out-of-hours setting, the clinical records for patients who received a weekend home visit by an ECP or a GP within the ECPs’ operating hours (08h00 to 21h00) were collected on a weekly basis from the out-of-hours provider between October 2006 and April 2007. For these data no matching was attempted, as the vast majority of calls receive the same

prioritisation category of 'less urgent' and only one PCT was involved in this part of the study. Each clinical record was read by the researcher and was only included if the call met the study inclusion criteria, namely a patient was actually attended; the patient was alive at the time of the visit; the patient's name and address could be reliably identified; the patient was aged 13 or over (ECPs do not attend children aged 12 and under in this setting); the case was attended on a day when both ECPs and GPs were on duty and available for home visits; a clinical record from the visit was available; a questionnaire could be posted within two weeks of the home visit; and the patient had not previously declined further contact on a questionnaire sent in response to a prior home visit within the time frame of the study.

In the emergency ambulance setting, the clinical records of all patients attended by ECPs based in five London PCTs between January 2007 and April 2007 were obtained from London Ambulance Service NHS Trust. A matched sample of clinical records for patients attended by APs within the ECPs' operating hours (10h00 to 22h00 hours) was also collected on a weekly basis from London Ambulance Service NHS Trust. Cases were matched by the LAS Management Information Team by PCT and presenting complaint, using AMPDS codes. Each clinical record was read by the researcher, and was only included in the study if the patient's name and address could be reliably identified, if the patient was alive at the scene, and if the conveyance decision had been made by the attending AP or ECP rather than by another health care professional (such as by a GP who had already referred the patient to hospital).

After distributing the patient questionnaire the sample used for comparative analysis of decisions made by different practitioner groups was further refined by selecting a sample as follows. Each clinical record was re-read and assigned to one of three groups according to the type of attending practitioner that had made the care pathway decision – that is, ECP, AP or 'unclear', with 'unclear' cases being excluded at this stage. In the remaining dataset, a further process of matching was undertaken, in which ECP- and AP-attended cases were initially matched by DH call category and then by PCT wherever possible.

### *Sample size*

The sample size was calculated to be sufficient to allow exploratory modelling of the primary outcome variable of the appropriateness of the care pathway decision, as judged by the patient or the clinical reviewer, in two separate analyses for each of the two samples. A logistic regression model was selected as the most appropriate analytical approach, using multi-level modelling due to cope with potential clustering within practitioner type. The sample size calculation method used was that of multiplying by 10 each of the covariates and factors to be

placed in the model (Peduzzi et al., 1996), these being age, gender, DH call category, type of practitioner, care pathway decision, clinical reviewer cluster and ECP cluster.

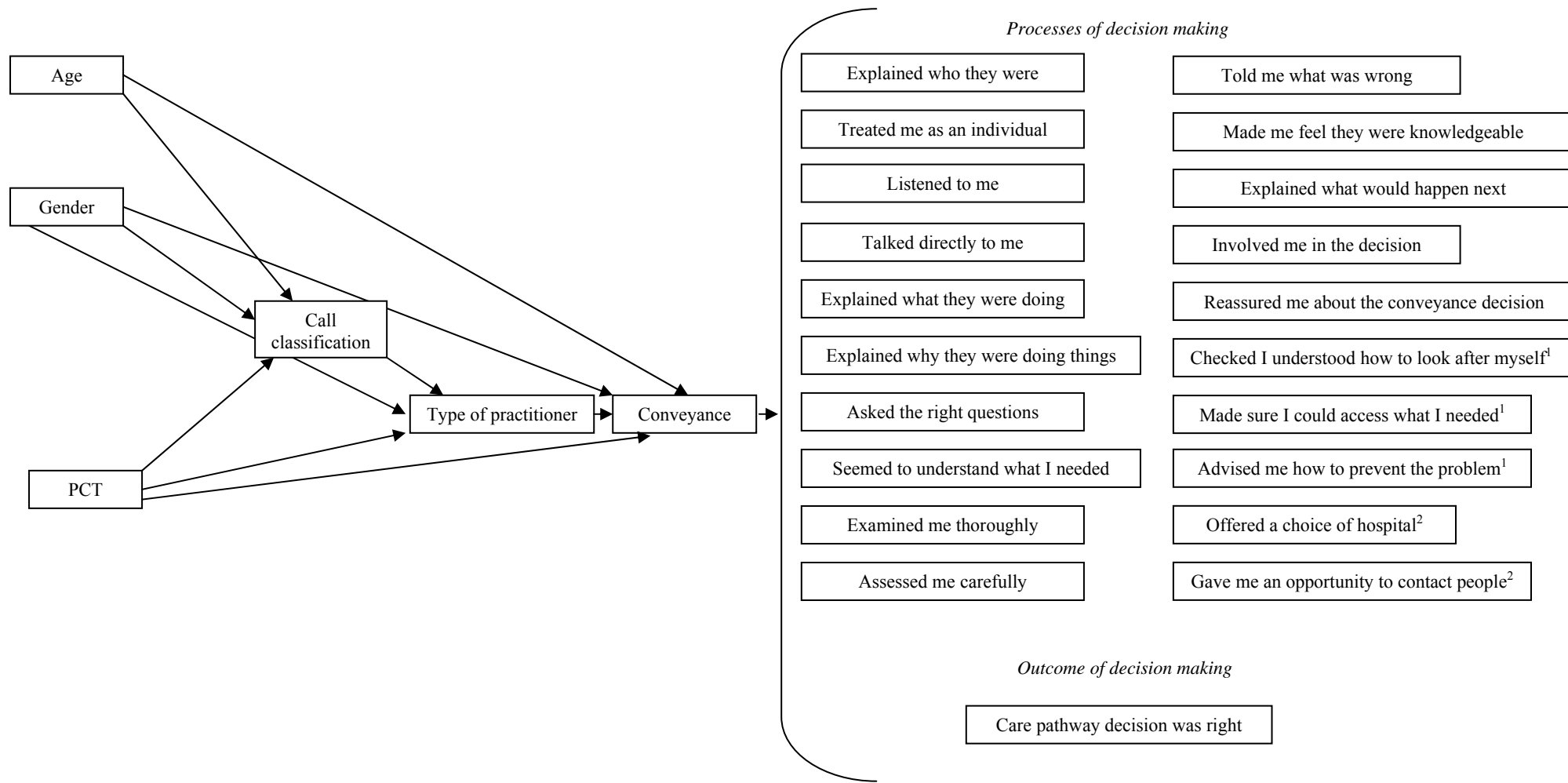
For the out-of-hours sample the number of clinical reviewer clusters was estimated at 10 and the number of ECP clusters at seven. The number of GP clusters was not known until data collection was complete. The required sample size was therefore estimated at 220 cases.

For the emergency ambulance sample the number of clinical reviewer clusters was estimated at 10 and the number of ECP clusters at 30. The number of AP clusters was not known until data collection was complete. The required sample size was therefore estimated at 450 cases.

### *Analysis*

All questionnaire data were inputted, using MS Access. SPSS for Windows v.14 was used to provide descriptive statistics of responses to both attitudinal and service use questions. Single level regression modelling was used to assess the impact of type of attending practitioner type on each of the selected measures of appropriateness, using SPSS. The variables selected for inclusion in this analytical model were chosen using the Directed Acyclic Graph in Figure 5.1. This model suggested that age, gender and DH category should be included as potential confounders for the single level model. Multi level regression modelling, using MLWin, was conducted for the primary outcome derived from patients' judgments of whether the care pathway decision had been 'right'. These analyses addressed the clustering of data by individual practitioner.

Figure 5.1 Directed Acyclic Graph for analysis of patients' responses to questions regarding the process and outcome of decision making



### **5.3.2 Patient interviews**

#### ***Interview design and administration***

A semi structured topic guide was designed specifically for the qualitative interviews conducted in this study. The interview explored the patients' views of the appropriateness of decisions made about their care pathway within the context of their illness narrative, and how these decisions had been made (see the interview guide in Appendix G). Invitations to interview were sent by post and, when written consent was received, the researcher telephoned to arrange the interview.

#### ***Sample***

Respondents who stated on their questionnaire that they would be willing to be contacted again were eligible for invitation to interview. Respondents from three data collection weeks were contacted. The selection of respondents to invite for interview from these three weeks was conducted as the number of volunteers for interview from each set of invitations to interview needed to be known before it could be established how many further respondents attended by each practitioner type were required to ensure equal numbers of interviewees from each practitioner type in the sample. These remaining interviewees were recruited by selectively approaching respondents during a fourth week of data collection.

Ten interviews (five patients attended by ECPs and five attended by GPs) were carried out in the out-of-hours arm of the study, and fifteen (five patients attended by ECPs only, five attended by ECPs and APs, and five attended by APs only) in the emergency ambulance arm.

#### ***Analysis***

Qualitative interview data were transcribed verbatim and the resulting text was subjected to thematic analysis. Reading and re-reading of the texts allowed the ways in which participants described their stories of their emergency experience to emerge and be grouped into themes.

### **5.3.3. Outcome of service use subsequent to the index event**

#### ***GP follow up proforma and administration***

A proforma was designed specifically for the study to request information from GPs about the nature and outcome of any contact the patient reported having had with their GP in the two weeks following their GP out-of-hours or emergency ambulance visit (see Appendix H). Proformas were posted to the GP, with a copy of the patient's consent to access their records (requested as part of the patient questionnaire).

#### ***Sample***

Patients attended within Bromley PCT who reported that they had used their GP in the two weeks following the GP out-of-hours visit or emergency ambulance visit for which they were entered into the study, and who consented to access to their clinical records for the study, were eligible for inclusion. Cases were only excluded if the patient's GP's name and/or full contact details could not be found.

#### ***Analysis***

Qualitative responses from GPs were classified as reflecting that the patient had improved completely; the same therapy had been maintained as that set in action at the initial study entry visit; or a change in therapy had been required. Illustrative cases were also selected for each of these classifications.

### **5.3.4 Clinical case review**

#### ***Review proforma***

The clinical reviewers contributed to the design of a clinical case review system using a consensus method which involved regular feedback on an iterative process in 'rounds', resulting in a review proforma (see Appendix IJ). The proforma contained items about the documented processes of decision making, and the outcome (that is, the care pathway decision).

### ***Reviewers***

Fourteen reviewers were recruited using a snowballing technique from contacts provided by the London Ambulance Service ECP clinical development team and academic staff from the Faculty of Health and Social Care Sciences. The reviewers came from the following professional groups: ECP, GP, Emergency Medicine Specialist Registrar, Primary Care Nurse and Emergency Care Nurse. Many of the non-ECP reviewers had involvement with ECP education or ECP clinical oversight, at various sites around England. Anonymity of the participating reviewers has been maintained both within and outside of the review team by the researcher.

### ***Sample***

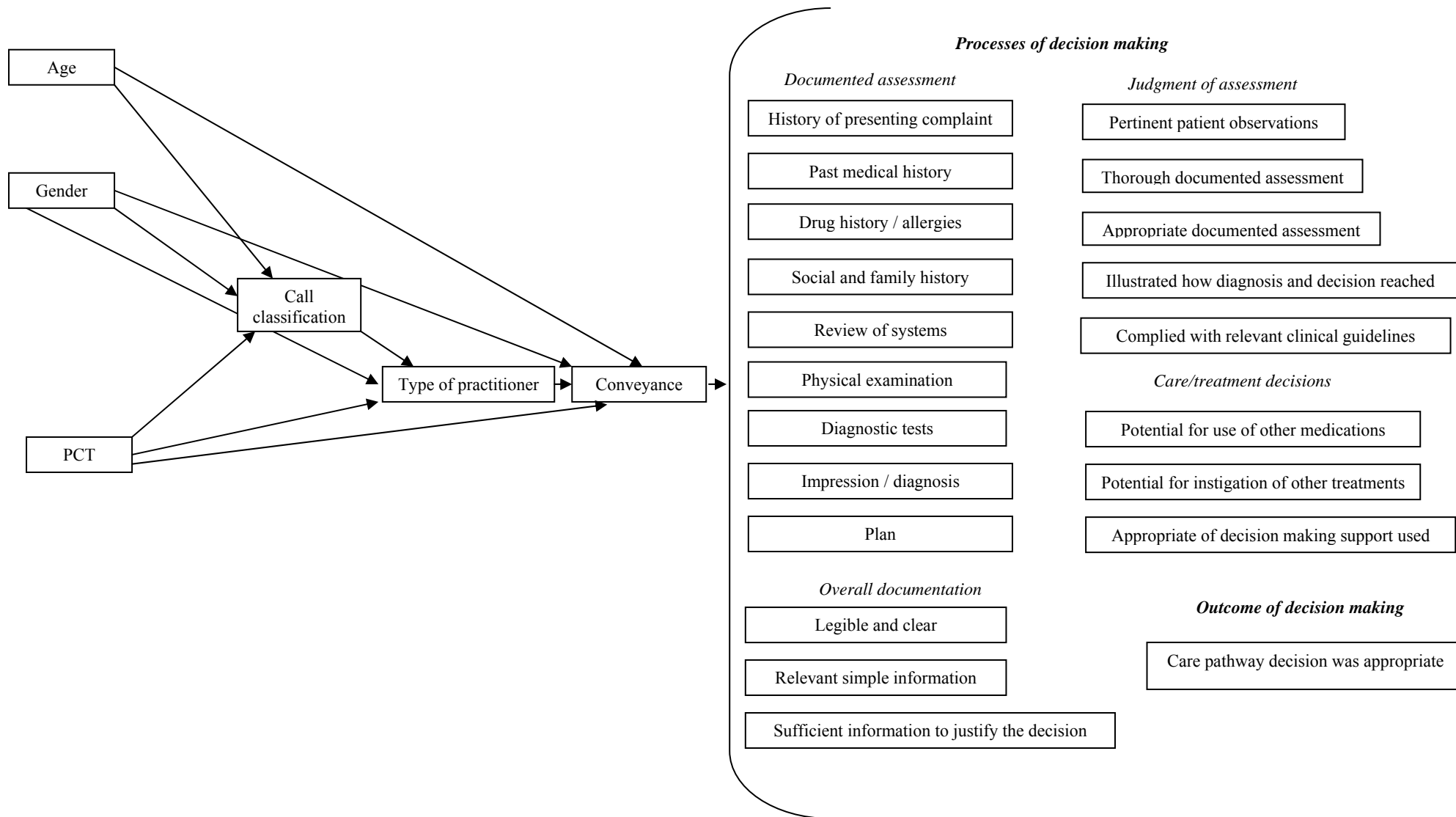
In the out-of-hours sample all cases where a questionnaire had been received were eligible for review, and in the emergency ambulance sample the eligible cases for review were those where a questionnaire had been received and the case had been 'matched' (as described in section 5.3.1 above). All cases that were sent for review were considered by one reviewer, with a random selection of each sample reviewed by a second.

### ***Analysis***

All review proforma data were inputted, using MS Access. SPSS for Windows v.14 was used to provide descriptive statistics of responses to both process and care pathway outcome questions. Single level regression modelling was used to assess the impact of type of attending practitioner on each of the selected measures of appropriateness, using SPSS. The variables selected for inclusion in these analytical models were chosen using the DAG described in Figure 5.2. In this way, age, gender and DH category were included as potential confounders for the single level model. Multi level regression modelling, using MLWin, was conducted for the primary outcome based on whether the care pathway decision was judged to have been 'appropriate' by the clinical reviewer. For these analyses multi-level modelling aimed to address the clustering in the data by individual clinical reviewer. However, no results will be presented from these analyses as the multi-level model failed to converge.



Figure 5.2 Directed Acyclic Graph for analysis of reviewers' responses to questions regarding the process and outcome of decision making



## 5.4 RESULTS 1: OUT OF HOURS SETTING

### 5.4.1 Samples: Questionnaire, clinical review and GP follow up

Questionnaire data collection commenced with cases attended each weekend from 21/10/06, continuing for twenty three weekends to 01/04/07, with 1248 case records forwarded to the research team and assessed for eligibility. Of these, 909 were selected to be sent a questionnaire.

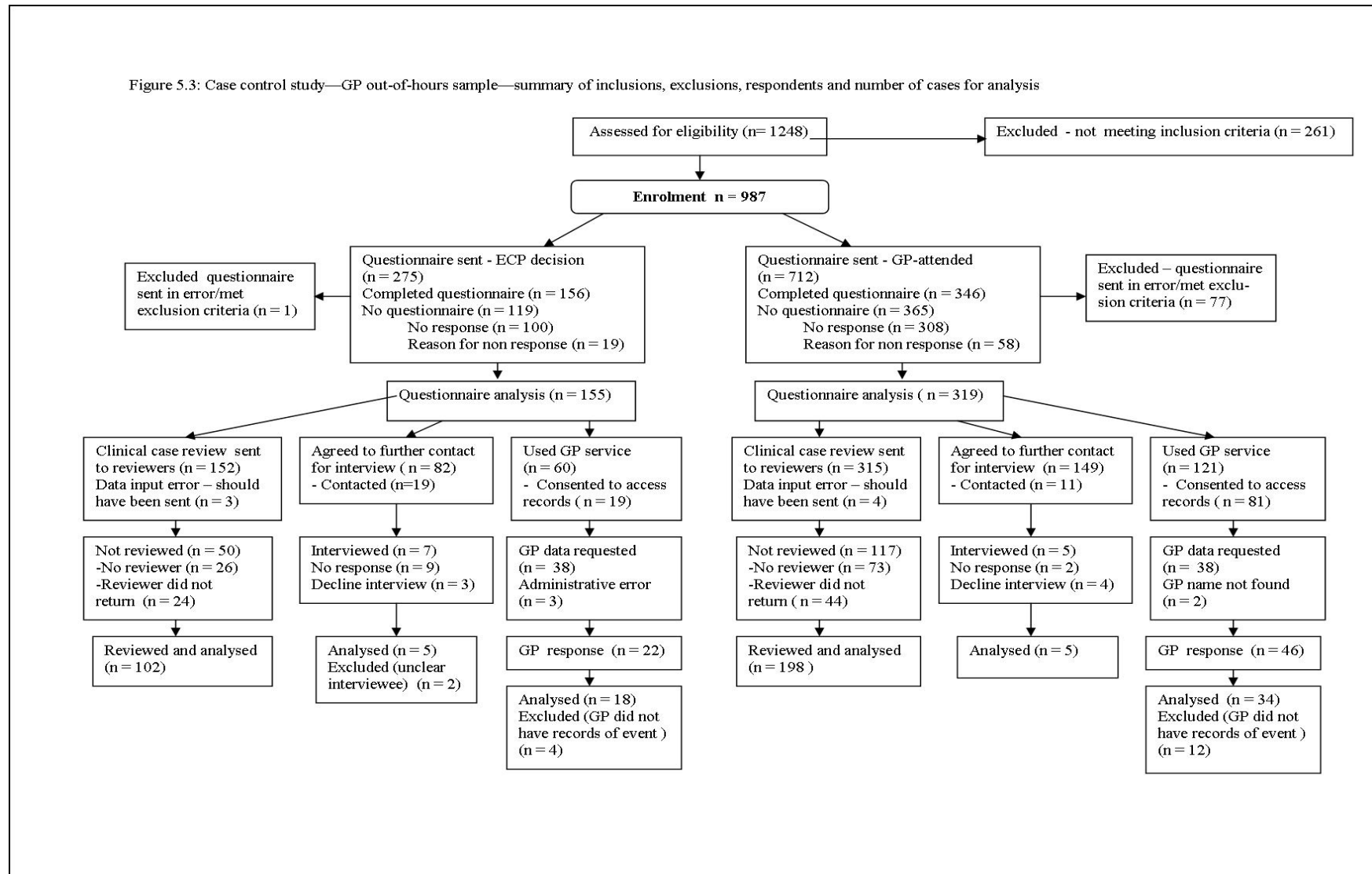
These 909 participants were attended by eight ECPs, visiting a range of 2 to 54 cases each, and by 34 GPs, carrying out a range of one to 143 visits. A description of the participants is given in Table 5.1 below.

Table 5.1: Case control study - out-of-hours study arm – sample characteristics

Descriptor		Mean	Median
Age (years)		75.5	80.0
Waiting time for visit (minutes)		204	187
Length of visit (minutes)		28	21
		<b>n</b>	<b>%</b>
Attending practitioner	GP	274	30.1
	ECP	635	69.9
Gender	Male	320	35.2
	Female	589	64.8
Assessment of urgency at telephone triage	Less urgent	772	84.9
	Urgent	111	12.2
	Emergency	1	0.1
	Not recorded	25	2.8
Care pathway	Treat and leave	209	23.0
	Treat and refer	562	61.8
	Convey to ED	138	15.2

The reasons for data exclusion both before and after questionnaire distribution, and the resultant sample size for each component of the analyses have been summarised in Figure 5.3 overleaf.

Figure 5.3: Case control study—GP out-of-hours sample—summary of inclusions, exclusions, respondents and number of cases for analysis



From Table 5.1 it is clear that GPs and ECPs carried out home visits for a slightly different group of patients. In particular, ECPs attended patients with a significantly higher mean age than GPs (77.7 years versus 74.6 years;  $t = -2.36$ ,  $df = 907$ ,  $p = 0.02$ ); and visited a larger proportion of patients whose call was categorised as 'less urgent' than GPs (96.6% versus 83.6%,  $\chi^2 = 28.06$ ,  $df = 1$ ,  $p < 0.001$ ). At the same time, patients attended by ECPs were more likely to be conveyed to hospital than those attended by GPs (22.3% versus 11.5%,  $\chi^2 = 17.65$ ,  $df = 1$ ,  $p < 0.001$ ); and ECPs recorded spending a longer time on scene with patients than did GPs (47.2 minutes versus 19.5 minutes;  $t = -25.3$ ,  $df = 899$ ,  $p < 0.001$ ). However, there was no significant difference in gender or waiting time amongst patients attended by GPs and ECPs.

### ***Representativeness of respondents and cases for further analysis***

The questionnaire response rate was 52.1% (474/909). In 72 cases the researcher received notification of a reason why the patients involved were not able to complete the questionnaire - eight offering details about their experiences but not completing the questionnaire, 27 patients having died, 33 being too unwell or having memory problems, and four questionnaires returned as undeliverable.

The questionnaire respondents were broadly similar to non-respondents in whether they had been attended by a GP or ECP; in gender and age; in whether they had been conveyed to the ED or not; and in the mean time the practitioner had spent with them. However, respondents experienced a longer mean wait time from their initial EMDoc call to receipt of a home visit (mean wait time 190 minutes for non respondents and 209 minutes for respondents,  $t = -2.29$ ,  $df = 907$ , 95% CIs -35.5, -2.7,  $p = 0.02$ ).

Of the 467 cases eligible for review at the time of sending reviews, those for which a clinical review was completed did not differ by practitioner type, gender, age, conveyance, waiting time for a visit, or time spent on scene from those for whom a review was not completed. However, those cases with a dispatch assessment priority code of 'emergency or urgent' were more likely to have been reviewed than those that had been classified as 'less urgent' (80.4 vs. 63.0%;  $\chi^2 = 6.52$ ,  $df = 1$ ,  $p = 0.011$ ).

Of the 189 patients who reported using their GP service in the two weeks subsequent to the out-of-hours home visit follow up, those 56 for whom follow up data were received did not differ from those for whom either consent to access their records had not been granted or no information had been received from their GP.

## 5.4.2 Appropriateness of decision-making: patients' judgments

### *Appropriateness of the outcome of decision making: chosen care pathway*

Respondents' judgment of the appropriateness of the decision whether to remain at home or to go to the ED (n = 457 clear 'yes' versus 'no' responses) revealed that the vast majority considered that the 'right decision' had been made. Comparison by type of attending practitioner found no statistically significant difference between ECP- and GP- attended groups in unadjusted comparisons with 95.8% of GP-attended and 96.7% of ECP-attended respondents agreeing with the decision these practitioners had made (see Table 5.2). None of the covariates for analysis – age, gender, dispatch assessment priority, age and conveyance – were significantly associated with the outcome (see Table 5.2).

Table 5.2: Patients' judgments of the appropriateness of the care pathway decision made by GPs or ECPs in the out-of-hours setting

Appropriateness of decision	Practitioner type	n	%	Unadjusted analysis			Multivariate Analysis*		
				p	OR	95% CIs	p	OR	95% CIs
Right decision	GP	293	95.8	0.63	1.30	0.45, 3.70	0.67	1.26	0.43, 3.71
	ECP	146	96.7						
Not right decision	GP	8	3.2						
	ECP	10	4.1						

### *Appropriateness of the process of decision-making*

Respondents' answers to the attitudinal statements on the questionnaire revealed that the majority of respondents assigned highly positive scores to the processes of care associated with decision making, resulting in high median scores. However, there was a wide range of responses to all statements, indicating that positive views were not universally held.

A comparison of scores assigned by GP- and ECP-attended patients showed that differences were found in all but five measures in the unadjusted analyses, these being 'talked directly to me', 'assessed me carefully', 'involved me in the decision', 'offered a choice of hospital' and 'gave me an opportunity to contact people'. For each of the remaining 15 measures, ECPs received significantly higher ratings than did GPs (see Table 5.3).

Table 5.3: Patients' judgments of the appropriateness of decision making processes in the GP out of hours setting

Process measure: The practitioner who attended....	Practitioner type	Median	Binary split at the median									
			Below median		Above median		Unadjusted			Adjusted		
			n	%	n	%	p	OR	95% CIs	P	OR	95% CIs
Explained who they were	GP	93	150	50.7	146	49.3	<0.001	2.12	1.40, 3.23	<0.001	2.30	1.47, 3.60
	ECP		46	32.6	95	67.4						
Treated me as an individual	GP	93	154	52.2	141	47.8	<0.001	2.38	1.56, 3.64	<0.001	2.58	1.62, 4.05
	ECP		44	31.4	96	68.6						
Listened to me	GP	95	152	53.1	134	46.9	0.037	1.56	1.03, 2.36	0.103	1.44	0.93, 2.23
	ECP		56	42.1	77	57.9						
Talked directly to me	GP	93	172	59.3	118	40.7	0.051	1.50	1.00, 2.25	0.040	1.56	1.02, 2.38
	ECP		70	49.3	72	50.7						
Explained what they were doing	GP	93	158	53.6	137	46.4	<0.001	2.26	1.49, 3.24	<0.001	2.45	1.58, 3.80
	ECP		48	33.8	94	66.2						
Explained why they were doing things	GP	93	162	55.9	128	44.1	<0.001	2.21	1.46, 3.35	<0.001	2.32	1.50, 3.59
	ECP		51	36.4	89	63.6						
Asked the right questions	GP	93	159	55.0	130	45.0	<0.001	2.10	1.39, 3.17	<0.001	2.17	1.41, 3.35
	ECP		53	36.8	91	63.2						
Seemed to understand what I needed	GP	92	152	52.1	140	47.9	0.001	1.98	1.31, 2.99	0.001	2.03	1.32, 3.13
	ECP		51	35.4	93	64.6						
Examined me thoroughly	GP	91	174	57.8	127	42.2	<0.001	2.98	1.96, 4.54	<0.001	3.04	1.96, 4.72
	ECP		45	31.5	98	68.5						
Assessed me carefully	GP	94.5	157	53.0	139	47.0	0.078	1.47	0.98, 2.22	0.244	1.29	0.84, 1.97
	ECP		59	43.4	77	56.6						
Told me what was wrong	GP	89	162	54.9	133	45.1	<0.001	2.38	1.56, 3.64	<0.001	2.47	1.58, 3.85
	ECP		46	33.8	90	66.2						
Made me feel they were knowledgeable	GP	93	157	55.1	128	44.9	0.003	1.87	1.25, 2.81	0.001	1.87	1.22, 2.88
	ECP		57	39.6	87	60.4						

Continued overleaf

Table 5.3: Patients' judgments of the appropriateness of decision making processes in the GP out of hours setting, continued

Process measure: The practitioner who attended....	Practitioner type	Median	Binary split at the median									
			Below median		Above median		Unadjusted			Adjusted		
			n	%	n	%	p	OR	95% CIs	P	OR	95% CIs
Explained what would happen next	GP	92	155	55.8	123	44.2	<0.001	2.16	1.42, 3.27	<0.001	2.20	1.42, 3.41
	ECP		52	36.9	89	63.1						
Involved me in the decision	GP	90	138	51.1	132	48.9	0.244	1.29	0.85, 1.97	0.409	1.20	0.78, 1.87
	ECP		59	44.7	73	55.3						
Reassured me about the conveyance decision	GP	90	145	55.1	118	44.9	<0.001	2.66	1.72, 4.11	<0.001	2.78	1.76, 4.40
	ECP		43	31.6	93	68.4						
Checked I understood how to look after myself <sup>1</sup>	GP	91	128	57.1	96	42.9	<0.001	2.49	1.55, 4.00	<0.001	2.79	1.69, 4.61
	ECP		38	34.9	71	65.1						
Made sure I could access what I needed <sup>1</sup>	GP	89	129	57.6	95	42.4	<0.001	3.18	1.95, 5.20	<0.001	3.53	2.10, 5.93
	ECP		32	29.9	75	70.1						
Advised me how to prevent the problem <sup>1</sup>	GP	86	125	58.1	90	41.9	<0.001	2.90	1.77, 4.77	<0.001	3.24	1.92, 5.46
	ECP		33	32.4	69	67.6						
Offered a choice of hospital <sup>2</sup>	GP	14.5	17	48.6	18	51.4	1.00	0.88	0.32, 2.40	0.460	0.66	0.21, 2.01
	ECP		14	51.9	13	48.1						
Gave me an opportunity to contact people <sup>2</sup>	GP	91	18	54.5	15	45.5	0.132	2.28	0.82, 6.37	0.334	1.74	0.57, 5.32
	ECP		10	34.5	19	65.5						

<sup>1</sup> Cases where the patient was not conveyed to the ED

<sup>2</sup> Cases where the patient was conveyed to the ED

### *Association between process and outcome measures*

No statistically significant associations were found between the patients' judgments as to whether the 'right decision' had been made about their care pathway and their judgments about the appropriateness of the process through which this decision had been made.

#### **5.4.3 Appropriateness of decisions: reviewers' judgments**

##### *Inter-rater reliability*

Of the 201 cases where two reviews were undertaken, agreement between reviewers was found to vary widely, with low agreement on some measures and high agreement on others. This is evident from the Cohen's Kappa values for each measure summarised in Table 5.4.

##### *Appropriateness of the outcome of decision making: chosen care pathway*

The reviewers' judgment of the appropriateness of the care pathway decision about which care pathway should have been used (n = 285 clear responses) revealed that, in the majority of cases (86.3%, n = 246), they felt that an appropriate decision' had been made. However, an unadjusted comparison by type of attending practitioner found a statistically significant difference between the judgments of the appropriateness of the care pathway decisions in GP- and ECP-attended groups with 82.0% (n = 155) of the care pathway decisions in GP-attended cases and 94.8% (n = 91) in ECP-attended cases being judged by the reviewers as appropriate (OR 3.99, 95% CIs 1.51, 10.57). After adjusting for the age and gender of the patient, and for call category and conveyance, the difference between appropriateness of decisions made by GPs and ECPs increased in favour of the ECPs' decisions (OR 5.04, 95% CIs 1.87, 13.60).

Further analysis revealed that the difference between reviewers' judgments concerning the appropriateness of GPs' and ECPs' care pathway decisions was particularly noticeable amongst cases where a decision had been made not to convey the patient to the ED, many of which were judged to have been 'inappropriate' decisions by the reviewers. This is particularly noticeable within the GP-attended group, as shown in Table 5.5.



Table 5.4: Level of statistical agreement between reviewer 1 and reviewer 2

<b>Component of the review</b>	<b>Cohen's Kappa</b>
<b>1. Processes of decision making</b>	
<i>Reviewers' judgment of the documented assessment</i>	
Presenting complaint	0.43
History of presenting complaint	0.22
Past medical history	0.60
Drug history / allergies	0.70
Social and family history	0.58
Review of systems	0.39
Physical examination	0.22
Diagnostic tests	0.46
Impression / diagnosis	0.20
Plan	0.28
<i>Reviewers' judgment of the documented assessment</i>	
Pertinent patient observations	0.35
Thoroughness of documented assessment	0.23
Appropriateness of documented assessment	0.34
Illustration of how diagnosis and decision reached	0.36
Compliance with relevant clinical guidelines	0.19
<i>Reviewers' judgment of the documented care/treatment decisions</i>	
Potential for use of other medications	0.17
Potential for instigation of other treatments	0.07
Appropriateness of decision making support used	0.68
<i>Reviewers' judgment of the overall documentation standard</i>	
Legibility and clarity	0.23
Relevant simple information e.g. date	n/a*
Sufficiency of quality to justify the decision reached	0.29
<b>2. Outcome of decision making</b>	
An appropriate care pathway decision was chosen	0.12

\* Not calculated due to a value of 0 in one group

Table 5.5: Reviewer’s judgment of the appropriateness of ECP and AP care pathway decisions, disaggregated by the conveyance decision

Care pathway decision	Attending practitioner	Appropriateness of the care pathway decision (reviewer’s judgment)			
		Inappropriate		Appropriate	
		n	%	n	%
Not conveyed to the ED	GP	34	20.7	130	79.3
	ECP	5	6.9	67	93.1
Conveyed to the ED	GP	0	0	24	100.0
	ECP	0	0	25	100.0

### *Appropriateness of the process of decision-making*

The individual reviewers’ responses to the statements regarding the documented processes of care on the review proforma displayed substantial variation, indicating that the reviewers judged the documented decision processes to vary widely in quality in the sample.

Table 5.6 presents both the unadjusted and adjusted comparison of judgments of documented decision making processes in GP- and ECP-attended patients.

The data presented in Table 5.6 show that, in the unadjusted analyses, differences were found in all but four of the measures – the potential to administer other medications, the use of appropriate support to make the decision, legibility and clarity of the documentation, and the documentation of relevant simple information such as date and times. The documented decision making processes of ECP-attended cases were more likely to receive a positive judgment from reviewers. Adjustment for age and gender of the patient, and for the call category increased the number of documented processes of decision making judged to be significantly different between GP- and ECP-attended cases from 17 to 18, and, in most instances, adjustment for potential confounders strengthened the more positive judgment received by documented process from ECP-attended cases.

### *Associations between process and outcome*

The vast majority of clinical review process measures (all bar the legibility and clarity of the documentation and the recording of relevant simple information) were found to be significantly associated with reviewers’ judgments regarding the appropriateness of the care pathway decision. Indeed, on all process measures, a higher proportion of those cases receiving a positive judgment from the reviewer were also judged to have had an ‘appropriate’ care pathway decision.

Table 5.6: A comparison of reviewer's judgments of documented processes of decision making in GP- and ECP-attended cases in the GP out-of-hours setting

Process measure	Practitioner type	Binary split in response									
		None or poor		Satisfactory or very good		Unadjusted			Adjusted		
		n	%	n	%	p	OR	95% CIs	p	OR	95% CIs
<i>Documented assessment</i>											
Presenting complaint	GP	31	15.7	167	84.3	0.042	2.52	1.07, 5.94	0.008	3.54	1.39, 9.06
	ECP	7	3.9	95	93.1						
History of presenting complaint	GP	61	3.8	137	69.2	0.001	2.77	1.46, 5.25	0.001	3.31	1.67, 6.56
	ECP	14	13.9	87	86.1						
Past medical history	GP	148	74.7	50	25.3	<0.001	56.83	21.88, 147.62	<0.001	54.52	20.59, 144.39
	ECP	5	5.0	96	95.0						
Drug history / allergies	GP	158	79.8	40	20.2	<0.001	197.5	46.70, 835.3	<0.001	174.28	40.83, 744.0
	ECP	2	2.0	100	98.0						
Social and family history	GP	176	88.9	22	11.1	<0.001	21.14	11.36, 39.34	<0.001	19.24	9.96, 37.16
	ECP	28	27.5	74	72.5						
Review of systems	GP	170	85.9	28	14.1	<0.001	10.96	6.20, 19.40	<0.001	11.69	6.25, 21.85
	ECP	36	35.6	65	64.4						
Physical examination	GP	95	48.0	103	52.0	<0.001	6.31	3.31, 12.04	<0.001	7.17	3.62, 14.22
	ECP	13	12.7	89	87.3						
Diagnostic tests	GP	134	67.7	64	32.3	<0.001	4.01	2.42, 6.65	<0.001	4.00	2.34, 6.82
	ECP	35	34.3	67	65.7						
Impression / diagnosis	GP	55	28.1	141	71.9	0.003	2.67	1.45, 5.62	0.001	3.36	1.66, 6.82
	ECP	13	12.7	89	87.3						
Plan	GP	54	27.6	142	72.4	0.002	2.85	1.38, 5.17	0.002	3.10	1.53, 6.26
	ECP	12	11.8	90	88.2						

Continued overleaf

Table 5.6: A comparison of reviewer's judgments of documented processes of decision making in GP- and ECP-attended cases in the GP out-of-hours setting, continued

Process measure	Practitioner type	Binary split in response									
		No		Yes		Unadjusted			Adjusted		
		n	%	n	%	p	OR	95% CIs	p	OR	95% CIs
<i>Judgment of assessment</i>											
Pertinent patient observations	GP	87	44.4	109	55.6	<0.001	6.53	3.29, 12.98	<0.001	6.62	3.27, 13.40
	ECP	11	10.9	90	89.1						
Thorough documented assessment	GP	96	48.5	102	51.5	<0.001	5.40	2.92, 9.98	<0.001	5.85	3.05, 11.21
	ECP	15	14.9	86	85.1						
Appropriate documented assessment	GP	72	36.9	123	63.1	<0.001	3.60	1.91, 6.79	<0.001	3.80	1.94, 7.44
	ECP	14	14.0	86	86.0						
Illustrated how diagnosis and decision reached	GP	58	29.4	139	70.6	0.001	3.13	1.59, 6.15	<0.001	4.61	2.19, 9.73
	ECP	12	11.8	90	88.2						
Complied with relevant clinical guidelines	GP	47	24.5	145	75.5	0.006	2.62	1.29, 5.32	0.001	3.56	1.68, 7.54
	ECP	11	11.0	89	89.0						
<i>Care/treatment decisions</i>											
Potential for use of other medications	GP	121	63.7	69	36.3	0.436	0.79	0.47, 1.32	0.225	0.72	0.42, 1.23
	ECP	69	69.0	31	31.0						
Potential for instigation of other treatments	GP	143	75.7	46	24.3	0.008	0.39	0.19, 0.79	0.004	0.34	0.16, 0.71
	ECP	88	88.9	11	11.1						
Appropriate of decision making support used	GP	47	24.0	149	76.0	0.182	1.54	0.83, 2.85	0.033	2.06	1.06, 3.99
	ECP	17	17.0	83	83.0						
<i>Overall documentation</i>											
Legible and clear	GP	6	3.0	192	97.0	0.722	1.53	0.30, 7.73	0.51	1.76	0.33, 9.30
	ECP	2	2.0	98	98.0						
Relevant simple information	GP	3	1.5	195	98.5	1.00	10.75	0.12, 4.59	0.44	0.43	0.05, 3.66
	ECP	2	2.0	98	98.0						
Sufficient information to justify the decision	GP	73	37.1	124	62.9	<0.001	5.24	2.56, 10.71	<0.001	6.31	3.01, 13.22
	ECP	10	10.0	89	89.9						

#### 5.4.4 Appropriateness of care pathway decisions: patients' versus reviewers' judgments

As evident above, the vast majority of patient respondents (96.1%) judged that the care pathway decision made for them had been appropriate, whereas the reviewers judged that only 86.3% of cases involved an appropriate care pathway decision (see Table 5.7). As a formal test of agreement between the two the Cohen's Kappa value of 0.55 describes the different views of patients and reviewers, although there is moderate agreement between the two groups.

Table 5.7: Patient and reviewer judgments of appropriateness of the care pathway decision

Patients' judgment	Reviewers' judgment	
	Inappropriate care pathway decision	Appropriate care pathway decision
Not right pathway decision	3	9
Right care pathway decision	36	229

#### 5.4.5 Appropriateness of decisions: further service use and its outcomes

Following the incident for which they had received an out-of-hours home visit, 61.2% (n = 290) of respondents reported that they had used other health or social care services during the next two weeks. These services included an emergency ambulance (n = 44, 4.8%), the emergency doctor (n = 20, 5.5%), the ED (n = 61, 6.7%), a community-based nurse (n = 43, 4.7%), carers at home (n = 52, 5.7%), and 'other services' (n = 51, 5.6%) including, for example, a pharmacist, a hospice, respite care, and specialist physicians.

No significant differences were found for further service use amongst respondents attended by GPs or ECPs when analysed by the care pathway used (that is, when analysed separately amongst those respondents who had been 'treated and left', 'treated and referred' or 'conveyed to the ED'). Of those patients who were conveyed to the ED, 81.6% (n = 62) reported having been admitted to hospital at the time, while the remainder (n = 14) reported that they had been discharged home. No statistically significant difference was found in the outcome of the conveyance (that is, hospital admission versus discharge home) amongst those attended by a GP or an ECP.

Of those patients (n = 189) who reported using their GP service in the two weeks following their out-of-hours home visit, 122 consented to having their records followed up, and requests for information were sent to GPs for 117 patients, with the exclusions having been previously detailed in Figure 5.3. Follow-up data were received for 50 cases (n = 34 attended by a GP and n = 16 attended by an ECP) and are described in Table 5.8 overleaf. These data show

that, for many cases, GPs raised no issues with the care that had been initiated by the out-of-hours attending practitioner, with the problem either resolving, or treatment required to continue along the same lines as those initiated out-of-hours. However, in a number of cases, the GP's diagnosis differed from that of the out-of-hours attending practitioner, as did the subsequent care plan and treatment for the same presenting complaint. The proportion of cases where treatment or diagnosis changed between the out-of-hours care and the GP follow up consultation did not differ substantially between those attended by GPs and ECPs.

Table 5.8 GP follow information on the patient's condition subsequent to their out-of-hours home visit

Level of improvement to the patient's condition at the time of visiting their own GP	Level of agreement about diagnosis and treatment between the out-of-hours service and the patient's GP	Number of cases	Case example		
			ID	Out-of-hours documentation (summary)	GP follow up information
Complaint resolved following out-of-hours intervention	Out-of-hours diagnosis confirmed by GP	4	720	Date of consultation: 17/2/07 PC: Diarrhoea Assessment findings: Abdomen dull to percussion left side, active bowel sounds, no tenderness, haemorrhoids, nothing abnormal detected in all other body systems Dx: ?overflow or ? infection diarrhoea Plan: Fluids and fluid replacement, stop Immodium, stool sample to GP, see GP.	Date of consultation: 19/2/07 PC: Recent diarrhoea Dx: Resolving viral enteritis Plan: Reassurance Outcome: No further episode
	Out-of-hours diagnosis differs to that of GP	1	49	Date of consultation: 22/10/06 PC: Pain lower chest, non-radiating Assessment findings: Stable, no palpitations, epigastric tenderness, rapid irregular pulse, normal breathing, chest clear Dx: Atrial Fibrillation Plan: Medical referral via ED, by emergency ambulance	Date of consultation: 26/10/06 PC: Follow up of chest pain – pain now gone. Has been admitted to hospital 22/10/06- had ECG and TROPONIN – both negative. Exercise ECG arranged by hospital Dx: Musculoskeletal chest pain Plan: Await result of exercise ECG Outcome: Reassured re- chest pain – unlikely cardiac but await result of investigation
Complaint continues (may be either 'improving' or 'long-standing')	Out-of-hours diagnosis and treatment plan confirmed by GP	25 -9 'improving'	68	Date of consultation: 28/10/06 PC: Sore throat, painful right ear, headaches Assessment findings: Mild red tonsils, no exudates, waxy ears, mild jaw tenderness Dx: No clear statement Plan: Advise fluids, antibiotics and ear drops.	Date of consultation: 2/11/06 PC: Chronic pharyngitis – sore throat Dx: Resolving pharyngitis Plan: Complete antibiotic course given by out-of-hours provider Outcome: No further information provided

Table 5.8 GP follow information for 52 cases on the patient's condition subsequent to their out-of-hours home visit, continued

Level of improvement to the patient's condition at the time of visiting their own GP	Level of agreement about diagnosis and treatment between the AP/ECP and the patient's GP	Number of cases	Case example		
			ID	Out-of-hours documentation (summary)	GP follow up information
Complaint continues (may be either improving or long-standing)	Out-of-hours diagnosis and treatment plan confirmed by GP	-14 'long standing'	869	Date of consultation: 17/3/07 PC: Severe right leg pain, no trauma, known osteoarthritis Assessment findings: No pain at rest, painful hip rotation, unable to weight bear Dx: Likely acute osteoarthritis but why unable to weight bear? Plan: Needs xray at ED, by booked ambulance. If xray clear increase analgesia and antacid. See GP Monday re- commode and community physiotherapy.	Date of consultation: 19/3/07 PC: R sided leg pain, mobility poor, worsening osteoarthritis Dx: Acute on chronic exacerbation of osteoarthritis. Confident there was no fracture – no falls – X-ray detected no abnormalities Plan: Referred for domiciliary physiotherapy, analgesia Outcome: Pain improved , albeit not greatly, over following weeks
	Out-of-hours diagnosis confirmed by GP and treatment plan slightly amended	11	904	Date of consultation: 18/3/07 PC: Dizziness Assessment findings: Walking well, no neurological deficit, known cervical spondylitis, nothing abnormal detected in other body systems. Dx: Endolymphaticus / Labyrinthitis Plan: Stemetil twice daily	Date of consultation: 20/3/07 PC: Very giddy, vomited 3 times, unsteady on feet Dx: vertigo and bilateral ear wax Plan: Increase Stemetil to three times daily. Wax melting drops. Outcome: further visit 26/3/07 for diarrhoea and vomiting
	Out-of-hours diagnosis and treatment differ from that of the patient's GP	11	476	Date of consultation: 31/12/07 PC: Abdominal pain right side, not eating, sweating Assessment findings: well, sweating, raised temperature, femoral pulses normal, abdomen soft, diffuse tenderness, urine test shows leucocytes and blood. Dx: Urinary tract infection Plan: Antibiotics, fluids and see GP asap.	Date of consultation: 2/1/07 and 8/1/07 PC: Abdominal pain Dx: Gastritis Plan: Omeprazole 20mg OD Outcome: Never returned to GP



## 5.5 RESULTS 2: EMERGENCY AMBULANCE SETTING

### 5.5.1 Samples: Questionnaire, clinical review and GP follow up

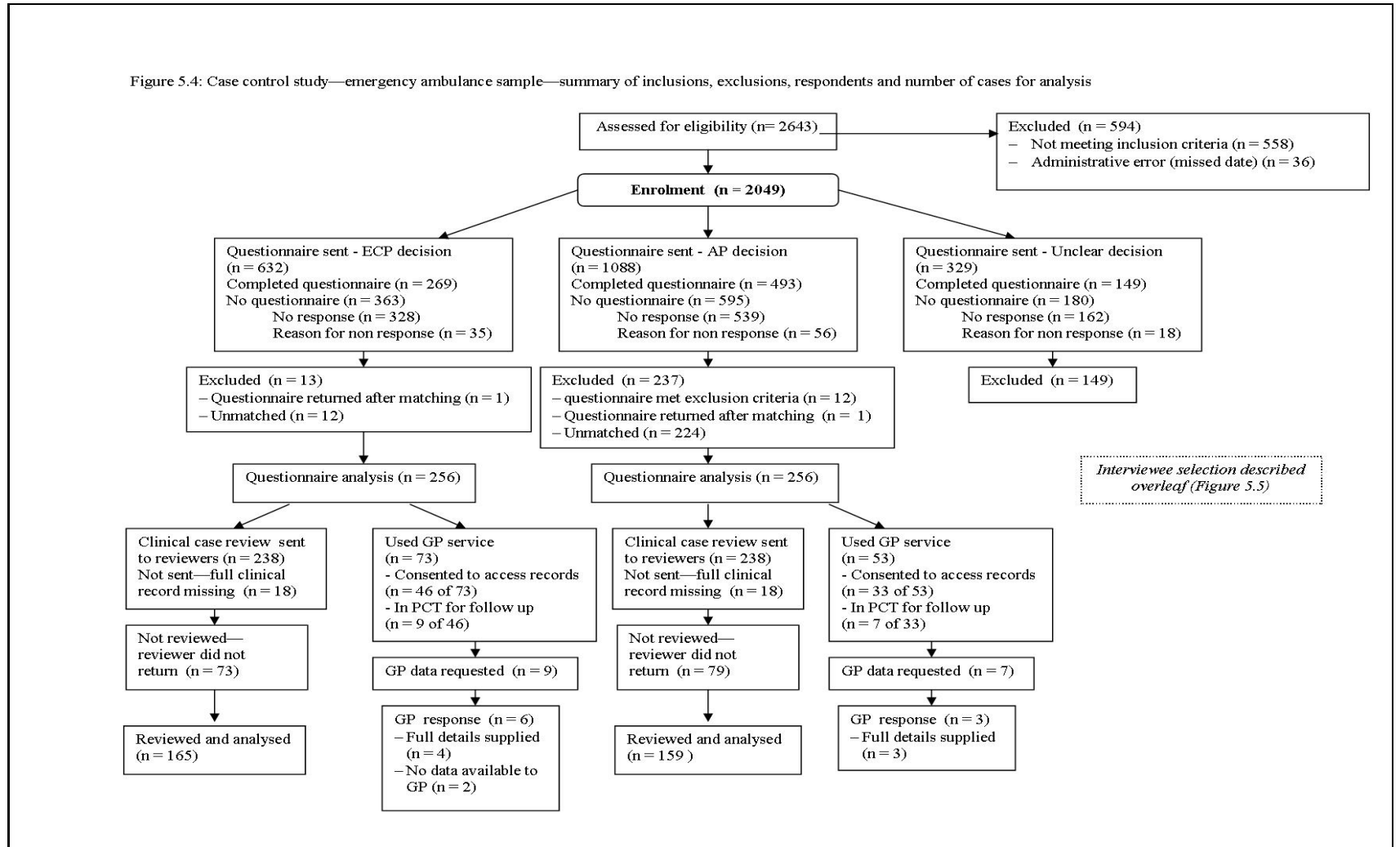
Questionnaire data collection commenced with cases attended on 23/01/07, and continued for ten weeks to 03/04/07, with 2643 case records forwarded to the research team and assessed for eligibility. Of these, 2049 were selected to be sent a questionnaire. After data exclusions both before and after questionnaire distribution (summarised in Figure 5.4 overleaf), the sample of respondents for analysis was 512. A description of these participants is given in Table 5.9 below. These 512 participants were attended by 26 ECPs, visiting a range of one to 29 cases each, and by 210 APs, attending a range of one to four calls.

Table 5.9: Case control study - emergency ambulance setting – sample characteristics

Descriptor		Mean	Median
Age	Mean (years)	53.4	n/a
	Median (years)	59.0	
		<b>n</b>	<b>%</b>
Attending practitioner	AP	256	50.0
	ECP	256	50.0
Gender	Male	209	40.8
	Female	303	59.2
Assessment of urgency at telephone triage	Category A	99	19.3
	Category B	266	52.0
	Category C	147	28.7
Care pathway	Treat and leave	99	19.3
	Treat and refer	51	10.0
	Convey to ED	354	69.1
	Convey to other unit	8	1.6

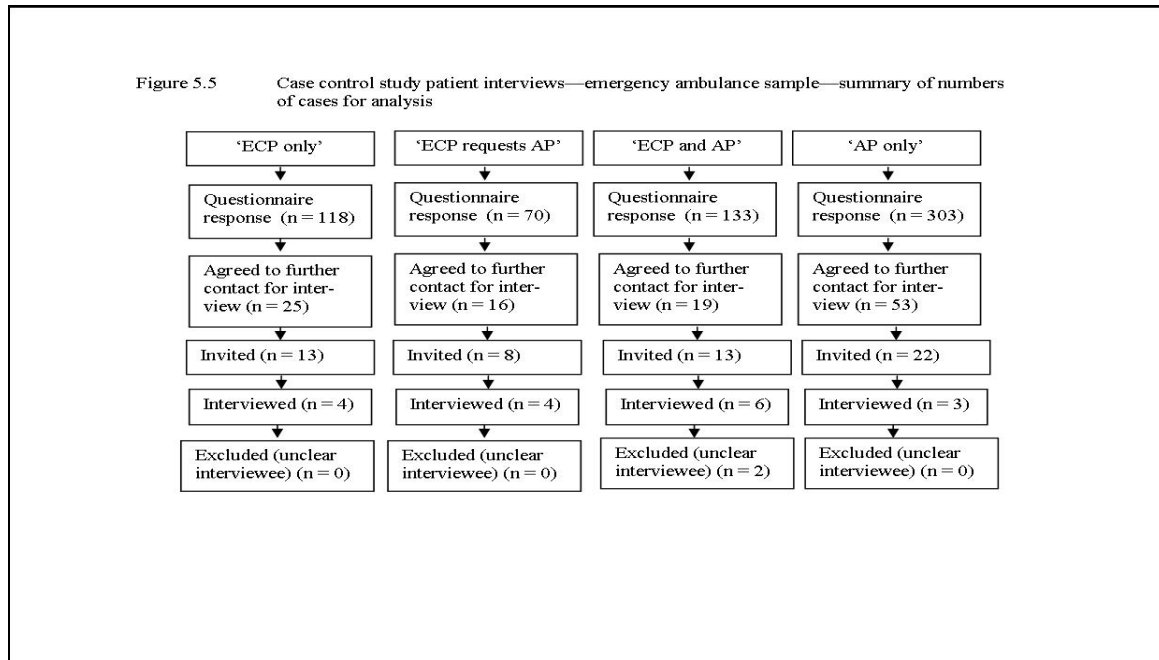
In the sample available for analysis, which had been matched by call categorisation, ECPs and APs attended a similar group of patients in terms of gender and age, although patients attended by an ECP were less likely to have been conveyed to the ED than those attended by an AP (38.1% versus 61.9%,  $\chi^2$  64.59, df 1, p <0.001).

Figure 5.4: Case control study—emergency ambulance sample—summary of inclusions, exclusions, respondents and number of cases for analysis



The sample of patients for interview was selected from questionnaire respondents prior to categorisation of the questionnaire respondents' cases as an AP, ECP or unclear decision. The numbers of cases involved in the process by which this sample was obtained is shown in the flowchart in Figure 5.5.

Figure 5.5 Case control study patient interviews—emergency ambulance sample—summary of numbers of cases for analysis



### *Representativeness of respondents and matched cases for analysis*

The questionnaire respondents selected for analysis in the emergency ambulance setting (n = 512) showed some differences when compared to the remainder of the sample to which the questionnaire was originally sent (n = 1503). Respondents for analysis were less likely to have been conveyed to the ED ( $\chi^2$  20.67, df 1, p <0.001); had their call categorised as 'Category A' ( $\chi^2$  155.65, df 2, p <0.001); or been attended by an ECP ( $\chi^2$  188.40, df 1, p <0.001). These differences occurred as a result of the matching process, which excluded a greater proportion of AP-attended cases and those calls classified as 'Category A' than were in the original sample. The numbers of those included and excluded in each of these groups are shown in Tale 5.10. The matched sample did not differ by the patient age or gender from the whole sample.

Table 5.10 AP and ECP cases excluded/included in the matching process, by call category

Practitioner type	DH call category	Cases included		Cases excluded	
		n	%	n	%
AP	A	194	79.5	50	20.5
	B	30	18.4	133	81.6
	C	0	0	73	100
ECP	A	0	0	50	100
	B	0	0	133	100
	C	12	14.1	73	85.9

Of the 476 cases identified as eligible for review at the time of sending reviews, those for which a clinical review was completed did not differ by practitioner type, gender, age, conveyance, or call category.

Within the matched sample, the characteristics of the cases for which GP follow up information was received (n = 7) have not been statistically compared due to the small numbers involved.

### 5.5.2 Appropriateness of decision-making: patients' judgments

#### *Appropriateness of the outcome of decision making: chosen care pathway*

Respondents' assessments of the appropriateness of the decision to remain at home or to go to the ED revealed that the vast majority (96.3% of n = 491 clear yes/no responses) judged that the 'right decision' had been made. There was also no statistically significant difference in the proportion of care pathway decisions judged to be 'right' amongst respondents attended by an AP or an ECP either before or after adjustment for potential confounders (see Table 5.11).

Table 5.11: Patient's judgment of the appropriateness of the care pathway decision made by APs or ECPs in the emergency ambulance setting

Appropriateness of decision	Practitioner type	n	%	Unadjusted analysis			Multivariate Analysis		
				p	OR	95% CIs	p	OR	95% CIs
Right decision	AP	240	96.8	0.64	0.78	0.30, 2.00	0.71	0.84	0.32, 2.18
	ECP	233	95.9						
Not right decision	AP	8	3.2						
	ECP	10	4.1						

### *Appropriateness of the process of decision-making*

Respondents' answers to each of the attitudinal statements on the questionnaire revealed that the majority assigned highly positive scores to the processes of care associated with decision making, resulting in high median scores. However, there was substantial variation in their responses to all of these statements, indicating that positive views were not universal.

A comparison of the scores assigned by AP- and ECP-attended patients is summarised in Table 5.12, using binary variables created by dichotomising each score at the median. In the unadjusted comparisons, significant differences were found in eight of the 20 measures, with ECPs' decision making processes consistently receiving higher median scores than those of APs. The number of measures for which there was a significant difference between APs and ECPs fell from eight to seven after adjustment for potential confounders, but the strength of the remaining differences remained largely unchanged.

### *Association between process and outcome measures*

No statistically significant associations were found between the patients' judgments as to whether the 'right decision' had been made by the attending practitioner about the care pathway and the judgments patients made about the appropriateness of different aspects of the decision making process. This may partly reflect the fact that the numbers in the 'wrong decision' group were very small, which rendered statistical comparisons unreliable. However, there was a consistent trend towards more of the patients who judged that their care pathway decision had been the 'right' one assigning scores above the median. This was particularly apparent in two of the measures associated with care provided to patients who were not conveyed to the ED, these being 'checking that the patient understood how to look after themselves', and 'advising the patient about preventing the problem'.

Table 5.12: Patients' judgments of the appropriateness of decision making processes in the emergency ambulance setting

Process measure: The practitioner who attended....	Practitioner type	Median	Binary split at the median									
			Below median		Above median		Unadjusted			Adjusted		
			n	%	N	%	p	OR	95% CIs	p	OR	95% CIs
Explained who they were	AP	93	119	50.2	118	49.8	0.016	1.56	1.09, 2.25	0.017	1.57	1.09, 2.28
	ECP		93	39.2	144	60.8						
Treated me as an individual	AP	94	126	53.2	111	46.8	0.054	1.45	1.01, 2.08	0.064	1.41	0.69, 1.45
	ECP		105	43.9	134	56.1						
Listened to me	AP	96	112	48.3	120	51.7	0.926	1.03	0.71, 1.48	0.994	1.00	0.98, 2.04
	ECP		109	47.6	120	52.4						
Talked directly to me	AP	94	116	49.6	118	50.4	0.020	1.57	1.09, 2.27	0.024	1.54	1.06, 2.23
	ECP		90	38.5	144	61.5						
Explained what they were doing	AP	94	124	53.0	110	47.0	0.080	1.39	0.97, 2.00	0.113	1.34	0.93, 1.94
	ECP		106	44.7	131	55.3						
Explained why they were doing things	AP	93	116	49.6	118	50.4	0.025	1.53	1.06, 2.22	0.026	1.52	1.05, 2.21
	ECP		91	39.1	142	60.9						
Asked the right questions	AP	93	128	54.2	108	45.8	0.002	1.80	1.25, 2.59	0.004	1.72	1.19, 2.50
	ECP		93	39.7	141	60.3						
Seemed to understand what I needed	AP	93	131	54.8	108	45.2	0.010	1.63	1.13, 2.34	0.009	1.64	1.13, 2.37
	ECP		100	42.7	134	57.3						
Examined me thoroughly	AP	92	119	50.6	116	49.4	0.115	1.35	0.93, 1.94	0.188	1.28	0.89, 1.86
	ECP		99	43.2	130	56.8						
Assessed me carefully	AP	95	110	47.8	120	52.2	0.454	1.17	0.81, 1.69	0.504	1.14	0.78, 1.65
	ECP		101	43.9	129	56.1						
Told me what was wrong	AP	87	124	54.1	105	45.9	0.060	1.43	0.99, 2.07	0.100	1.37	0.94, 1.99
	ECP		100	45.2	121	54.8						
Made me feel they were knowledgeable	AP	92	122	51.5	115	48.5	0.043	1.46	1.01, 2.10	0.060	1.42	0.99, 2.06
	ECP		99	42.1	136	57.9						

Continued overleaf

Table 5.12: Patients' judgments of the appropriateness of decision making processes in the emergency ambulance setting, continued

Process measure: The practitioner who attended....	Practitioner type	Median	Binary split at the median									
			Below median		Above median		Unadjusted			Adjusted		
			n	%	n	%	p	OR	95% CIs	P	OR	95% CIs
Explained what would happen next	AP	93	113	48.3	121	51.7	0.781	1.06	0.74, 1.53	0.769	1.06	0.73, 1.53
	ECP		109	46.8	124	53.2						
Involved me in the decision	AP	91	115	50.4	113	49.6	0.572	1.12	0.78, 1.63	0.593	1.11	0.76, 1.62
	ECP		106	47.5	117	52.5						
Reassured me about the conveyance decision	AP	92	122	52.8	109	47.2	0.011	1.64	1.13, 2.37	0.016	1.59	1.09, 2.32
	ECP		91	40.6	133	59.4						
Checked I understood how to look after myself <sup>1</sup>	AP	94	17	60.7	11	39.3	0.200	1.86	0.79, 4.36	0.162	1.85	0.78, 4.41
	ECP		45	45.5	54	54.5						
Made sure I could access what I needed <sup>1</sup>	AP	93	16	59.3	42	43.8	0.192	1.87	0.79, 4.45	0.169	1.86	0.77, 4.49
	ECP		11	40.7	54	56.3						
Advised me how to prevent the problem <sup>1</sup>	AP	91	15	57.7	11	42.3	0.382	1.52	0.63, 3.65	0.424	1.46	0.58, 3.72
	ECP		44	47.3	49	52.7						
Offered a choice of hospital <sup>2</sup>	AP	43.5	105	54.7	52	42.6	0.049	1.63	1.03, 2.57	0.025	1.71	1.07, 2.73
	ECP		87	45.3	70	57.4						
Gave me an opportunity to contact people <sup>2</sup>	AP	89	99	51.8	92	48.2	0.128	1.46	0.92, 2.32	0.123	1.45	0.90, 2.32
	ECP		50	42.4	68	57.6						

<sup>1</sup> Cases where the patient was not conveyed to the ED

<sup>2</sup> Cases where the patient was conveyed to the ED

### 5.5.3 Appropriateness of decisions: reviewers' judgments

#### *Inter-rater reliability*

Of the 63 cases where two reviews were undertaken, agreement between reviewers was found to range from none or very low, through to moderate on some measures. This is reflected in the Cohen's Kappa values for each measure, presented in Table 5.13.

#### *Appropriateness of the outcome of decision making: chosen care pathway*

The reviewers' judgment of the appropriateness of the decision about which care pathway to use revealed that, in the majority of cases (230 of 314 clear responses, 73.2%) they judged that an 'appropriate decision' had been made. Although this is a substantial majority it is clear that the reviewers judged that in more than a quarter of cases (26.8%) an 'inappropriate' care pathway decision may have been made. Comparing these judgments for patients attended by APs and ECPs revealed that only 58.7% (n = 88) of AP-attended patients were judged by the reviewers to have had an appropriate care pathway decision made for them, while 86.6% (n = 142) of ECP-attended cases had (OR 4.55, 95% CIs 2.61, 7.92). The statistical strength of this difference increased after adjusting for the age and gender of the patient, and for the call category and conveyance (OR 5.15, 95% CIs 2.90, 9.12).

Further analysis revealed that differences in judgments about the appropriateness of the decision making processes of APs and ECPs were particularly apparent within the group of patients who had been conveyed to the ED. Although the numbers of cases appearing in some of the groups render statistical analysis unreliable, the percentages (shown in Table 5.14) suggest that the AP-attended cases that had been conveyed to the ED were the most likely group for the reviewers to have judged as having received an inappropriate care pathway decision.



Table 5.13: Level of statistical agreement about the processes and outcomes of decision making of APs and ECPs, between two reviewers

<b>Component of the review</b>	<b>Cohen's Kappa</b>
<b>1. Processes of decision making</b>	
<i>Reviewers' judgment of the documented assessment</i>	
Presenting complaint	0.32
History of presenting complaint	0.35
Past medical history	0.37
Drug history / allergies	0.43
Social and family history	0.57
Review of systems	0.36
Physical examination	0.46
Diagnostic tests	0.17
Impression / diagnosis	0.44
Plan	0.34
<i>Reviewers' judgment of documented assessment</i>	
Pertinent patient observations	-0.06
Thoroughness of documented assessment	0.21
Appropriateness of documented assessment	0.41
Illustration of how diagnosis and decision reached	0.21
Compliance with relevant clinical guidelines	0.15
<i>Reviewers' judgment of documented care/treatment decisions</i>	
Potential for use of other medications	0.09
Potential for instigation of other treatments	-0.15
Appropriateness of decision making support used	0.24
<i>Reviewers' judgments of overall documentation standard</i>	
Legibility and clarity	0.46
Relevant simple information e.g. date	n/a*
Sufficiency of quality to justify the decision reached	0.24
<b>2. Outcome of decision making</b>	
An appropriate care pathway decision was chosen	0.20

\* The Kappa statistic for this measure could not be calculated because all cases were judged as 'yes' by both reviewers

Table 5.14: Reviewer’s judgment of the appropriateness of ECP and AP care pathway decisions, disaggregated by the conveyance decision

Care pathway decision	Attending practitioner	Reviewers’ judgments of the appropriateness of the care pathway decision			
		Inappropriate		Appropriate	
		n	%	n	%
Not conveyed to the ED	AP	4	18.2	18	81.8
	ECP	4	5.2	73	94.8
Conveyed to the ED	AP	58	45.3	70	54.7
	ECP	18	20.7	69	79.3

***Appropriateness of the process of decision-making***

Reviewers’ responses to the statements regarding the documented processes of care on the review proforma revealed substantial concerns with some of the documentation reviewed, although there was substantial variation in the responses to all of these statements, indicating that reviewers judged that the documented decision processes varied widely in quality within this sample.

The unadjusted and adjusted comparisons of judgments relating to documented processes of care by APs and ECPs are summarised in Table 5.15. These reveal that significant unadjusted differences were found in all but three of the 22 measures – the recording of pertinent patient observations, the potential to administer other medications, and the documentation of relevant simple information such as dates and times. The documented decision making processes of ECP-attended cases were more likely to receive a positive judgment from reviewers. Adjustment for age and gender of the patient, and for the call category, strengthened most of the differences observed in the 19 statistically significant measures.

***Associations between process and outcome***

The vast majority of clinical review process measures (all bar the ‘documentation of social history’, ‘legibility and clarity of the documentation’ and the ‘recording of relevant simple information’) were found to be significantly associated with the reviewers’ judgments of the appropriateness of the care pathway decision. On all process measures, a higher proportion of those cases receiving a ‘positive’ judgment from the reviewers also received a judgment that the care pathway decision had been ‘appropriate’.

Table 5.15: A comparison of reviewers' judgments of documented processes of decision making in AP- and ECP-attended cases in the emergency ambulance setting

Process measure	Practitioner type	Binary split in response									
		None or poor		Satisfactory or very good		Unadjusted			Adjusted		
		n	%	n	%	p	OR	95% CIs	P	OR	95% CIs
<i>Judgment of documented assessment</i>											
Presenting complaint	AP	35	22.0	124	78.0	<0.001	4.86	2.25, 10.50	<0.001	5.68	2.51, 12.84
	ECP	9	5.5	155	94.5						
History of presenting complaint	AP	54	34.0	105	66.0	<0.001	5.11	2.74, 9.54	<0.001	5.57	2.92, 10.62
	ECP	15	9.1	149	90.9						
Past medical history	AP	70	44.0	89	56.0	<0.001	3.54	2.14, 5.86	<0.001	4.01	2.37, 6.79
	ECP	30	18.2	135	81.8						
Drug history / allergies	AP	80	50.3	79	49.7	<0.001	4.05	2.48, 6.62	<0.001	4.12	2.50, 6.80
	ECP	33	20.0	132	80.0						
Social and family history	AP	120	75.5	39	24.5	<0.001	5.53	3.42, 8.95	<0.001	5.68	3.47, 9.29
	ECP	59	35.8	106	64.2						
Review of systems	AP	134	84.3	25	15.7	<0.001	6.36	3.76, 10.76	<0.001	6.94	4.04, 11.92
	ECP	75	45.7	89	54.3						
Physical examination	AP	121	76.1	38	23.9	<0.001	8.17	4.96, 13.45	<0.001	8.20	4.94, 13.63
	ECP	46	28.0	118	72.0						
Diagnostic tests	AP	96	60.8	52	39.2	<0.001	3.15	2.00, 4.98	<0.001	3.35	2.09, 5.38
	ECP	54	67.1	110	67.1						
Impression / diagnosis	AP	74	47.4	82	52.6	<0.001	6.54	3.73, 11.49	<0.001	7.18	4.01, 12.84
	ECP	20	12.1	145	87.9						
Plan	AP	67	42.9	89	57.1	<0.001	6.06	3.38, 10.87	<0.001	6.51	3.58, 11.85
	ECP	18	11.0	145	89.0						

Continued overleaf

Table 5.15: A comparison of reviewers' judgments of documented processes of decision making in AP- and ECP-attended cases in the emergency ambulance setting, continued

Process measure	Practitioner type	Binary split in response									
		No		Yes		Unadjusted			Adjusted		
		n	%	n	%	p	OR	95% CIs	p	OR	95% CIs
<i>Judgment of assessment</i>											
Pertinent patient observations	AP	10	6.4	8	4.9	0.633	1.32	0.51, 3.43	0.730	1.19	0.44, 3.22
	ECP	147	93.6	155	95.1						
Thoroughly documented assessment	AP	84	53.2	74	46.8	<0.001	4.18	2.57, 6.81	<0.001	4.60	2.78, 7.62
	ECP	35	21.3	129	78.7						
Appropriately documented assessment	AP	82	52.6	74	47.4	<0.001	4.20	2.57, 6.87	<0.001	4.36	2.65, 7.19
	ECP	34	20.9	129	79.1						
Illustrated how diagnosis and decision reached	AP	77	50.0	77	50.0	<0.001	5.75	3.36, 9.83	<0.001	6.09	3.52, 10.55
	ECP	24	14.8	138	82.5						
Complied with relevant clinical guidelines	AP	41	29.9	96	70.1	<0.001	4.40	2.24, 8.66	<0.001	5.14	2.53, 1.46
	ECP	13	8.8	134	91.2						
<i>Care/treatment decisions</i>											
Potential for use of other medications	AP	104	68.4	48	31.6	0.213	0.73	0.45, 1.19	0.190	0.72	0.43, 1.18
	ECP	122	74.8	41	25.2						
Potential for instigation of other treatments	AP	91	60.7	59	39.3	0.002	0.46	0.28, 0.75	0.001	0.43	0.26, 0.71
	ECP	125	77.2	37	22.8						
Appropriate of decision making support used	AP	72	47.1	81	52.9	<0.001	4.87	2.86, 8.29	<0.001	5.49	3.16, 9.50
	ECP	25	15.4	137	84.6						
<i>Overall documentation</i>											
Legible and clear	AP	21	13.6		86.4	0.011	2.94	1.26, 6.86	0.015	2.92	1.24, 6.91
	ECP	8	5.1		94.9						
Relevant simple information	AP	0	0		100	0.248	2.00	1.79, 2.24	0.995	0.000	0.000, -
	ECP	3	1.9		98.1						
Sufficient information to justify the decision	AP	25	16.1		83.9	0.013	2.57	1.22, 5.43	0.016	2.54	1.18, 5.41
	ECP	11	7.0		93.0						

#### 5.5.4 Appropriateness of care pathway decisions: patients' versus reviewers' judgments

While the vast majority of patient respondents (96.3%) judged that an appropriate care pathway decision had been made for them, the clinical reviewers were more critical, judging that only 73.2% of cases involved an appropriate care pathway decision. A formal comparison of these two contrasting assessments using Cohen's Kappa generated a value of 0.22 which reflects this difference in view of patients and reviewers (see Table 5.16), although agreement between the perspective of the patient and the reviewer was reached for a substantial number of cases (213/303, 70.3%).

Table 5.16: Comparison of patients' and reviewers' judgments of appropriateness of the care pathway decision

Patient judgment	Reviewer judgment	
	Inappropriate care pathway decision	Appropriate care pathway decision
Not right pathway decision	4	7
Right care pathway decision	79	213

#### 5.5.5 Appropriateness of decisions: further service use and its outcomes

Following the incident for which they had received an out-of-hours home visit, 56.7% (n = 287) of respondents reported that they had used other health or social care services during the next two weeks. These services included an emergency ambulance (n = 139, 27.2%); the emergency doctor (n = 26, 5.1%); the ED (n = 112, 21.9%); their own GP (n = 126, 24.6%); a community-based nurse (n = 29, 5.7%); carers at home (n = 43, 8.4%); and 'other services' (n = 47, 9.2%) including, for example, physiotherapists, specialist physicians, and intermediate care.

Differences in subsequent service use were observed amongst patients attended by APs or ECPs when analysed by the care pathway used (i.e. treated and left, treated and referred, or conveyed to the ED). Respondents attended by ECPs were more likely to have reported using other services than those attended by APs if they had been 'treated and left' or 'treated and referred'. However, the latter care pathway only appeared in the ECP-attended patients in this study, rendering statistical analysis unreliable.

Meanwhile, of those patients who had been conveyed to the ED, 42.6% (n = 150) reported having been admitted to hospital at the time, the remainder (n = 202) being discharged home.

No significant differences were found in the outcomes of those who had been conveyed to the ED who had been attended by an AP or an ECP.

Of those patients who reported using their GP service in the two weeks following their out-of-hours home visit, 11 requests for information were sent to GPs. Follow-up data were received for just seven cases. Due to there being only these limited data available, these cases have not been coded or grouped. All seven patients had also been conveyed to the ED and data from that health care episode (intervening between the emergency ambulance visit and the follow up consultation with the patient's own GP) was not available. That said, in all of the cases the GP's diagnosis concurred with the indication on the APs' or ECPs' records as to what they considered to be the issue at the time of the emergency ambulance visit, with these patients apparently consulting their GP as the condition was not resolved, or because they required further community services input. Two such examples are as follows:

- A patient presented to the ambulance service with a head injury / head wound with no loss of consciousness. The wound was initially dressed by the attending ECP who documented a decision to convey to the ED as the patient was in a public place with resultant difficulties with assessment. The GP reported that the wound required the practice nurse to carry out a wound dressing several times in the two weeks subsequent to this initial event.
- A patient presented to the ambulance service with anxiety and depression. The records report several causes of distress for the patient and a prior diagnosis as 'alcoholic'. The attending APs also report the patient's stated desire to change her lifestyle. The GP reported having subsequently referred the patient to the local alcohol advisory service and reviewing her to monitor her progress.

In two cases the GP initiated a change in the patient's medication as a result of symptoms not having resolved at the time of their consultation, and a referral for specialist medical care (cardiologist and dermatologist) was made in a further two cases.

No cause for concern was raised about the pre-hospital diagnosis on the basis of these data.

## **5.6 RESULTS 3: UNDERSTANDING PATIENT'S JUDGMENTS OF APPROPRIATENESS - INTERVIEW FINDINGS**

Analyses of the patient interviews from both the out-of-hours and the emergency ambulance setting revealed some similarity in the dominant themes that emerged and for this reason the analyses are presented together in the following sections. That said, there were some contrasts and some variation in these themes both within and between the study's settings. Wherever these occurred they are described in the text.

The patient interviews in both settings revealed a range of different patient ‘stories’. In the out-of-hours setting, two main groups of patients were interviewed – those with a long history of health issues who had experienced a deterioration or acute event within an existing condition (and who may have waited some days before calling for assistance), and those experiencing a novel acute event for which they had called for assistance more or less immediately. However, even in the latter group, there was no sense from these patients that they had judged their condition to require an immediate response such as an ambulance, although many did comment upon a long wait either for a phone call back from the out-of-hours service or for a visit. In contrast, in the emergency ambulance setting, it was clear in their stories that the majority of patients had experienced an acute event, either one that was associated with an isolated incident or one within an existing condition. Although some interviewees reported hesitating to call for an emergency ambulance, or calling NHS Direct or the GP out-of-hours service initially, the call for assistance was plainly associated with the sudden onset of these events in people’s lives, which were variously described, but can be summarised as frightening or overwhelming.

Two main themes emerged from the interview data that assist in understanding the questionnaire feedback:

- comfort with the care pathway decision was associated with trust in the practitioner and the process of decision making used; and
- the importance of the approach adopted by the practitioner.

***Comfort in the care pathway decision associated with trust in the practitioner and the process of decision making used***

The majority of the patients interviewed did not volunteer a detailed description of a chronological or itemised process of decision making by the practitioner who attended them in either setting. Instead, the patients’ focus rested much more heavily on how they had experienced the whole episode of care. That said, a process of care (in both settings) that had four main components – assessment, diagnosis, treatment and/or onward care/the care pathway decision – was clear in most of the interviews.

Assessment (including an examination) was described as a ‘check’, or by its individual components (such as listening to the heart, or taking a blood pressure, temperature or pulse), or interviewees recalled particular questions that had been asked, albeit with some exceptions where a more detailed account was recalled by the patient. Many of the interviewees appeared to be reporting on consultations with a definite diagnostic statement and a conclusion, particularly, but not exclusively, in the GP out-of-hours setting. In this setting all

of the consultations appeared to have reached a diagnostic conclusion, even if this was the possibility of a number of potential diagnoses, with the patient having been informed that further investigation was necessary in order to accurately differentiate between the potential problems. This diagnostic stage was frequently described as one in which the practitioner made an explicit statement about what the condition was, such as dehydration, a chest infection or an ear infection. In the emergency ambulance setting some respondents reported a similar explicit statement about a potential diagnosis, and a sense that the practitioner was ‘ruling out’ the most serious potential complaints first. In both settings, the interviewees appeared to particularly recall this if the diagnosis was confirmed by the hospital or other health care used later, as illustrated in the following quote:

“he (the practitioner) was very good. He was explaining to my missus that it sounds like a lung infection...and that was diagnosed at the hospital and the pneumonia came later on...”  
(A423)

The amount of treatment offered appeared to differ between the two settings, with a number of the out-of hours setting interviewees describing a ‘treatment’ of some sort, predominantly in the form of either a prescription or direct dispensing of medication, or in health and self care advice. In the emergency ambulance setting this was not so widespread, and more interviewees only described treatment received at their onward destination.

Interviewees reported varying accounts of discussions with their practitioners about the care pathway decision, which can be summarised into three groupings – directive, negotiated and patient-led. The more directive style was reported more frequently in the emergency ambulance setting, and this style was actually described by interviewees in positive terms, and related to the seriousness or immediacy of need associated with their condition, or what the interviewees perceived as an obvious need to attend the ED. In the out-of-hours setting, less explicit discussion was reported upon by the interviewees where, particularly in cases of non-conveyance, the decision appeared to have been assumed by the practitioner and the patient, and the patients reported being comfortable with that, and were even relieved in some instances that going to hospital had not even been mentioned. This is illustrated in the following quote:

“Respondent: I like that system with the ambulance man because you can stay at home...Interviewer: Did he talk to you about going to hospital? Respondent: No, never mentioned it I’m glad to say.” (ID 749)

In both settings, examples were given by interviewees that fell into the ‘facilitative’ or perhaps ‘negotiated’ style where either information was given to the patient to allow them to make a decision, or there was a discussion resulting from the patient not agreeing initially with the practitioner’s decision. The former was reported more often in the emergency



ambulance-attended interviewees, where a choice of which hospital to attend was also sometimes discussed in the interviews. For example:

“They thought it wiser that I went in...no they didn’t insist I went in, they just felt it would be better I went in. And it’s like the choice of hospitals. They didn’t say ‘oh go to (hospital name) because it’s ENT or don’t go to (hospital name) because they don’t do it’. They just literally gave me a choice which was fine..” (A2080)

The latter ‘negotiated’ style was described by some interviewees for whom there was not immediate agreement with the practitioner about the best course of action. This process of negotiation was articulated particularly clearly by one interviewee who wished to avoid hospitalisation whilst the practitioner wished to maintain the patient’s safety, as illustrated in the following (lengthy) quote which illustrates the complexity involved in such situations:

“He asked me some questions about um how I was feeling but I was, I couldn’t get my words out because I was so, so low and that’s what really worried him...he said...‘I think you need sectioning because you’re not willing to go into hospital’. He said ‘I don’t really want that to happen because it gets all very uncomfortable er it’s very distressing for you. The police have to be involved and um doctors have to come out. We have to cart you off’. He said er ‘I don’t want that to happen’. I said ‘well I’m not going anywhere’, I, I said ‘I don’t want to be in that environment... He said ‘I’m going to call the crisis team’. He said ‘will you let me call the crisis team?’ And er and at that time my therapist called. I’ve got a private counsellor because she was worried and erm I said ‘oh yeah the doctor’s here’. He said ‘can I speak to her please?’ So he spoke to the counsellor and they conversed and um she said um ‘yes please call the crisis team, get the crisis team involved and um we’ll try and work through this. I’ll support (respondent’s name) as well’ and um so he kept me talking and I can’t remember the questions um but he was very, very worried and he said um ‘you see it’s my profession to save life, I can’t let you take your life, I need to protect you’. He said ‘will you let me call the crisis team from here’. I said ‘no’...So he said ‘ok I’m going in my car. I’m going to call the crisis team’ he said and um ‘I will call you back and let you know what’s going to happen’ and um he did, that’s what he did and um the crisis team then called me. They came and visited and they supported me through the weekend and um they got me through and they’ve been in every weekend since.” (ID 155)

Only one interviewee described the other end of the spectrum of style of decision making about the care pathway - that is, one where the patient was encouraged to make their own decision. For this interviewee this had not been an entirely comfortable process as this put the decision in her hands when she felt she had specifically called for assistance with that decision.

Despite these differences amongst the patients’ experiences of the care pathway decision making process, their descriptions predominantly characterised the process of assessment and care as one that had enabled them to trust the practitioner’s decision making about the care pathway used.

The elements of the decision making process that interviewees, variously within and between settings, described positively can be summarised as follows:

- a thorough examination (mainly in the out-of-hours setting)  
“he took loads of tests, he was very thorough” (ID 164)
- an explanation of why an assessment was being carried out or treatment initiated (both settings)  
“They were discussing her condition, checking this, telling me why they were doing everything.. I mean she told me ‘Well she still feels very confused and then the eyes are closed. I think it’s better if we take her to the hospital to check.’” (A587)
- not feeling rushed (both settings)
- feeling that they could question the practitioner (out-of-hours setting)  
“I felt the opportunity was there to say well do I have to go in or I don’t want to erm, but I, I just let her make the decisions because you know this is unusual for me and if that’s where she feels I ought to be, I’m happy to go along with it...” (ID 187)
- the practitioner’s manner (both settings), including respecting and listening to the patient, and, for some, a sense that the practitioner was not ‘professionally distant’. One respondent had reported their attending practitioner to be initially “austere or business-like” (ID 511), and this had been off-putting, although the situation was reported to have eased during the consultation. The majority of interviewees described feelings akin to being ‘at ease’ with the practitioner. In the out-of-hours setting some patients who had been attended by an ECP reported that this experience compared favourably with previous out-of-hours visits by GPs, particularly in regard to not feeling rushed or to the practitioner’s manner. However, in this sample, the patients interviewed who had been attended by GPs reported similar positive experiences around assessment and explanation as did those attended by ECPs.

In the emergency ambulance setting a slightly different emphasis was observed amongst the interviewees, where comfort in the care pathway decision was associated with the practitioner ‘being in control’, alleviating a situation of anxiety and uncertainty with “an aura of confidence” (A423). This ‘taking control’ was reported positively by interviewees who variously described it as actually allowing them to take control back themselves, to take in information and to be involved in the process of decision making.

### ***The importance of the approach adopted by the practitioner***

While the approach adopted by the practitioner was clearly observed as important amongst interviewees’ data from both settings, the emphasis in each was slightly different. In the out-of-hours setting, the importance of the practitioner’s actions became obvious in the majority

of the interviewees' lack of attachment to the type of practitioner or their professional title. The interviewees attended by an ECP were all aware that they had not received a GP visit, their awareness having come primarily from the ECP's appearance in ambulance uniform, as well as an explicit statement from the ECP that they were not a doctor. However, the interviewees expressed no concern about receiving care from an ECP. As such, their trust in the ECP (and, indeed, in the GPs who attended other interviewees) appeared to have arisen both from the practitioner's manner and the examination and care they had received. These patients felt this care was similar to what they would have expected from a doctor, as illustrated in the following quote:

“Well he came and explained that he wasn't a doctor, he was a medical practitioner.....he gave me a thorough examination, listened to my chest, he checked my blood pressure and checked my temperature and looked down my throat and all sorts of things. The sort of things you'd expect a doctor to do...” (ID 506)

“well, I didn't know what he was but as long as he can do his job, to me that doesn't matter.” (ID 719)

Certain interviewees were nonetheless astute in having recognised ECPs' limits to practice, particularly the dispensing of medications, but they felt that otherwise ECPs were as capable as GPs to deal with their presenting condition. Those interviewees attended by a GP supported this finding by suggesting that they would not have pre-judged an ECP if an ECP rather than a GP had attended their call. Instead they felt they would have accepted the ECP and judged the quality of the care they provided on the basis of the adequacy of their knowledge.

In the ambulance setting, the interviewed patients did not distinguish ECPs from other APs, even in the five interviewees who had been attended by both an ECP and one or more APs. All of the practitioners who had attended these interviewees were described as 'ambulance people' or 'paramedics', with some interviewees referring to the first responder (often an ECP in this dataset) as 'the paramedic'. What these interviewees did recognise, however, was that the role of the first responder was to assess the need for an ambulance. The importance of the practitioner's manner and approach in this setting was described in terms of their competence, as illustrated in the following quote:

“you put your trust in them and the way they behave because you know they're doing something they know...so you sort of put your trust in them, you don't doubt anything and they have been proven right...it's the, I don't know, professionalism, quiet professionalism, their bearing, their manner...it's because they're so decisive.” (A597)

The final point on this issue was the importance ascribed to the provision of psychological support for the patient themselves and their family. Although this is difficult to tie to particular quotes in the interviewees' data, this was clearly fundamental to the patients' more

positive experiences, and was responsible for the way in which patients felt able to cope with sudden and frightening situations, and thereafter play a part in the decision making process.

## **5.7 DISCUSSION**

The objective of the research presented in this chapter was to assess the appropriateness of the decisions made by ECPs, APs and GPs in terms of what these decisions were and how these decisions were made, using a number of measures and judgments made by patients and clinically-qualified reviewers. These analyses suggest that care delivered by ECPs in both the GP out-of-hours and emergency ambulance settings is largely considered appropriate and, in many instances, was judged to have been more appropriate than that provided by GPs and APs.

In terms of the processes of care, both patients' and clinical reviewers' judgments of appropriateness varied widely according to the specific processes involved. This indicates that the assessment tools (that is, the questionnaire and review proforma) were both capable of picking up variation in decision making processes and practices. Patients, in the main, assigned more favourable ratings to the processes of care they were asked to judge than clinical reviewers. However, both groups judged ECPs more favourably on all measures, with a substantial number of these being statistically significant as compared to judgments made of the recalled/recorded practices of APs and GPs. This was particularly noticeable in the clinical reviewers' judgments in both the GP out-of-hours and emergency ambulance settings, where the reviewers judged that several areas of documented practice in the clinical records they had reviewed displayed substantial cause for concern. In short, the reviewers suggested that GPs and APs, in their respective settings, are neither explaining their decision making processes nor justifying their care pathway decision as adequately and consistently as ECPs are in their written records. These judgments relating to the processes of decision making contrast somewhat with judgments made about the appropriateness of the care pathway decision itself, particularly in terms of patients' judgments. Indeed the vast majority of patients judged their chosen care pathway to have resulted from an appropriate decision. However, clinical reviewers were more critical in both study settings, with the highest proportion of cases judged 'inappropriate' observed in the GP 'non conveyed' cases and the AP 'conveyed' cases. It is difficult to assess from this study whether the more limited documentation style observed in GP records contributed to the reviewers' judgments. Likewise it is not clear whether GPs were in fact taking 'riskier' decisions (that is, being higher risk takers than the reviewers) that might result in a judgment of an inappropriate pathway for the patient. Whilst this is also unclear for the AP-attended cases, the fact that

reviewers were willing to judge that care pathway decisions (particularly those that involved conveying the patient to the ED) were inappropriate based on records that were observed to be somewhat limited in the documentation of history taking and assessment, is nonetheless striking. That said, these judgments may not be entirely unexpected given that APs are operating in a risk-averse setting and have, in the past, been actively encouraged to convey all patients to the ED, regardless of their clinical condition.

Unfortunately, only limited data were available for assessing whether the chosen pathway of care from ECPs, GPs and APs was appropriate in terms of their use of other services and their subsequent clinical condition. However, those data that were available – patients' self reports of service use, and GPs' descriptions of the treatment provided to patients who consulted them subsequently visited their GP - found no substantial cause for concern. That said, the latter data did highlight that GPs did not always concur with the diagnostic conclusion reached in the patient's initial assessment and care. As these data were only obtained for a small number of cases they cannot be used to generalise to the populations of patients examined elsewhere in these analyses. Nevertheless, these data do offer some reassurance that the practitioners who had attended these patients did *not* appear to have made inappropriate care pathway decisions, although this remains an issue that urgently requires further study.

Finally it is important to note that the analyses presented in this chapter have a number of limitations. In particular the judgments of whether the care pathway decision was appropriate were based upon patients' recollections and practitioners' documentation of care. Ideally, clinical outcome data would have been available from all points of service contact associated with the initial event for which patients became involved in the study. Given the different documentation available to each practitioner group examined here (see Chapter 4), it seems likely that this would have affected the judgments that reviewers were able to make based on these. If documentation that permitted or encouraged practitioners to record their decision-making in greater detail was the reason why the practitioners concerned actually made more detailed records, then this may have contributed to the higher number of documented decisions made by ECPs being judged as appropriate by clinical reviewers, since the documentation provided for ECPs had more available space on which to record decision making than that provided for GPs and APs. That said, it is important to note that the reviewers did not judge all of the AP or GP records to be poor and, within the limits of judgments made on practitioners' records, it seems likely that the differences in decision making processes detected were real, not least because they concur with the observed practices of each practitioner group described in Chapter 4.

Another potential limitation lies in the fact that the reviewers only displayed fairly moderate levels of agreement with each other where two reviews were carried out for the same cases. While this might raise some concern about the reliability of the proforma used, it is also likely that these differences of opinion reflect the complexity of decision making in these settings, and the difficulty of making definitive judgments about care pathway decisions when these are based upon documentation that, inevitably, lacks the contextual and 'live' information available to the practitioner at the scene.

Lastly, there are a number of limitations associated with multiple testing in the statistical analyses of the large number of process measures recorded in this study. In particular, it is possible that at least some of the statistically significant differences observed between ECPs, GPs and APs in decision making processes are simply the result of chance. However, the disproportionate number of measures revealing statistically significant differences in decision making processes (at  $p < 0.05$ ), together with the consistent direction of these differences, suggests that these were not the result of chance associated with multiple testing.

These limitations aside, the analyses presented in this chapter provide a clear indication that the appropriateness of care pathway decisions, and the processes that both precede and follow these decisions, were found to be as good or better in the ECP-attended cases as compared to the GP- or AP-attended cases.

## **6. OVERALL DISCUSSION: THE APPROPRIATENESS OF ECPs' DECISION MAKING**

### **6.1 BACKGROUND LITERATURE AND STUDY AIMS**

The ECP role, although a very new one, has been subject to a number of previous studies in the UK. These studies have been helpful in providing early descriptions of the role (Mason et al., 2003, Doy and Turner, 2004) and in identifying elements of its impact (Doy and Turner, 2004, Squires and Mason, 2004, Cooper et al., 2004, Halter et al., 2006, Mason, 2006, Mason et al., 2007a, Mason et al., 2007b, Buckingham and Adams, 2000, Cooper et al., 2007a, Cooper et al., 2007b, Halter et al., 2007). Nonetheless, substantial gaps exist in the literature to date, particularly regarding providing a profile of ECPs and their experiences, understanding how reduced rates of conveyance to the ED occur, assessing the safety of ECP practice with a range of measures, and weighing up the costs and benefits of the ECP role and its operation. The present observational study has sought to address some of these gaps by examining the decision making of ECPs. The study aimed to investigate both the processes and outcome of decision making by ECPs in London by describing their education and development; exploring their experiences of decision-making; comparing the use of different care pathways (conveyance rates) by APs and ECPs in the emergency ambulance setting; examining the processes involved in decision-making by GPs, APs and ECPs; comparing the appropriateness of the care pathway decisions made by APs and ECPs in the emergency ambulance setting and by GPs and ECPs in the out-of-hours setting; and exploring patients' experiences of how and why GPs, APs and ECPs make decisions about their care and care pathway.

### **6.2 UNDERSTANDING WHO 'THE ECP IN LONDON' IS**

ECPs in London are not an homogenous group. ECPs who responded to the survey of their professional background; and their education and development, provided a picture of a group with a common identity - all having been APs and all having undertaken the same core education programme - but with substantial diversity in the sequence, pace, and content of their education and development. This diversity was apparent even when the length of time they had spent working as an ECP was taken into account. The lack of standardisation in the core education and development required to be named an 'ECP' in London has, perhaps, the greatest impact on the comparability of individual ECPs, both within London and nationally. Ironically the fact that the one area where they do show homogeneity (all coming from an AP

background) might also limit generalisation of these findings to other groups of ECPs recruited from more diverse professional backgrounds.

ECPs described themselves as a developing practitioner group who have not found the move to autonomous decision making an easy one. Nonetheless, many relish the opportunity to develop further. ECPs describe different patterns of decision making and greater reflection on practice than they experienced in their previous capacity as APs. This was particularly evident with regard to deciding whether to convey patients to the ED, and in their greater focus on the impact of social factors on the safety of patients who they were considering not conveying to the ED. The ECPs were also clear in their belief that their practice could become (even) more effective with both continued focussed clinical support that would help them to translate their education and development into practice, and organisational policies that complement their role's objectives. The need for clinical support, individual assessment, and continuing mentoring to develop autonomous practitioners has also been reported in descriptive accounts of ECP schemes in other parts of the UK (First and McGregor, 2006). This is an important finding, not only for ECPs, but for the proposed move to higher education preparation for other practitioner groups, such as paramedics, where it is recognised that a vocational focus should be maintained while simultaneously broadening the underpinning knowledge base of the trainee practitioners involved (Department of Health, 2008c).

The diverse background, education and experience found amongst London's ECPs is not necessarily unexpected given that ECPs are practitioners undergoing role transition. Certainly, evidence from other professional groups undertaking new or expanded roles (most notably that of the 'Emergency Nurse Practitioner') suggests that role diversity is inevitable when role development occurs in an organic fashion within diverse local contexts. However, it is also inevitable that this approach to education and development results in issues for role standardisation (Marr et al., 2003). It is therefore important to recognise that it is *individuals* rather than *coherent groups* who undertake new roles, and that these individuals need support and continuing education to contend with role transition (Tye and Ross, 2000). At the same time, based on research into the nurse practitioner role, it is also clear that the development of thinking and autonomous decision makers requires risk taking from the organisation so that practitioners are allowed to decide what practice development they need (Bland 1997). This may be particularly relevant to roles that require autonomous practice with a broad set of presenting conditions where autonomy has been reported to be more difficult to achieve than in those roles focussed on clearly delineated sets of presenting conditions, such as minor injuries alone (Norris and Melby, 2006). In light of these findings from research on other new practitioner roles, it is perhaps only to be expected that the present study of another such



role – the ECP - has found such extensive variation in background and education amongst individual practitioners, and the related development issues that accompany such variation.

### **6.3 COMPARING CARE PATHWAY DECISIONS (CONVEYANCE RATE) MADE BY APs AND ECPs**

In the out of hours setting data were not routinely available to enable retrospective comparisons of conveyance rates amongst GPs and ECPs and the present study therefore cannot comment on the impact of ECPs on conveyance decisions in that setting. However, the analysis of three years' retrospective data from the emergency ambulance setting indicated that ECPs convey fewer patients to the Emergency Department than their AP colleagues. This finding concurs with findings from previous studies examining conveyance rates (Cooper et al., 2004, Mason, 2006, Cooper et al., 2007a, Mason et al., 2007a, Mason et al., 2007b). After accounting for clustering within the data (by individual practitioners and by the PCTs within which they practised) the difference in conveyance rates between APs and ECPs was slightly attenuated, but nevertheless remained statistically significant. Moreover, the extent of this difference in conveyance rates did not change when analyses were restricted to a subset of case types that ECPs attended more frequently (such as those coded as 'no injury or illness' and 'minor injury'). It is assumed that ECPs are dispatched most frequently to the sorts of case type that they are felt to be best equipped to treat, and it was therefore surprising that the difference in conveyance rates between APs and ECPs was not higher. There are a number of potential explanations for this finding. In the current organisational climate conveyance to the ED is being discouraged by financial incentives (Anonymous, 2007) and it is now widely accepted within the emergency ambulance setting that many calls can be appropriately directed away from the ED (Department of Health, 2005). It is therefore possible that APs as well as ECPs have changed their practice away from routine conveyance to the ED, and that this change is most evident amongst the sorts of patients ECPs attend more frequently. For example, it may be that patients whose condition is coded as 'no injury or illness' or 'minor injury' are those that both APs and ECPs alike *feel* they are able to treat at home rather than convey to the ED. Alternatively, it is possible that ECPs revert to routine AP practice in some situations, including default conveyance to the ED, particularly in those cases requiring more immediate attention. These sorts of cases may well also have been included amongst those regularly attended by ECPs (such as within the illness codes 'abdominal pain' or 'other medical condition'). Finally, there is a possibility that 'illness codes', used in these analyses to select cases, are only loosely related to AMPDS codes which are used to decide which practitioner type to allocate to a particular emergency ambulance call. Regardless of which of these explanations, if not all, accounts for the finding of no

difference in conveyance rates between the whole and a subset of patients, the data nonetheless clearly indicate that ECPs convey fewer patients to the ED and that this difference remains after adjusting for potential confounders, after accounting for clustering, and after excluding case types less commonly attended by ECPs.

#### **6.4 COMPARING OBSERVED AND DOCUMENTED PROCESSES OF DECISION MAKING BY GPs, APs and ECPs**

Observations of practice and documentary analysis of GPs', APs' and ECPs' records in the GP out-of-hours and emergency ambulance settings revealed patterns of practice that could be fitted into three clear typologies. These typologies comprised a continuum from what constituted a somewhat limited assessment and recording of patient data to a more comprehensive questioning and record keeping style. However, because these qualitative analyses do not support broad generalisation, it is important to emphasise that a judgment cannot be made as to which of the typologies represents the most appropriate approach to assessment and record-taking. Nonetheless, it was clear that, broadly speaking, the three professional groups exhibited different and distinct styles of decision making, albeit that these differences were fluid and depended upon the patient's presenting condition and the context in which decisions were made. In the main, it was clear that ECPs had shifted their decision making style away from their past practice as APs towards a style that contained more elements of that which was observed amongst GPs, thereby creating a style of decision making that was distinct and unique within the present study's observations of practice and analysis of documentation.

That said, it is unclear whether ECPs have, when expanding their scope of practice and being allowed greater autonomy, created a unique role, or whether it is their status as 'novice' autonomous practitioners that has led them to a more thorough and perhaps more cautious style – one that reflects what they report as their ongoing concerns with confidence and with finding a place between what they perceive as risk taking in primary care and risk aversion in emergency care. Previous studies of other new roles, such as the ENP role, have also found evidence of 'improved' documentation (Cooper et al., 2002) and assessment (Sakr et al., 1999), when compared to established practitioner groups (such as junior doctors in these ENP studies). It is therefore, perhaps unsurprising to have found similar changes (that is, more detailed assessments and documentation) in the present study's analyses of the ECP role.

## 6.5 COMPARING JUDGMENTS OF THE APPROPRIATENESS OF DECISION MAKING AMONGST GPs, APs and ECPs

Patients' and clinical reviewers' judgments of the appropriateness of decision making processes and decision making outcomes revealed substantial support for ECPs. While previous studies have found that patient satisfaction with care provided by ECPs is both high and higher than that provided by other established practitioner groups (Halter et al., 2006, Mason, 2006, Mason et al., 2007a, Mason et al., 2007b), these studies did not establish whether these benefits related specifically to decision making. In the present study, patients assigned predominantly positive feedback to GPs, APs and ECPs when judging the processes of decision making, and there was no significant difference in patients' judgments of the appropriateness of the care pathway decisions these practitioners had made for (and/or with) them. However, patients did judge the process of decision making as different amongst the three practitioner groups, and judged it to have been better than that of GPs and APs. The clinical reviewers proved to be more critical judges than were the patients and provided less positive judgments of the documented decision making processes or care pathway outcomes of all three practitioner groups. The clinical reviewers judged that a higher number of the documented decision making processes of, and the care pathway decisions made by both GPs and APs were inappropriate as compared to those of/made by ECPs in their respective settings. In particular, as compared to the care pathway decisions made by ECPs, a disproportionate number of GP-attended cases that had *not* been conveyed to the ED and a disproportionate number of AP-attended cases that *had* been conveyed to the ED, were judged to have been inappropriate. While it is likely that these differences reflect the less detailed documentation available for GPs and APs to record their decisions as compared to that available for ECPs, the clinical reviewers' judgments support the judgments made by patients' (based on their recalled experience of decision making processes) and the impression generated by the typological analysis of decision making emanating from the observations of practice and documentary analyses. The latter found that the two typologies which exhibited more limited assessment and documentation were more often, though not exclusively, observed in cases attended by GPs or APs than did those attended by an ECP. These findings therefore suggest that ECPs' decision making practices are at least comparable with, and in some respects appear improved upon, those of other practitioners (GPs and APs) doing broadly comparable work in the two care settings (GP out-of-hours and emergency ambulance) in which they predominantly work. Indeed, the results of the present study's analysis highlight potential concerns related to the clinical reviewers' assessments of documented decision making by GPs and APs which warrant further study.

## 6.6 CONCLUSION

ECPs in London are a diverse and developing group of practitioners for whom change in practice has been both welcome and difficult. However, the observed variation in their education and development appears not to have been a problem in practice as it is clear from the multiple elements of the present study that ECPs, as a group, have shifted considerably in their practice from their AP roots towards becoming competent autonomous practitioners. This shift applies to both the processes associated with decision making, and in the decisions that they make regarding the care pathway selected for the patient's onward care. In the process, ECPs are delivering on their policy objective of reducing conveyance to the ED, although additional research is still required to establish which types of cases would be most appropriate for ECPs to attend to achieve the *maximum* impact from their change in knowledge and experience, and their different approach to decisions about conveyance.

While ECPs have successfully taken on elements of a more medically focused role, they have added a more holistic element based upon a raised awareness of the social issues patients in emergency and primary care settings face. This might provide one explanation why, in the present study, both patients and clinical reviewers judged the appropriateness of ECPs' decision making processes and the care pathway decisions ECPs made to be more appropriate than those of their medically qualified colleagues. However, these positive findings remain tentative in the absence of analyses on two key factors which were planned for inclusion in the present study, namely the clinical outcome of care, and the cost of care provided by different practitioner groups. Unfortunately the data required to complete these two analyses were not forthcoming and these remain important issues that will need to be addressed in future research.

These limitations aside, the present study makes a substantial contribution to published evidence on the ECP role, providing a range of robust quantitative and qualitative analyses using a mixed-methods approach that was capable of exploring the appropriateness of decision making by ECPs from different perspectives in a way that supports validation through triangulation. From these analyses, it is clear that ECPs in London are a distinct group in how they practice, provide clear benefit to patients, and have the potential to strengthen the health care system, in both the way in which they make decisions and the sorts of decisions they make.

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## **APPENDICES**





## APPENDIX A

London Ambulance Service  
NHS Trust



### London Ambulance Services NHS Trust Job Description

Job Title:	<b>Emergency Care Practitioner (Trainee)</b>
Location:	<b>London – various locations</b>
Salary:	
Grade:	<b>Emergency Care Practitioner (Trainee)</b>
Reporting To:	<b>ECP Project Coordinator</b>
Key Relationships:	<b>ECP Clinical Lead</b> <b>LAS Medical Director</b> <b>LAS Ambulance Operations Managers</b> <b>LAS Station Officers</b> <b>Primary Care Trust Clinical Leads</b>

#### **About The Project:**

The way in which a response to emergency and unscheduled care requests in London is provided is about to fundamentally change.

A new role and profession, Emergency Care Practitioner (ECP), is being developed to respond to this challenge.

This will be a community role developed in collaboration with local health and social care services. Practitioners will provide a rapid response to non life threatening / emergency 999 calls, a selected range of GP out of hours calls and other requests from local health and social care professionals and communities – i.e. schools and residential homes. ECPs will deliver high quality assessments, diagnoses, treatment & referral or discharge for people in crisis situations. This

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project will require effective team working across traditional organisational & professional boundaries in order to deliver care appropriate to need.

### **About The Role:**

The role requires individuals who can competently assess patients, diagnose, treat and refer or discharge patients with undifferentiated and undiagnosed injury and illness. You must be someone who is careful, who listens to patients, their families and friends and who can work collaboratively to develop effective packages of care for people in crisis situations.

Emergency Care Practitioners will work in teams – managed by an ECP Coordinator - allocated to specific Primary Care Trusts. While there will be bases in GP surgeries, Walk-in Centres or Minor Injuries Units, and some rotation through these settings, staff will normally be working alone as single responders in the community.

Trainees will receive a modular package of education at St. George's Hospital Medical School (Tooting) leading to an Emergency Care Practitioner Diploma. The eight units include physical assessment, clinical decision making, minor injuries, minor illnesses, paediatric assessment, chronic conditions and applied pharmacology. Advanced driving skills and an induction programme in preparation for working in pre-hospital care will be available to applicants requiring these skills.

The role is probationary for the first year. At the end of this period and subject to successful completion of the educational modules, an evaluation of effectiveness whilst working in teams, evidence of patient focus and passing a selection process the positions will become permanent.

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### *Main Tasks and Responsibilities*

#### **Key Tasks and Responsibilities**

- 1) Assess patients, diagnose, treat and refer or discharge patients with undifferentiated and undiagnosed injury and illness. Prescribing within Patient Group Directions, ECP Clinical Guidelines and scope of professional practice.
- 2) To respond immediately to emergency and unscheduled care requests as directed by Central Ambulance Control and provide a first point of contact, including undertaking single assessments.
- 3) Empower patients through clearly explaining the results of any assessments and tests and their consequent options. To follow patients wishes as long as safe and appropriate and to provide empathy and reassurance when required to patients and their families and friends.
- 4) Decide whether to treat, discharge, transport, organise transport or refer patients to other services, working within ECP Clinical Guidelines.
- 5) Provide support and information to other roles and services about the ECP contribution to patient independence and care.
- 6) Train and develop, teach and mentor, educate and inform – trainee ECPs, London Ambulance Service (LAS) staff, other health and care professionals, students, patients and their family members / friends where appropriate.
- 7) Manage caseloads where appropriate, deliver on personal ECP project portfolio responsibilities and deliver clinical leadership on cases referred to the service.

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- 8) Develop and apply the best available research evidence and evaluative and reflective thinking in all practices.
- 9) Take an active part in primary care trust and LAS based planning and policy development as related to the role.
- 10) Play an increasing role in the promotion of health and well being and preventative health care strategies.
- 11) Continue to extend and improve collaboration with other professions and services, including shared working practices and tools.
- 12) Work collaboratively to extend ECP clinical and practitioner roles across professional and organisational boundaries.

### **Patient Care**

- 13) To maintain and maximise patient confidentiality, dignity and privacy.
- 14) To undertake any required lifting and carrying in line with LAS policy and statutory guidelines.
- 15) To adhere to ECP Clinical Guidelines and Patient Group Directives, JRCALC) Clinical Guidelines and directives from the LAS Medical Director or nominated appointees.
- 16) To develop and maintain an individual and up to date 'Clinical Progress' portfolio to underpin, define and provide evidence on your own professional scope of practice.

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- 17) To adhere to ECP Clinical Guidelines and the limits of your professional scope of practice as detailed and evidenced in your personal 'Clinical Progress' folder and by your professional body.

### **Vehicles and Equipment**

- 18) To drive and operate LAS vehicles and equipment, in accordance with service policy and standards and Road Traffic law.

### **Professional Registration**

- 19) To maintain UK registration as a Paramedic, Nursing or Allied Health Professional. To undertake any statutory training, re-certification, and patient care training as required by both the LAS and the discrete professional registration bodies. Emergency Medical Technicians will need to undertake the relevant education and formally register as Paramedics to proceed beyond the probationary period.
- 20) To adhere to the appropriate HPC, Nursing or other Professional Codes of Conduct and associated training in the performance of all duties.

### **General**

- 21) To comply with LAS and ECP service policy, procedure and any statutory requirements.
- 22) To undertake the specified ECP education package and arrange and undertake related professional placements and mentoring.
- 23) To undertake any additional training in advanced driving, induction into pre hospital working, paramedic skill sets and other areas as required by the LAS.
- 24) To undertake project related tasks as directed by ECP Coordinators and the ECP Project Manager.

## APPENDIX A

- 25) To adopt a flexible attitude in meeting work commitments which will involve traveling to other locations on occasion and covering rotas on a 24 hour shift pattern when required.
- 26) To maintain a professional attitude and public image at all times.
- 27) To supervise and mentor any trainee Emergency Care Practitioners, Paramedics, Emergency Care Technicians, and other staff as requested.
- 28) To comply with the equal opportunities policies and procedures.
- 29) To develop and maintain an up to date Personal Development Plan.
- 30) To participate in relevant service evaluation and improvement processes.
- 31) To participate in personal and group clinical appraisal, review and governance processes as required by LAS.
- 32) To comply with health and safety policy, including use of personal protective equipment where supplied.

### *Key Relationships*

Externally: NHS and other partners including: PCT Clinical Leads, GPs and practice staff, Walk in Centre, Minor Injury Unit and Intermediate Care staff, A&E staff, Community and Mental Health Services, NHS Direct, Social Care services (i.e. Care Managers, Occupational Therapists, Home Care and Agency care workers) and the voluntary sector.

Internally: ECP Team Leaders, Area Operational Managers, Station and Training officers, LAS Team Leaders, Relevant CAC managers and control and dispatch staff, ECP Project Manager and the LAS Medical Director, Sector Clinical Advisors and ECP Clinical Lead.



## APPENDIX A

### London Ambulance Services NHS Trust

#### Person Specification

Job Title: **Emergency Care Practitioner - Trainee**

Location: **London – various locations**

Listed below are the key requirements needed to undertake this job. Candidates will be assessed against these criteria:

- 1) Either
  - A State Registered Paramedic for at least two years,
  - or a Registered Nurse for at least two years with a primary care or A&E background,
  - or an Emergency Medical Technician with at least four years post Millar's A&E experience who will be required to register as a Paramedic as part of the course,
  - or Physiotherapists or Occupational Therapists with two years post registration experience with A&E or primary care / community services background.
- 2) Strong listening and communication skills.
- 3) Ability to empathise with and reassure patients and their family members / friends in crisis situations.
- 4) Strong team worker with a collaborative style.
- 5) Able to take and follow instructions.

## APPENDIX A

- 6) Ability to assess, minimise and manage risks and to defuse stressful situations and aggressive patients – and to have well developed personal stress management techniques.
- 7) High levels of current clinical knowledge.
- 8) Confident to work independently and make own judgments.
- 9) Willing and able to learn and use paramedic skill set.
- 10) Professional attitude and appearance.
- 11) Literate.
- 12) Committed to personal and professional development.
- 13) Personal insight.
- 14) Ability to pass Higher Education modules.
- 15) Understanding and commitment to equal opportunities.
- 16) Commitment to clinical review and evidence based practice.
- 17) Good self management, i.e. self starter, good time management and able to deliver against set objectives.
- 18) Persuasive advocacy skills – able to develop packages of care for patients.
- 19) Reliable and conscientious.

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- 20) Physically fit and able to lift / push / pull patients as required.
- 21) Commitment to maintaining patient confidentiality, empowerment and right to self determination.
- 22) Successful experience of developing something in team setting.
- 23) Ability to mentor / train junior staff and a commitment to sharing knowledge and skills.
- 24) Willing to engage in ECP evaluation / research if required.
- 25) Hold a current manual driving Licence, valid in the UK and covering vehicles of categories C1 and D1, with no more than 3 points. Licences will be assessed based on conviction codes to determine acceptability.
- 26) Able to pass a medical assessment to the standard required for PCV licence.
- 27) No serious criminal convictions (Minor convictions, especially those which occurred some time ago, may be considered on an individual basis. Any conviction involving theft or violence will not be acceptable.)



APPENDIX B



London Ambulance  
Service



Faculty of Health and Social Care Sciences  
KINGSTON UNIVERSITY • ST GEORGE'S, UNIVERSITY OF LONDON

Faculty of Health and Social Care Sciences  
St. George's, University of London  
Grosvenor Wing  
Cranmer Terrace  
London SW17 0RE

Date

Dear <named Emergency Care Practitioner>

**RE: EVALUATION OF THE ECP ROLE**

Many of you will be aware that I am carrying out a piece of work at St. George's, with support from the LAS, to do further evaluation of the ECP role in London. The overall aim of the study is to examine the appropriateness of ECP clinical decisions. To achieve this I will be looking at it from the point of view of patients, clinicians, managers and ECPs.

There is an information sheet that briefly describes the study enclosed with this letter.

For this part of the study I would like to include all ECPs who were in post before December 2005.

**In brief, we are aiming to collect information from you all on the education, clinical placements, management development and mentoring you have undertaken or received. There is a form enclosed with this letter that I am asking you to complete.**

This will be used for two things:

- To write an overall description of the development that ECPs have undertaken – sometimes these things are just assumed and it can be important to describe them in detail
- To look for groupings within all ECPs, for example have six of you had very similar education and placements, and then analyse clinical practice within these groups. In the early stages of the work we will be using the disposal patterns to do this work. We understand that these do not tell us in a lot of

**APPENDIX B**

depth about clinical practice – this will be looked at later in the study – but can still be a useful measure of change.

All of this work will be done to maintain maximum anonymity of the data. I hold a list matching your name to an ID number, used on the ECP database at LAS. All the electronic information I am given only has this ID number. No reports on this study will enable any individual to be identified.

I appreciate you have a lot of work to do as ECPs, but if you are able to complete this form it will help us better understand what contributes to your development. If you would rather complete this over the phone or in person if you are around at St. George's that would be fine – just contact me on 020 8725 5414.

I look forward to hearing from you.

Mary Halter  
Research Fellow

APPENDIX B

EMERGENCY CARE PRACTITIONER RECORD OF DEVELOPMENT

ECP ID ____
-------------

1. **Years of experience in ambulance, or other health care, roles**  
*Please enter number of years in any relevant box*

Role	Number of years
EMT	
Paramedic	
Other role (please state)	

2. **Education qualifications before joining the ECP programme**  
*Please tick any relevant boxes*

Qualification	Yes	No
‘O’ level/CSE/GCSE		
‘A’ level		
Degree		
Higher degree		
Any other (please state)		

3. **Education undertaken as an ECP**  
*Please enter month and year for all courses you have taken*

Module or other study days	Month	Year
Nature of physical assessment		
Clinical decision making		
Minor Injuries		
Minor Illness		
Applied Pharmacology		
Older people / chronic illness		
Mental health		
Paediatric		
Other (please state)		

APPENDIX B

**4. Clinical placements undertaken as an ECP**

*Please use as many lines as you need.*

Placement place e.g. A&E	With whom e.g. nurse	Length e.g. 1 day	Month /year e.g. March 05
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			



APPENDIX B

**5. Mentoring received as an ECP**

*Please use as many lines as you need – if you were mentored as part of a placement described in question 4, please refer to the line number*

<b>Mentor type</b> e.g. ECP, nurse	<b>Length</b> e.g. 1 week	<b>Describe mentor's role</b> e.g. supervised practice

**6. Other development undertaken e.g. management course**

*Please use as many lines as you need*

<b>Development</b>	<b>Month &amp; Year</b>

**7. Any other areas of experience you feel are relevant**

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**THANK YOU FOR COMPLETING THIS FORM**

Please return it to: [mhalter@hscs.sgul.ac.uk](mailto:mhalter@hscs.sgul.ac.uk)

**OR in the S.A.E. OR phone 020 8725 5414 to complete verbally**

**BY August 1<sup>st</sup> 2006**





London Ambulance  
Service **NHS**

APPENDIX C

Faculty of Health and Social Care Sciences  
KINGSTON UNIVERSITY • ST GEORGE'S, UNIVERSITY OF LONDON

Faculty of Health and Social Care Sciences  
St. George's, University of London  
Grosvenor Wing  
Cranmer Terrace  
London SW17 0RE

<insert date>

Dear <named Emergency Care Practitioner>,

**RE: Emergency Care Practitioner evaluation**

I'm sure many of you are aware that, following the London Ambulance Service evaluation of the ECP project, research into the role is now being carried out at St. George's Medical School.

This research is being carried out between February 2006 and July 2007 and I am now looking specifically at the decisions that Emergency Care Practitioners, doctors and ambulance practitioners make about the care that people need.

A short information sheet about the study is enclosed with this letter.

I would like to interview ECPs who have been working in the role for the past two years, whatever area of London you work in. This will help us look at how practitioners describe their decision making.

All of you have been interviewed once or twice previously and this will be a follow up, aiming to capture your 'story' as an ECP over time, particularly looking at decision making.

Interviews are likely to last between 60 and 90 minutes and will be tape recorded.

Interviews can be held at St. George's Medical School or on London Ambulance Service premises convenient for you, in a space where you can speak privately.

## APPENDIX C

Tapes of the interview will be transcribed and an identity number given to them. Your name will only be linked to that number in a file held securely by me at St. George's. I will keep your individual information confidential.

I would be grateful if you could return the attached consent form to me in the enclosed stamped addressed envelope by <DATE>. If you do not consent this will not affect you at work in any way. You can withdraw consent for participation at any point up to and during data collection, that is, until you have agreed the transcript of the interview.

Please do not hesitate to contact me if you have any questions or would like more information at this point.


I look forward to hearing from you soon.

Best wishes

Mary Halter  
Research Fellow (ECP Programme)

020 8725 5414  
mhalter@hscs.sgul.ac.uk



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## Emergency Care Practitioner research

### Consent to interview

*Please tick*

I consent to being interviewed about my experiences as an  
Emergency Care Practitioner

Name \_\_\_\_\_

Signed \_\_\_\_\_

Date \_\_\_\_\_

If you consent I will be in contact when I receive this form to arrange a  
suitable time and place for the interview.



APPENDIX D



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Faculty of Health and Social Care Sciences  
St. George's, University of London  
Grosvenor Wing  
Cranmer Terrace  
London SW17 0RE

<insert date>

Dear <named Practitioner>,

**Observing staff in practice for the Emergency Care Practitioner study**

You will recently have received some information from me at your station explaining that I am carrying out a study of the appropriateness of decision making by Emergency Care Practitioners. This is being compared with other ambulance practitioners and with GPs. This study is being carried out between February 2006 and July 2007.

A short information sheet about the project is enclosed with this letter.

I am writing to you specifically about looking at **how practitioners make decisions in practice**. To do this I would like to observe a small number of practitioners in the different groups carrying out assessments of patients and making decisions about what is the best care for that patient.

*What would this involve?*

I would shadow you while you were on duty on one or two days in November this year, and take notes of what you said and did with the patient. I would write these notes up as case reports describing what happened, and also look for similarities or differences amongst practitioners.

In the months up to November I would occasionally shadow you on an 'informal observation' basis so you could become more familiar with my presence and so that I could 'road test' my method of observation.

## APPENDIX D

All cases will be reported on anonymously – they will not identify individuals or their work base.

The aim of this part of the study is to allow us to better understand decision making in practice with patients.

I hope that you will feel able to participate in the study in this way and I would be grateful if you could return the attached consent form to me in the enclosed stamped addressed envelope by <DATE>

Please do not hesitate to contact me if you have any questions or would like more information at this point.

I look forward to hearing from you soon.

Best wishes

Mary Halter  
Research Fellow (ECP Programme)

020 8725 5414  
mhalter@hscs.sgul.ac.uk





## Emergency Care Practitioner research

### Consent to observation

*Please tick one box*

I consent to being observed carrying out my practice

I do not consent to being observed carrying out my practice

If I do not consent I understand that this will not affect me at work in any way

Name \_\_\_\_\_

Signed \_\_\_\_\_

Date \_\_\_\_\_

If you consent I will be in contact when I receive this form to arrange suitable dates for the observations.

**Ambulance and emergency doctor study 2006 – 07**

**Observation of practice**

**Information for patients**

I am working today as a researcher with the doctor or ambulance practitioner who is attending to you.

I am observing the practitioner as part of a study into the decisions that doctors and ambulance practitioners make about the care that people need when they call the emergency health services.

The practitioner has asked you if I may observe. We appreciate that this may be a difficult time for you and would like to reassure you that you can withdraw consent by asking the observer to leave at any time without any detriment to your care or treatment.

I will write notes about the questions they ask you and the examination they carry out.

I will use this information to write a description of how they came to a decision about the treatment you needed. This will not include any details that can identify you as an individual. The focus is on the practitioner.

The doctor or ambulance practitioner has consented to my role.

*Please turn over*

## **APPENDIX E**

If you have any concerns about the study or how the information about your treatment is being used please contact me.

The study has been approved by the South East Research Ethics Committee, and the local NHS Trusts.

Study contact:     Mary Halter  
                          020 8725 5414  
                          Faculty of Health and Social Care Sciences  
                          St. George's, University of London  
                          Grosvenor Wing  
                          Cranmer Terrace  
                          London SW17 0RE



**How to fill in this questionnaire**

Study ID: _____
-----------------

There are two types of questions in this questionnaire.

A. Questions asking you to cross a box

*Please place the cross **inside** the box*

Example **What is your sex?**

<input checked="" type="checkbox"/>	MALE
<input type="checkbox"/>	FEMALE

B. Questions asking you to rate the strength of your feeling about a statement. For each statement you will see a black line between the words ‘strongly disagree’ and ‘strongly agree’.

Imagine the line has numbers from 0 to 100, with 0 meaning you disagree strongly and 100 meaning you agree strongly. Please read each statement and put a cross **on the line** at the point that represents your feelings about the statement. There are no right or wrong answers – we understand that each person’s experience may be different.

Example **The ambulance practitioner or doctor who attended me:**

<b>Was courteous and polite</b>	Strongly disagree	_____x_____	Strongly agree
<b>Treated me with respect</b>	Strongly disagree	_____x_____	Strongly agree

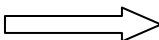
**APPENDIX F**  
**QUESTIONNAIRE**

*Please answer all the questions.*

**1. Is the person this questionnaire is addressed to filling it in?**

*Please cross ONE box*

YES

NO 

**Are you:** *Please cross ONE box*

RELATIVE

FRIEND

CARER

OTHER, please state \_\_\_\_\_

**2. This question asks you to rate how you were treated by the practitioner/s who attended you.**

*Place a cross on EACH of the lines*

**The practitioner/s who attended me:**

<b>Explained clearly who they were</b>	Strongly disagree	_____	Strongly agree
<b>Treated me as an individual</b>	Strongly disagree	_____	Strongly agree
<b>Did not listen to what I was saying</b>	Strongly disagree	_____	Strongly agree
<b>Talked directly to me</b>	Strongly disagree	_____	Strongly agree
<b>Explained what they were doing</b>	Strongly disagree	_____	Strongly agree
<b>Explained why they were doing things</b>	Strongly disagree	_____	Strongly agree

**APPENDIX F**  
**QUESTIONNAIRE**

**3. The next group of questions ask about the assessment and examination that the practitioner/s carried out**

*Place a cross on EACH of the lines*

**The practitioner/s who attended me:**

<b>Asked me the right questions</b>	Strongly disagree	_____	Strongly agree
<b>Seemed to understand what I needed</b>	Strongly disagree	_____	Strongly agree
<b>Examined me thoroughly</b>	Strongly disagree	_____	Strongly agree
<b>Did not assess me carefully</b>	Strongly disagree	_____	Strongly agree
<b>Told me what was wrong with me</b>	Strongly disagree	_____	Strongly agree
<b>Made me feel they were knowledgeable</b>	Strongly disagree	_____	Strongly agree

**4. This question asks you how the practitioner/s dealt with what would happen to you next.**

*Place a cross on EACH of the lines*

**When arranging what would happen next, the practitioner/s.....**

<b>Explained what would happen next</b>	Strongly disagree	_____	Strongly agree
<b>Did not involve me in the decision</b>	Strongly disagree	_____	Strongly agree
<b>Reassured me about the need for hospital</b>	Strongly disagree	_____	Strongly agree
<b>Offered me a choice of hospital to go to</b>	Strongly disagree	_____	Strongly agree
<b>Gave me an opportunity to contact people</b>	Strongly disagree	_____	Strongly agree

5. **You were taken to Accident & Emergency or to another clinic by the practitioner who attended you.**

**Do you feel this was the right decision for you?**

*Please cross ONE box*

YES

NO

**If you would like to tell us more about how you felt about the decision please do so here:**

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6. **What happened to you next?**

*Please tick ALL boxes that apply to you*

I WENT HOME FROM A&E OR THE CLINIC

I STAYED IN HOSPITAL

I USED THE FOLLOWING OTHER SERVICES IN THE NEXT TWO WEEKS **FOR THE SAME PROBLEM**

*Please state date*

EMERGENCY AMBULANCE (999)..... \_\_\_\_\_

EMERGENCY DOCTOR..... \_\_\_\_\_

ACCIDENT AND EMERGENCY..... \_\_\_\_\_

Please state which A&E \_\_\_\_\_

GP..... \_\_\_\_\_

NURSE AT HOME..... \_\_\_\_\_

CARERS AT HOME e.g. for shopping... \_\_\_\_\_

OTHER..... \_\_\_\_\_

*Please state* \_\_\_\_\_



The next three questions ask for some information about you.

**7. What is your date of birth?**

*Please enter in the boxes below your day, month and year of birth*

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	----------------------

e.g. 21/09/1933

**8. What is your sex?**

*Please cross ONE box*

Male

Female

**9. What is your ethnic group?**

*Choose ONE section from A to E, then cross the appropriate box to indicate your ethnic group*

**A White**

British

Any Other White background, *please write in* \_\_\_\_\_

**B Mixed**

White and Black Caribbean

White and Black African

White and Asian

Any Other Mixed background, *please write in* \_\_\_\_\_

**C Asian or Asian British**

Indian

Pakistani

Bangladeshi

Any Other Asian background, *please write in* \_\_\_\_\_

**D Black or Black British**

Caribbean

African

Any Other Black background, *please write in* \_\_\_\_\_

**E Chinese or other ethnic group**

Chinese

Any Other, *please write in* \_\_\_\_\_

## APPENDIX F

**There are two final questions we would now like you to answer**

- 10. Do you consent to us accessing your health records regarding the visit you have stated on this questionnaire (question 6)?**

*Please cross one box*

I CONSENT TO MY RECORDS BEING ACCESSED

I understand that my name will be removed from my records as soon they have been matched to my study identity number and before they are viewed by anyone other than the study researcher.

Signature \_\_\_\_\_

Name \_\_\_\_\_

Date \_\_\_\_\_

I DO NOT CONSENT TO MY RECORDS BEING ACCESSED

I understand that this will not affect any care I require in future

- 11. Would you be willing to be contacted again to be interviewed in more detail about the care you received?**

*Please cross one box*

YES I AM WILLING TO BE CONTACTED AGAIN

NO I WOULD PREFER NOT TO BE CONTACTED AGAIN

**THANK YOU FOR TAKING THE TIME TO COMPLETE THIS  
QUESTIONNAIRE**

**PLEASE RETURN THIS QUESTIONNAIRE IN THE STAMPED  
ADDRESSED ENVELOPE**

PATIENT QUESTIONNAIRE

APPENDIX F

5. You stayed at home or where the practitioner attended to you.  
Do you feel this was the right decision for you?

Please cross ONE box

YES

NO

If you would like to tell us more about how you felt about the decision  
please do so here:

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---

---

6. What happened to you next?

Please tick ALL boxes that apply to you

THE PRACTITIONER CONTACTED ME AGAIN LATER

I DID NOT NEED TO USE ANY OTHER SERVICES

I USED THE FOLLOWING OTHER SERVICES IN THE NEXT  
TWO WEEKS **FOR THE SAME PROBLEM**

*Please state date*

EMERGENCY AMBULANCE (999)..... \_\_\_\_\_

EMERGENCY DOCTOR..... \_\_\_\_\_

ACCIDENT AND EMERGENCY..... \_\_\_\_\_

Please state which A&E \_\_\_\_\_

GP..... \_\_\_\_\_

NURSE AT HOME..... \_\_\_\_\_

CARERS AT HOME e.g. for shopping... \_\_\_\_\_

OTHER..... \_\_\_\_\_

*Please state* \_\_\_\_\_



## **Emergency Care Practitioner research**

### **Interview schedule for Patient participants**

**2006**

To be read by the researcher to the patient participant prior to the interview:

You have been given some information about the study and have returned your consent form but I would like to tell you what will happen today and remind you about how the interview data will be analysed and stored.

When I have read this information to you and am sure that you are clear about the interview I will start the tape recorder. The tape recorder can seem daunting but is very helpful to ensure that I can concentrate on what you are saying and your words are recorded accurately.

During the interview I will use a guide to broad topic areas and then may ask questions to delve a little deeper into what you have said that will not be the same for everyone.

I have assigned an identity number to you already and the tape will have that marked on it. The file linking your name to the number is password protected on my PC.

The tapes will be transcribed (that is, typed out exactly as they are heard) and then read closely to see what themes emerge. A report will then be written that may include some quotes that will use your identity number.

I will not repeat what you have said to me individually.

## APPENDIX G

### **Patient participant Interview guide**

#### *Icebreaker*

- How the patient has been since the ambulance or emergency doctor was called

#### *The 'story' of their emergency event*

- Why they called an emergency ambulance or emergency doctor
- What happened to them after the immediate event

#### *Focus on how their experience of the practitioner's decision making*

- How the patient was treated during the consultation, particularly how they were assessed and how they were involved in any decisions made
- Confidence and trust in the practitioner's decisions – if / how that was achieved
- Looking back and thinking about the appropriateness of the decision now
- What was important to them at the time



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## APPENDIX H

Faculty of Health and Social Care Sciences  
KINGSTON UNIVERSITY • ST GEORGE'S, UNIVERSITY OF LONDON

Faculty of Health and Social Care Sciences  
St. George's, University of London  
Grosvenor Wing  
Cranmer Terrace  
London SW17 0RE

07 February 2007

Dear Doctor ,

### **OUT OF HOURS STUDY – EMERGENCY CARE PRACTITIONERS & GPs**

As you may be aware, as part of the out-of-hours GP service in Bromley (EMdoc), Emergency Care Practitioners are also carrying out weekend home visits following telephone triage by an EMdoc GP.

At St. George's, University of London we are working with Bromley Primary Care Trust and London Ambulance Service to evaluate this service, particularly looking at the appropriateness of clinical decisions.

We contact patients who received a home visit, with a postal questionnaire, asking about their experience of the home visit and the services they used for the same problem in the following two weeks.

**Your patient has returned the questionnaire and indicated that they had contact with you in that time period. He or she has consented for us to access their records, and a copy of this consent can be provided if required.**

**We are keen to know what the patient contacted you for and the outcome of that contact, to assist a panel of clinical reviewers to judge whether the initial decision about the patient's care was appropriate.**

The enclosed sheet gives details of the patient and the actual date, or a date range, of contact with your practice.

We appreciate you are very busy, but would be very grateful if you would be able to consider providing the additional information requested.

An information sheet on the study is also enclosed.

All information collected in the study is being treated as confidential. Any published information from this research will not identify any individuals.

If you would like any further information, or would prefer me to collect the data in a different way, please do contact me on 020 8725 5414 or [mhalter@hscs.sgul.ac.uk](mailto:mhalter@hscs.sgul.ac.uk).

Yours sincerely,  
Mary Halter  
Research Fellow

**OUT OF HOURS STUDY – EMERGENCY CARE PRACTITIONERS & GPs**

**PATIENT DETAILS**

**First name:**

**Surname:**

**Date of birth:**

**First line of address:**

**CONTACT DATE (exact or range):**

---

**INFORMATION FROM YOUR RECORDS**

**Presenting complaint:**

**Your treatment:**

**Your diagnosis / assessment of the patient's condition:**

**Outcome of the consultation:**

<p><b>THANK YOU FOR TAKING THE TIME TO COMPLETE THIS. PLEASE RETURN IT IN THE STAMPED ADDRESSED ENVELOPE</b></p>
--



## **APPENDIX I**

### **CASE REVIEW**

Reviewer ID:

### ***CASE DETAILS***

Patient ID:

Date of attendance:

Care pathway decision:

Referral:

**APPENDIX I**

***CASE REVIEW: Process of care***

**1. What level of assessment has the practitioner documented?**

<i>Component of assessment</i>	<i>Level of assessment (please circle)</i>			
Presenting complaint	None	Poor	Satisfactory	Very good
History of presenting complaint	None	Poor	Satisfactory	Very good
Past medical history	None	Poor	Satisfactory	Very good
Drug history / allergies	None	Poor	Satisfactory	Very good
Social and family history	None	Poor	Satisfactory	Very good
Review of systems	None	Poor	Satisfactory	Very good
Physical examination	None	Poor	Satisfactory	Very good
Diagnostic tests	None	Poor	Satisfactory	Very good
Impression / diagnosis	None	Poor	Satisfactory	Very good
Plan	None	Poor	Satisfactory	Very good

**2. How do you judge the assessment?**

<i>Area of judgment</i>	<i>Agree area present or not</i>		<i>Comments</i>
Pertinent patient observations were recorded	Yes	No	
Documented assessment was thorough for the clinical situation.	Yes	No	
Assessment was appropriate for the presenting condition	Yes	No	
Assessment illustrates how the practitioner reached their diagnosis and decision	Yes	No	
Practitioner complied with relevant national or local clinical guidelines or clinical management was within acceptable norms	Yes	No	

**APPENDIX I**

***CASE REVIEW: Outcome of care – the care pathway decision***

Considering the care pathway chosen:

<i>Area of judgment</i>	<i>Agree or not</i>		<i>Comments</i>
Other medications could have been offered by the practitioner	Yes	No	
Other treatments could have been offered by the practitioner	Yes	No	
Appropriate support was used to make the decision (if this seemed necessary)	Yes	No	
	Did not seem necessary		
An appropriate care pathway decision was made by the practitioner	Yes	No	
	Information insufficient to make this judgment		

Do you feel there was an ideal destination / pathway of care for a patient with this type of presentation?

Yes                  No

If so what is it, and why? Or, if not, why not?

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**APPENDIX I**

***CASE REVIEW: Overall documentation***

<i>The documentation:</i>	<i>Agreement</i>	<i>Comments</i>
Is legible and clear	Yes          No	
Contains relevant simple information – date, time, practitioner ID	Yes          No	
Is of sufficient quality to be able to justify the decision reached	Yes          No	

***CASE REVIEW: Additional comments***

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ISBN 978-0-9558329-0-1

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