

Collaborative practices in unscheduled emergency care. The role and impact of the Emergency Care Practitioner (ECP)



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The following is a full report of this study. Electronic and hard copies can be requested from the lead author at the address above. We hope to produce two peer reviewed publications in the near future.

Abstract

Collaborative Practices in Unscheduled Emergency Care: The role and impact of the Emergency Care Practitioner (ECP)

Objective: To identify collaborative instances and hindrances and to produce a model of collaborative practice.

Methods: A 12 month (2005-6) mixed methods clinical case study in a large UK ambulance Trust. Collaboration was measured through direct observational ratings of communication skills, teamwork and leadership with 24 multi-professional ECPs; interviews with 45 ECPs and stakeholders; and an audit of 611 patients

Results: Quantitative observational ratings revealed that the higher grade ECPs were significantly better leaders ($p=0.03$) and the higher the leadership rating the greater the communication ability ($p<0.001$) and teamwork ($p<0.001$). From the patient audit, influences and outputs of collaborative practice revealed the majority of patients were elderly; the mean ECP response time was 16.5 minutes; mean time on scene was 47 minutes; 70% of patients were seen 'in-hours'; 62% were not conveyed; 38% were referred, mainly to A&E; ECPs claimed to make the referral decision in 87% of cases with a successful referral in 96% of cases; 27% of secondary responses were considered inappropriate; and in 66% of cases ECPs claimed that their intervention prevented an Acute trust admission. Logistic regression revealed key predictors of transportation requirements.

From a Generic Qualitative approach observational records and interviews identified ECPs numerous links with other professions influenced by three major themes. ECP Role: e.g. 'restricted transport codes' of communication; a focus on reducing admissions; frustrations about patient tasking; and conflicting views about leadership and team work. Education and Training: drivers for multi-professional clinically focussed graduate level education; requirements for skill development in MIUs & general practice; and the need for clinical supervision/mentorship. Cultural Perspectives: a 'crew room' blue collar view of inter-professional working versus emerging professional white collar views; power and communication conflicts; and a lack of understanding of the ECPs role.

Conclusions: The final model of collaborative practice (Figure 1) suggests that ECPs are having an impact on patient care, but that improvements can be made. We recommend, amongst others, the appointment of ECP clinical leads; degree level clinically focussed multi-professional education; communication skills training; clinical supervision and multi-professional ECP appointments.

Collaborative Practices in Unscheduled Emergency Care: The role and impact of the Emergency Care Practitioner (ECP)

Executive Summary

- The main objective of this study was to identify ECPs collaborative instances and hindrances and to produce a model of collaborative practice in unscheduled emergency care (see Figure 1 page 26)
- Over a period of 12 months (2005-6) we used a mixed methods clinical case study approach in a large UK ambulance Trust. Collaboration was measured through direct observational ratings of communication skills, teamwork and leadership with 24 multi-professional ECPs; interviews with 45 ECPs and stakeholders; and an audit of 611 patients.
- Quantitative observational ratings revealed that the higher grade ECPs were significantly better leaders ($p=0.03$) and the higher the leadership rating the greater the communication ability ($p<0.001$) and teamwork ($p<0.001$).
- From the patient audit, influences and outputs of collaborative practice revealed the majority of patients were elderly; the mean ECP response time was 16.5 minutes; mean time on scene was 47 minutes; 70% of patients were seen 'in-hours'; 62% were not conveyed; 38% were referred, mainly to A&E; ECPs claimed to make the referral decision in 87% of cases with a successful referral in 96% of cases; 27% of secondary responses were considered inappropriate; and in 66% of cases ECPs claimed that their intervention prevented an Acute trust admission. Logistic regression revealed key predictors of transportation requirements.
- From a Generic Qualitative approach observational records and interviews identified ECPs numerous links with other professions, influenced by three major themes.
 - ECP Role: a limited 'restricted transport code' of communication; a bridging/building role; a focus on reducing admissions, treatment and referral and a holism of care; frustrations about patient tasking; and conflicting views about leadership and team work.
 - Education and Training: drivers for multi-professional clinically focussed graduate level education; requirements for skill development in MIUs & general practice; and the need for clinical supervision/mentorship.
 - Cultural Perspectives: a 'crew room' blue collar view of inter-professional working versus emerging professional white collar views; power and communication conflicts; and a lack of understanding of the ECPs role.
- The final model of collaborative practice (Figure 1) suggests that ECPs are having an impact on patient care, but that improvements can be made. Table 10 summarises are recommendations.

Table 10: Study Recommendations for the enhancement of collaborative practices (no specific order)	
Appointment of ECP clinical leads	Lead ECPs should be appointed, ideally at Consultant & Masters level, to drive forward the clinical, education, supervision, networking, audit and research agenda.
Degree level multi-professional education	Based upon uni-professional and multi-professional sessions within a modular programme [42]. Encompassing, for example, advanced clinical skills, leadership, mentorship, team working, cultural issues, communication and handover skills.
Leadership, communication and teamwork training	Short post registration courses such as the current DH funded 'Developing excellence in leadership within urgent care' [43] which aims to break down traditional boundaries, relationship management, self management, patient/client focus, political awareness, networking, leadership effectiveness measures, team resource management & situation awareness.
Clinical supervision/mentorship	To ensure safe practice & continuous professional development
Focussed Training & Education	The curriculum should be aligned with clinical practice e.g. care of the elderly, minor injuries, mental health & learning disabilities.
Full non-medical prescribing rights	Inclusion in educational provision for the independent/supplementary prescribing course.
Up-skilling - clinical practice in MIUs/A&E/GP	To reduce de-skilling (from long periods of standby) ECPs should be based in areas of high clinical activity e.g. MIU, A&E or general practice.
Multi-professional appointments to the ECP role	Experienced Nurses [44] (and other professions) should be recruited in greater numbers to diversify the skill base, develop culture & enhance collaborative practice.
Improved task allocation, referral processes & networks	Expert task allocation in HQ Ambulance Control and improved links with Social Services (Care Direct) & mental health services
Sharing of good practice	For example the multi-professional Cullompton Unscheduled Treatment Service (CUTS)
ECP publicity	Explanatory ECP role publicity to providers and public
Enhanced organisational senior management links	To develop organisational collaboration & to resolve contractual & working practice limitations
Improved ECP out of hours cover	The ECP role should have a strong focus on out of hours cover
Developments of Paramedic education	To enhance paramedic 'treat & release' & referral process a wider more focussed curriculum e.g. diverse clinical skills, communication and referral processes.
Focussed secondary ambulance responses	Development of transport prediction models & a focus on the requirements for secondary responses
Patient treatment issues	Further consideration of on scene times, treat and release and conveyance rates. 'No blame' and patient safety issues.

Collaborative practice in unscheduled care; the role and impact of the Emergency Care Practitioner

Introduction and Background

This clinical study focuses on contemporary issues in inter-professional collaboration, with a specific interest in unscheduled out of hospital emergency care. It is set at a time when substantial changes are required within the NHS. Ministers are emphasizing the need to develop team working skills, maximise the contribution of all staff to patient care, modernise education and training, and expand the workforce [1]. Pressure is being applied on all those involved in health care to reconsider their treatment and referral pathways with the need to develop and enhance autonomous nursing, paramedical and allied health professionals roles for a 'seamless service'. The focus has begun to shift from a specific set of knowledge, skills and values that characterise a profession, to consideration of ways in which they overlap and can be used to enhance patient care.

Government are now driving forward this collaboration agenda, in for example the leadership qualities framework [2] and in 'Transforming Emergency Care in England' [3] the six principles of patient care (personal quality service, no unnecessary delays, simple access, convenience, emergency prevention, integrated care) all demand a high level of inter-professional collaboration; whilst in the Modernisation Agencies ECP report [4] there is discussion on the need to improve collaboration through Emergency Care Networks with two specific collaboration related competencies for ECPs;

- Demonstrate a good knowledge of inter-service working involving all the emergency services, including collaboration and communications and understanding of the role and contribution of the wider multi-disciplinary team to the delivery of emergency./unscheduled care.
- Demonstrate familiarity with referral processes in relation to the wider health community and how these may be utilised by ECPs

However, work on inter-professional collaboration is limited, Leathard [5] draws together the international work within which Miller and Freeman discuss their work [6] looking at six multi-professional medical teams across the UK. They identified some of the key characteristics of collaborative working, for example, shared vision and responsibility and role understanding and boundaries. They also identified benefits such as, consistency of care, a reduction of ambiguous messages, appropriate referral, and a problem solving approach across the team. Along the same theme Leathard [5, p345] also refers to Su Maddock and Glen Morgan's work from the Manchester Business School on a 'whole systems approach' to collaboration;

- Management and practitioners should share the same agenda on quality and funding issues
- Support for communication between users and front line staff
- A senior management team with a unity of vision
- Involvement of actively committed medical staff
- Appropriate performance measures supporting change and staff development

In the hope of enhancing clinical collaboration recent work in the educational field has started to address the issues of multi and inter-disciplinary education [7] and its effect on clinical outcomes, especially its value for reducing medical errors [8], for team working and effectiveness in community based settings [9] and in the emergency room [10]. However, the number of controlled studies (as opposed to opinion, comment and review) are limited, partly because it appears that there are so few examples of shared learning between doctors and nurses [11].

Primary Care and Ambulance Trusts are now increasingly aware of the need to evaluate their educational and operational provision. For ambulance services there has been a series of reports which highlight the need for change. Probably the most influential has been the Joint Royal Colleges Ambulance Liaison Committee (JRCALC) [12] report on the need for an advanced Practitioner in Emergency Care (PEC) (now known as Emergency Care Practitioner - ECP), encompassing issues related to advanced autonomous nursing and paramedic practice and multi-professional roles and links, based upon a higher education curriculum. The Government is clearly in support of these initiatives, Life in the Fast Lane [13], Reforming Emergency Care [14], Improving Emergency Care [15] all indicate the need for an advance in educational standards, enhanced collaborative working and the development of emergency care networks.

In the United Kingdom (UK) only 10% of patients calling the emergency number (999) have a life-threatening emergency. "Many patients have an urgent primary (or social) care need." [16, p8], patients are still taken to hospital when they could safely receive advice, treatment and care closer to home. The Department of Health (DH) [16] suggest that care improvements can be made by getting the right response first time, in time; that it is essential to reduce the one million, unnecessary A&E attendances; to provide greater job satisfaction for staff; to maximise more effective and efficient use of NHS resources, and finally, to encourage self-care and health promotion. For example there is a drive towards faster ambulance response times, and the introduction of improved technology and training for ambulance staff to enable diagnosis and treatment at home.

The ECP is defined as an "advanced practitioner capable of assessing, treating and discharging/referring patients at the scene. Usually a paramedic or nurse who has undertaken specific training and education in order to be able to respond to the first contact needs of patients accessing urgent care" [16, p51]. They "occupy the space between the general practitioner, the nurse and the paramedic" [17, p365] implying a bridge-building facet to the role and an understanding of each others' roles and competencies. However, ECPs also operate in Minor Injury Units (MIUs) or A&E departments, or have a specific patient focus such as home treatment of the elderly to avoid A&E attendance (e.g. South Yorkshire Ambulance Service). Whilst many ECPs are heavily involved in long term conditions such as asthma, chronic obstructive pulmonary disease (COPD), epilepsy and diabetes with requirements for multi-agency working. For example in the Westcountry the Torbay Adrenal and Pituitary Project has created collaborative links between ECPs and endocrine specialists to enhance adrenal crisis awareness and care.

Aware of these contemporary issues the University of Plymouth (Faculty of Health and Social Work - FHSW) in association with regional acute hospital NHS Trusts and Westcountry Ambulance Service started the first multi-professional BSc in Emergency Care. This was followed by a Masters degree in Advanced Healthcare Practice which has a focus on 'out of hours' care and autonomous practice in a multi-professional setting.

In September 2002 the first nurses and paramedics graduated as Level 3 Emergency Care Practitioners (ECPs), commencing their new role within Accident and Emergency Departments and the Ambulance Service. In a more recent independent development (2003), paramedics and nurses have been attending a 3 month Level 2 (Diploma) programme funded by the Changing Workforce Programme (DH).

There is little consensus about how the role may develop. However, a recent consultation document published by the Department of Health [18] on the competence and curriculum for ECPs, suggest that they should be expert communicators who are comfortable in a multi-professional environment and able to work with community networks, promoting the effectiveness of teams and refer individuals. In addition work by the author of this report [19] on practitioners and stakeholders' views of the ECP role indicate four emerging practice themes, of which one, inter-professional collaboration, is relevant to this study. Practitioners were found to be proactive in building inter-agency links and developed patient referral processes with GPs and other agencies. They forged links with the Community Psychiatric Service, district nurses, nurse practitioners, physiotherapists, the reablement team and the Falls group (an information based group for falls prevention and awareness). There was also evidence to suggest that ECPs were able to identify and initiate actions on behalf of, or in co-operation with, patients and relatives that might not be identified in current practice between the responsible agencies. These links had benefits to patient care particularly relating to issues around referral processes and treat and release, for example, they organised direct admission to wards, and assessment by appropriate agencies (e.g. the Falls team).

Conceptually, this study necessitates an exploration of 'inter-professional collaboration', in terms of the scope of its elements, and its discrete aspects. For example, sharing, partnership, power, interdependency and process are identified by D'Amour et al [19]. Throughout, their education many healthcare professionals are socialised into adopting a discipline-based vision of their patients, each with its own theoretical framework and norms. Collaboration necessitates changes to this paradigm, "implementing a logic of collaboration, rather than a logic of competition" [19]. Professionals interact in environments that present not only opportunities, but many organisational constraints. D'Amour et al [20] theoretical framework of collaboration focuses on the definitions and concepts associated with collaboration, such as *sharing*, denoting shared responsibilities, shared decision-making, shared data, shared planning and intervention and shared professional perspectives.

Partnership is second to sharing, and implies that two or more actors join in a collaborative undertaking, characterised by a collegial-like relationship, that is both authentic and constructive and demands open and honest communication and mutual trust and respect with a common set of goals.

Interdependency implies mutual dependence. The increasing complexity of health problems demands the expertise of contributions from and participation of each of the professionals on the team according to Stichler [see D'Armour et al 20]. When team members become aware of such interdependencies, synergy emerges and individual contributions are maximised [Morin in D'Armour et al 20]

Power sharing is the fourth concept of collaboration. Collaboration is seen as true partnership, characterised by the simultaneous empowerment of each participant whose respective power is recognised by all. Knowledge and experience are the bases of this power, rather than functions or titles [Henneman in D'Armour et al 20]. Power is therefore a product of the relationships and interactions between team members. Consequently power cannot be separated from the relationship through which it is exercised. [Friedberg in D'Armour et al 20]. D'Armour et al [20] emphasise power as a positive process without the social or political hindrances within or between individuals and organisations.

By contrast, Leathard [21] provides a policy to practice strategy, which examines inter professional issues, examples of working together across professions, and the theme of inter professional education. She sees collaboration between professionals as an appreciation of expert's contributions, an agreement on the aims for the patient and agreed distribution of roles and tasks. Empirically, this forms the basis of our study. Terms such as "interdisciplinary", inter-professional, multi-professional all denote a conceptual approach of working together. Collaboration and teamwork are process-based aspects, which encompass liaison integration and co-ordination, and in Weiss & Davis view assertiveness and cooperativeness [22] all applicable to the newly emerging ECP role. One example of this process is the development of ECP 'cells' in WAST creating a new agency-based locality group. They act as forums for voicing issues such as tasking, and resourcing, and drive new agendas, such as appointments of Falls Co-ordinators, or the development of information sheets on the ECP role for GPs and Primary Care Trusts (PCTs). In addition ECPs use the term 'holism' of care to describe physiological systems management but also 'joined up' care between the agencies. For example instead of transporting frequent fallers the cause is investigated and appropriate interventions implemented.

Whilst Leathard tends to use the term 'professional' in a loose way, referring to individuals with different training backgrounds, the term professional denotes a notion of exclusivity, autonomy, and occupational control. Berger and Luckmann [23] draw attention to the way in which language is used to underline the authority of a profession "by shrouding itself in age-old symbols of power and mystery, using incomprehensible language, or by expressing the pragmatic benefits of compliance (taking orders, or going against advice). Meanwhile the fully accredited inhabitants of the medical world are kept from quackery, not only by powerful external controls, but by a whole body of professional knowledge offering scientific proof of the folly...of such deviance". In their words, "an entire legitimating machinery is at work so that laymen will remain laymen and doctors, doctors, and (if at all possible) that both will do so happily." [23, p105]. In the emerging role of the Emergency Care Practitioner, conflicts are expressed between paramedics and traditional established professions, such as GPs. Indeed Leathard anticipates that competitive ideologies and values,

professional self-interest, and competition for domains are potential drawbacks to inter-professional work in practice [21].

From this baseline the study develops an overview of the current ECP role and a contemporary view of inter-professional collaboration in unscheduled care. The study identifies instances and hindrances to collaboration, and from this develops a model of collaboration in unscheduled care. It takes a clinical case study design incorporating quantitative observational approaches, patient audits and generic qualitative methods, all described in detail below.

Aims of the Project

Inter-professional collaboration is defined as 'working in a positive association with more than one professional group'. Drawn from a broad literature review and the emergent factor analysis (see Appendix 1) two key factors emerge as fundamental to collaborative working. These are communication and team work which includes situational leadership roles. Appropriate tools have been selected and incorporated into this investigation to test these factors and achieve the following aims;

- To identify instances of inter-professional collaboration in out of hospital emergency care
- To identify hindrances to inter-professional collaboration in out of hospital emergency care
- To develop a model of collaboration for out of hospital unscheduled care and other relevant fields

Research Questions

- When and with whom do ECPs collaborate?
- What are the specific benefits of inter-professional collaboration?
- When and with whom do ECPs fail to collaborate?
- When and why does collaboration fail?
- What are the key requirements and attributes for inter-professional collaboration for unscheduled care and other relevant fields

Assumptions

- Collaboration (working in a positive association with others) will have beneficial outcomes
- Non-collaboration will be less effective than collaboration
- Inter-professional collaborative working can be improved

Methods (see Appendix 2 for diagrammatic plan)

Study design

A mixed methods clinical case study. A key objective was to collect data using a number of methods in order to triangulate, for example, observational records to inform the focus of interviews and to ensure that findings can be compared and contrasted. The positivist observational rating approach was supplemented by a generic qualitative research approach which Caelli, Ray & Mill from the work of Merriam [24, p3] describe as studies that "epitomize the characteristics of qualitative research but rather than focussing on culture, as does ethnography, or the building

of theory, as does grounded theory, they simply seek to discover and understand a phenomenon, a process, or the perspectives and worldviews of the people involved". In this study we were particularly interested in the cultural aspects of collaboration, i.e. ethnographic, but the work also demanded a more pragmatic approach which was better served by a generic study. The credibility of this approach is discussed in the conclusions of this paper.

Participants/Sample Size (see Appendix 3 – ‘Participants Journey’)

Participants (ECPs and stakeholders) were recruited from three Westcountry regions;

- West/Mid Cornwall - Truro/Camborne/Bodmin
- West Devon - Plymouth
- East Devon Exeter & Cullompton

A sample power was calculated for all the quantitative ratings from which a purposive sample of ECP participants was selected to include a range of perspectives from applicable personnel. This was augmented by a ‘snowball’ cascade approach, identifying additional participants (e.g. stakeholders) as the study progressed. The initial plan was to include observations of ECP nurses working in A&E departments. However, as the study progressed the richness and depth of the ambulance service data became resource intensive, and the context in which A&E nurses work was considered to be so different that it was decided to exclude this group from this particular study.

Paramedic (Level 3 or M level) ECPs

We aimed to recruit a minimum of 10 Level 3 ECPs identified as paramedics or nurses who have completed a practitioner qualification in the last three years e.g. BSc in Emergency Care or Masters in Advanced Healthcare Practice.

Paramedic (Level 2) ECPs

We aimed to recruit a minimum of 10 Level 2 paramedics or nurses identified as staff who have completed the Level 2 ECP Changing Workforce Programme (NHS)/University of Coventry pilot programme within the last 3 years.

Stakeholders

A purposive/snowball sample of stakeholders who have had direct or indirect contact with ECPs, for example;

- Chief Executive, WAST
- Medical Director, WAST
- Emergency Care Lead. Peninsula Health Authority
- Education Lead, Peninsula Health Authority
- Accident and Emergency Consultants
- General Practitioners
- Practice Nurses
- Care home managers
- Social Services
- NHS Direct
- District nurses
- Reablement teams
- Falls groups

Recruitment

Potential participants were invited to be involved in the study and arrangements made for a first meeting at which the study was outlined and consent obtained. The process for identifying stakeholders mirrored that of ECPs (see Appendix 4 a & b for consent forms).

Methods of data collection

Table 1: Methods of data collection

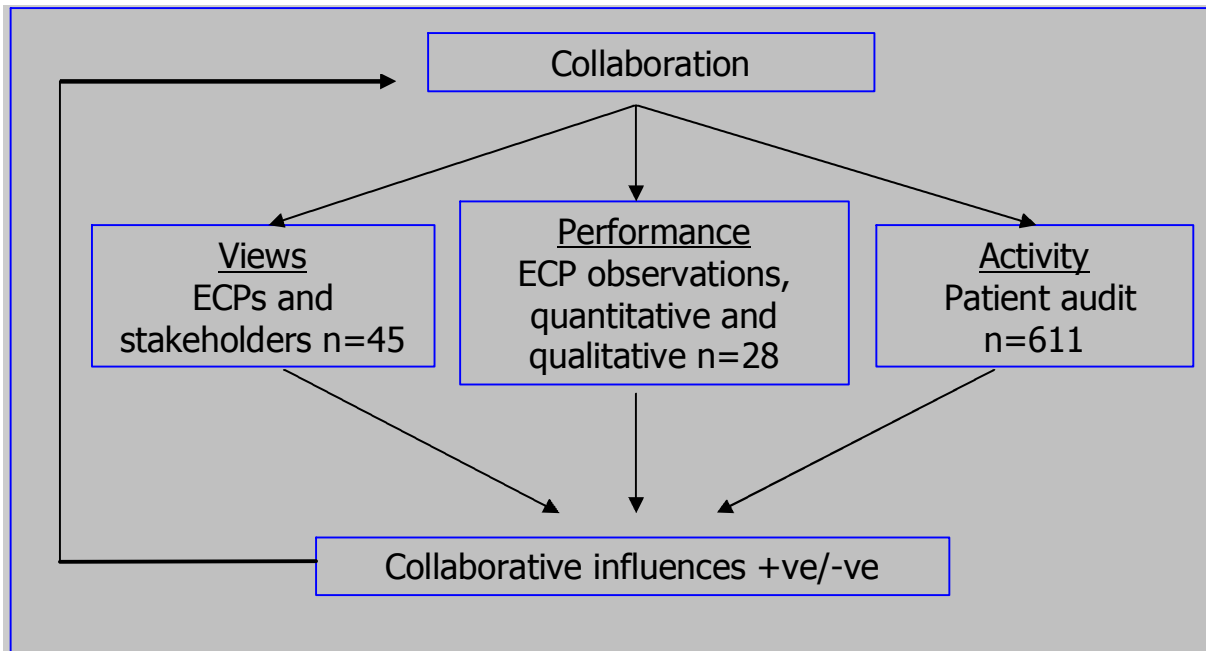


Table 1 illustrates the methods selected for this study all of which are described in detail below.

Observational records of ECPs in practice;

Three trained observers were used to observe practice with particular emphasis on episodes of collaboration. Four tools were used to measure and rate interactions. The Communication Competence Questionnaire (CCQ) [25] (Appendix 5) for rating of communication skills and an observational coding record (Appendix 6). Where the ECP was working as part of a team (>2 individual) the 'Emergency Team Dynamics' rating scale [26] (Appendix 7) and an adapted Leadership Behaviour Description Questionnaire (LBDQ) [26, 27, 28] (Appendix 8) which has two sub scales 'consideration' and 'initiating structure'. *(The following quantitative results report/discussion describes these scales in detail)*

Patient Audit

All ECPs in the employ of Westcountry were asked to complete the current audit form adapted from the ECP National Audit, managed by Eleanor Smy, Project Lead, of Sussex Ambulance Service (Appendix 9). The form included demographic, treatment and referral details/rates and additional questions relating to collaborative and referral practice. ECPs returned the forms to the research team where they were copied and sent for inclusion in the national audit.

Interviews (individual and group)

Brief semi-structured audio taped interviews of 20-30 minutes were performed with all ECPs involved in the study and with relevant stakeholders. Questions were informed, in part, by outcomes from observations but concentrated on the main research questions within this study and encouraged participants to critically reflect on their collaborative practice. Leadership illustrations and specific issues about working with GPs were also discussed for inclusion in a future text on emergency leadership and a paper on general practice collaboration (Appendix 10).

Respondent validation event

At the end of the study all participants were asked to an event to discuss the provisional findings from the study, for the purpose of seeking new insights based upon the researchers and respondents reflections [23]. The event was designed to promote interaction within the group, to stimulate individual views, and to openly discuss the provisional findings and interpretations.

Ethical Issues

Study Guidelines:

- Strict confidentiality guidelines were adhered to throughout the study
 - All data was stored securely in a locked cupboard in a locked office and anonymised before being transcribed to an electronic medium. Written records will be destroyed within one year.
 - Participants identified within the study were anonymised in the final published records.
- All participants were asked to consent to the study once their role had been defined
- The researchers remained open and honest to participants wherever possible
- All participants were informed of their right to withdraw from the study at any time
- The researchers endeavoured to protect all participants from physical and psychological harm
- All participants were debriefed following the completion of the study

In addition

It was anticipated that patients may be threatened by the presence of an observer. An information sheet about the study was made available (Appendix 11). The researcher withdrew, if requested to do so by a patient or participant, where they felt that the patient was uncomfortable about the observation, where care was intimate or personal, or where care did not have relevance to the study.

Results

Quantitative Results

The following section reports the findings from the quantitative observational records and the patient audit, followed by a quantitative summary.

Sample Power

Power calculations were conducted using SPSS Sample Power 2 software to determine the number of participants (for a power >80%) required to test for a significant differences between certificate (Level 1) and graduate level (Level 3) ECPs for each of the rating scales. Previous data were available (standard deviations) to calculate the expected effect size for each of the scales. With the proposed sample size of 10 and 10 for the two independent groups, the study achieved a power of >86.4% to yield a statistically significant result on all the scales (see Appendix 12 for details)

Data analysis

The CCQ, ETD, LBDQ (Consideration), & LBDQ total data were negatively skewed but no consequential departures of normality were identified (i.e. skewness <2 and kurtosis <5). Accordingly, parametric statistical analysis was conducted on these data [29]. The LBDQ (Initiating Structure) data, however, showed excessive skewness & kurtosis and therefore non-parametric analysis was conducted on these data.

Descriptive statistics for demographic data and the following tests for inferential data. Student's t tests (*t*) for interval data, Mann-Whitney (*z*) for ordinal and chi square tests (with Yates correction) (χ^2) for nominal data. Pearson's correlation (*r*) and Spearman's (*rho*) as the non-parametric equivalent and Kruskal-Wallis (*k*) non-parametric ANOVA test.

Multivariate associations with dichotomous outcomes (patient transported or not) were assessed using forward stepwise binary logistic regression for the following independent variables: ECP grade, patient age, response time, time on scene, and diagnostic category.

Numerical data was analysed with SPSS version 11.5 software. All tests for statistical significance were two-tailed, unless indicated, with the level of significance at $\alpha < 0.05$.

Validity and Reliability of the rating scales

LBDQ and CCQ have been previously identified as having a high validity and reliability [25, 26, 27, 28]. In this study all three scales demonstrated good face and content validity, assessed by the research team and two external experts. The internal reliability/consistency (Cronbach's alpha) for all the scales was good >80%. For CCQ - 0.88; LBDQ (Consideration) – 0.82; LBDQ (Initiating Structure) – 0.98; LBDQ total – 0.93 and for the previously untested ETD scale a highly satisfactory – 0.94.

Observational ratings

Between November 2005 and May 2006 twenty four ECPs were observed on 28 occasions by three trained observers for periods of 5 to 12 hours. Where repeat visits were made it was to a second area of work (a general practice or out of hours doctors service).

A global assessment of leadership, team work and communication, in a wide range of situations (urgent and non urgent) was made at the end of each observation,

using the afore mentioned scales. Twenty one male ECPs were observed and 3 females. The majority were between 31-40 years (50%), with 11 aged 41-50 (46%) and 1 aged 51-60 (4%). Three had primary qualifications as nurses and 21 were paramedics, 2 had dual qualifications. Fifteen were qualified at certificate level (Level 1), 7 at bachelor's level and 2 at master's level (both identified as Level 3 practitioners). Thirteen worked in secondary roles to the ambulance service e.g. minor injury units and out-of-hours doctor services. Number of years working as a health care professional averaged 19 years (range 10-33) whilst the mean time as an ECP was 1.8 years (range 1-3)

There was a significant correlation between all the rating scales. LBDQ and CCQ (r 0.764, $p=0.01$, 2 tailed); LBDQ and ETD (r 0.836, $p=0.01$, 2 tailed); ETD and CCQ (r 0.815, $p=0.01$, 2 tailed). The implication being that the better leaders were also better communicators leading high performing teams.

Table 2 shows the mean ratings for all the scales, ECPs scoring well overall on all the rating scales. However, the ranges are notable, with for example, leadership ratings ranging from scores of 29% to outstanding scores of 100%.

Table 2: Rating Scales

	N	Minimum	Maximum	Mean	Std. Deviation
CCQ Mean	28	51	100	82.61	13.777
ETD Mean	28	36	100	78.64	21.151
LBDQ(Con)Mean	28	43	100	79.79	15.617
LBDQ(IS)mean	28	15	100	78.32	23.755
LBDQ mean	28	29	100	78.57	18.973

Analysis of Level 1 and Level 3 ECP performance in relation to leadership, communication and team work revealed some interesting findings. Level 3 practitioners performed at a higher mean rating on all the scales, reaching significance in LBDQ (Consideration) (t -1.76, $p=0.05$, 1-tailed, CI -8.84-0.71) and in LBDQ (Initiating structure) (z -1.86, $p=0.032$, 1-tailed).

Years working as a healthcare professional did improve ECPs ability to structure a team (r .473, $p=0.023$, 2-tailed) and interestingly women's mean rating of leadership, communication and team performance was slightly higher than men's, although this was not statistical significant.

Results: Patient Audit

We undertook an audit of patients seen by ECPs over two three week periods in February 2006 and April/May 2006. Twenty five ECPs from across the region completed a total of 611 patient audit forms. The form itself was an adapted version

of a current national ECP audit (Sussex Ambulance Service; Eleanor Smy (Project Lead)) We included additional questions relating to collaborative practices e.g. 'who else was on scene' and 'who made referral decisions'.

The largest majority of patients seen were 75 years or older 240/605 (40%) whilst 49% (297/605) were 65 or over and 49% of patients were men and 51% were women.

Patients accessed ECP care through the 999 system in the majority of cases (76%) (Table 3).

Table 3: Patient access to care

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	999 call	458	75.0	76.0	76.0
	Treatment Centre(MIU/P CC/WiC etc)	58	9.5	9.6	85.6
	GP surgery	9	1.5	1.5	87.1
	Home visit	2	.3	.3	87.4
	Ambulance referral	56	9.2	9.3	96.7
	Other	20	3.3	3.3	100.0
	Total	603	98.7	100.0	
Missing	Missing	8	1.3		
Total		611	100.0		

The mean ECP response time was 16.5 minutes ranging from less than a minute to 13 hours. The longer response times are probably related to non urgent ECP referrals e.g. an afternoon referral followed up on the following morning.

Only 30% of patients were seen out of hours (18.30-08.00 & weekends). The mean time on scene was 46.5 minutes ranging from less than a minute to 4.5 hours. The longer times on scene were often related to failure in referral systems and/or transport delays. There was no significant difference in the on scene time between Levels of ECP with time set at < or > 30 minutes ($\chi^2 .413, p=0.53, 2$ tailed).

Table 4 illustrates patient transport rates from which a non conveyance rate of 62% (336/539) was extrapolated. Reports from the same period [30] indicate that the total Trust's non conveyance rate was 32%. These rates compare well with previously reported rates of 50% for ECPs and 36% for paramedics from the same Trust [19].

Table 4 - Patient transport

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No amb/transp req	336	55.0	60.2	60.2
	Emergency amb	101	16.5	18.1	78.3
	Emergency amb downgraded with later transport e.g. UTV	57	9.3	10.2	88.5
	ECP transported	45	7.4	8.1	96.6
	ECP stood down emerg vehicle	18	2.9	3.2	99.8
	Not applicable	1	.2	.2	100.0
	Total	558	91.3	100.0	
	Missing	Missing	53	8.7	
Total		611	100.0		

Between ECP levels (Level 1, Level 3 and Training ECPs) there was a significant difference in patient transport rates ($z = -2.05$, $p = 0.04$). Training ECPs conveyed 58% (19/33) of cases compared to Level 1 (165/474) 35% and 3 ECPs (19/50) 38%.

In addition to an ECP, additional responses (e.g. an ambulance or RRV) were sent to 38% of patients (90/235). ECPs were asked if this response was applicable or required. Of those that responded (46/63) 73% felt the response was appropriate leaving 27% of cases as inappropriate. From a different standpoint we also asked ECPs what they considered to be the most suitable initial resource for the patient. ECPs felt that an alternative resource should have been used in 40% of cases (127/319). This resource was usually an ambulance 25% with surprisingly few considering a GP as first resource 5%.

Table 5 illustrates patient outcomes. The majority of patients 48% (285/595) were seen, treated and discharged by an ECP (as opposed to another professional) and 38% of patients were referred. However, between ECP levels (Level 1, Level 3 and Training ECPs) there was a significant difference in patient outcome ($x^2 = 41.85$, $p < 0.001$). Training ECPs treated and released less of their patients (36%) (12/33) than Level 1 (246/506) and 3 ECPs (27/56) who both had rates of 48%. Level 3 ECPs referred the highest number of patients 43% (24/56) compared to Level 1s (38%) (192/506) and Training ECPs 39% (13/33).

Table 5 - Patient outcome

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	See & Treat(ECP discharge)	285	46.6	47.9	47.9
	See & treat with assistance from GP	55	9.0	9.2	57.1
	Other clinician treated/discharge	11	1.8	1.8	59.0
	Refer	229	37.5	38.5	97.5
	Other	11	1.8	1.8	99.3
	6	4	.7	.7	100.0
	Total	595	97.4	100.0	
Missing	Missing	16	2.6		
Total		611	100.0		

ECPs considered outcomes to be unsatisfactory in only 5% (29/582) of cases. For example, they did not have an appropriate patient group directive, patient refused care or they could not gain access to services. ECPs rarely worked alone (see Table 6) and claimed to make the referral decision in 87% of cases (136/156) with a successful referral in 96% of cases (238/249).

Table 6 – Other professionals on-scene

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Paramedic	71	11.6	63.4	63.4
	GP	4	.7	3.6	67.0
	Relative	8	1.3	7.1	74.1
	Other	19	3.1	17.0	91.1
	Neighbour	2	.3	1.8	92.9
	Healthcare professional	5	.8	4.5	97.3
	Technician crew	2	.3	1.8	99.1
	First Responder	1	.2	.9	100.0
	Total	112	18.3	100.0	
Missing	Missing/NO	499	81.7		
Total		611	100.0		

Most patients were referred to A&E 46% (139/302) but a significant number of other resources were made use of (Table 7).

Table 7 - Referral pathway

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A&E	139	22.7	46.0	46.0
	Medical admissions (AMU/EMU)	7	1.1	2.3	48.3
	Surgical admissions(SAU)	3	.5	1.0	49.3
	Fracture Clinic	3	.5	1.0	50.3
	Orthopaedics	1	.2	.3	50.7
	Paediatrics	5	.8	1.7	52.3
	Physiotherapy	1	.2	.3	52.6
	X-ray	2	.3	.7	53.3
	Treatment Centre(MIU/PCC)	20	3.3	6.6	59.9
	GP surgery appt	33	5.4	10.9	70.9
	GP home visit in-hrs-urgent	7	1.1	2.3	73.2
	GP visit in hrs-non-urgent	12	2.0	4.0	77.2
	GP visit o-o-h	11	1.8	3.6	80.8
	District nurse	5	.8	1.7	82.5
	Practice Nurse	4	.7	1.3	83.8
	ECP follow-up	9	1.5	3.0	86.8
	Elderly care team	2	.3	.7	87.4
	Falls team	3	.5	1.0	88.4
	Home assessment team	5	.8	1.7	90.1
	Mental Health team	4	.7	1.3	91.4
	Social Services	12	2.0	4.0	95.4
	Other care pathway	7	1.1	2.3	97.7
	Other speciality	4	.7	1.3	99.0
	Police	2	.3	.7	99.7
	Intermediate Care Team	1	.2	.3	100.0
	Total	302	49.4	100.0	
Missing	Missing	309	50.6		
Total		611	100.0		

ECPs were also asked 'did you perform an ECP-specific intervention, which avoided Acute Trust admission'. 66% (396/600) responded in the affirmative.

Table 8 indicates patients reported condition (by Ambulance Control), ECPs diagnosis and the diagnosis at 24 hours. 163 conditions were recoded to 12 chief complaints in line with previous re-coding of ECP data [19]. There was an expected correlation between reported condition and ECP diagnosis (ρ 0.475, $p=0.01$) but a

significantly higher correlation between ECP diagnosis and diagnosis after 24 hours (ρ 0.731, $p=0.01$). Put another way the initial reported diagnosis from ambulance control is not as closely matched to ECPs diagnosis as the diagnosis after 24 hours. Exploring this data further there is a significant difference (χ^2 1544.6, $p= <0.001$) between the reported condition and the ECPs diagnosis with a match in 67% (231/344) of cases. There remains a significance difference (χ^2 583.2, $p=<0.001$) between the ECPs diagnosis and diagnosis after 24 hours, but the match is much higher at 81% (100/124). The mismatches tend also to be reclassifications e.g. social need to neurological and an unspecified condition that becomes specified.

Table 8: Patient reported condition and diagnosis

Chief complaint	Reported condition		ECP diagnosis		24 hour diagnosis	
	Rate	Mean	Rate	Mean	Rate	Mean
1 Respiratory	53	9.2	44	8.1	11	8.0
2 Cardiac	50	8.7	18	3.3	2	1.5
3 Gastrointestinal	14	2.4	22	4.1	1	.7
4 Neurological	10	1.7	49	9.1	6	4.4
5 Other medical	128	22.2	94	17.4	15	10.9
6 Trauma	194	33.6	68	12.6	19	13.9
7 Burns	2	0.3	3	.6	3	2.2
8 Poisoning	1	0.2	1	.2	0	0
9 Deliberated self harm	2	0.3	1	.2	0	0
10 Social need	61	10.6	60	11.1	22	16.1
11 Other unspecified condition	59	10.2	181	33.5	58	42.3
12 No information	3	0.5	0	0	0	0
TOTAL	577	100	541	100	137	100

When comparing two grades of staff Level 1 and 3 (trainees grouped with Level 1 practitioners) with patient transport and the diagnostic categories there was no significant difference in the transportation rate between the two grades but there was a difference in the patients they saw (k 4.83, $p=0.028$). For example Level 3 practitioners saw slightly more cardiac and 'other medical' conditions and Level 1 practitioners saw more respiratory and traumatised patients.

Multivariate associations with dichotomous outcomes (patient transported or not) were assessed using forward stepwise binary logistic regression, for the following independent variables: ECP grade, patient age, response time, time on scene, and ECPs diagnostic category. All bar diagnosis were rejected from the equation. In other words the patient's diagnosis is the key predictor of a transportation requirement. Interestingly the odds ratio is significantly higher for some conditions, which may be a very useful resource predictor for the ambulance service. For example you are 11 times more likely to require transport if you are a cardiac patient and 6 time if you a neurological patient (Table 9)

Table 9: Predictors of transportation		
Chief complaint	Significance	Odds ratio
1 Respiratory	0.007*	2.88
2 Cardiac	0.001*	10.81
4 Neurological	0.000*	5.67
6 Trauma	0.005*	2.48
10 Social need	0.032*	0.34

*Significant

Discussion: Quantitative Findings

The Communicator Competence Questionnaire [25] was developed from social psychological approaches and applied to organisational contexts, rather than purely interpersonal communication. This study contributes by adding a sample from a previously untested population.

The Leadership Behaviour Description Questionnaire (LBDQ) [27] includes the dimension of ‘consideration’ and ‘initiating structure’. Consideration denotes the “extent to which leaders show consideration toward members of the team”. Such a leader, “shows appreciation for good work and supports, maintains and strengthens the self-esteem of the individual team members” [26 p28]. Leaders who criticise team members in front of others, and refuse to accept suggestions from team members, or explain their actions, score lower on the LBDQ.

‘Initiating a structure’ is about time bound command and control situations and includes elements such as maintaining standards, detailing what needs to be done, with clear communication and patterns of organisation. “A team leader who scores low in initiating structure, would be described as hesitant about taking the initiative, would fail to take necessary actions....and would leave the individual team members to work in any way they like” [26 p28]. The leadership findings, from this sub-section further explores the conceptual model of ‘lighthouse leadership’ [25] which encourages an holistic overview rather than the micro-management of emergencies. “Leaders might like to imagine themselves as a lighthouse keeper whose light should guide and direct the team from afar, only occasionally launching themselves into the situation for those that require assistance” [26 p39]. From the quantitative (and qualitative) findings the concept of “lighthouse leadership” did appear to be an appropriate description of some observed ECP traits, and provides a normative aspect for those aspiring to develop their role.

The ‘Emergency Team Dynamics’ rating scale [26, 28] was derived from a factor analysis of key team functions and has previously been tested in resuscitation settings. In this case the researchers used the scale to rate team performance in both urgent and non-urgent care settings. The high validity and internal reliability (0.94) for this previously untested scale was very pleasing.

Intuitively one would expect all three scales to be correlated. This was the case; better leaders were better communicators and led high performance teams. What was notable, however, was the very poor leadership and communication ability of some of the ECPs, and consequently the poor performance of their teams.

In addition it was clear that the more highly educated Level 3 practitioners were better communicators and leaders which may be deemed to have a major impact on patient care. The Bachelors and Masters programmes completed by these participants all included modules on management and leadership. It was also clear that length of experience as a healthcare professional did improve performance in some areas, with the implication that health care experience is important prior to an ECP appointment.

From the patient audit it was clear that the majority of patients seen by ECPs were elderly. Future education, therefore, must focus on elderly care, including for example fall prevention and long term conditions. Patients accessed ECP care through the 999 system in the majority of cases. Clearly there may be some benefits in developing these access pathways with the possibility of GP referrals or Minor Injury Unit access.

Time on scene was questioned and discussed at the respondent validation event. ECPs, on the face of it, do appear to spend a long time with patients. Ogden et al. [31] report that the average GP consultation takes 9.36 minutes and GP home visits have fallen from 22% of all consultations in 1971 to 5% in 2004 [32]. However, these are not equal comparators as the ECP role is arguably quite different from that of a GP, in that they will treat on scene; wound treatments and ECGs for example, and are more likely to have to wait with a patient prior to transportation.

Only 30% of patients were seen out of hours (18.30-08.00 & weekends). A surprising result as the original driver for ECP development was to fill workforce gaps from the 2005 changes in doctors working hours. It may, however, be related to shift patterns with less ECPs available at night and therefore proportionally more patients receiving paramedic care instead?

At a time when the Trusts' conveyance rate was 68% the ECPs conveyance rate of 38% (i.e. a non-conveyance rate of 62%) is impressive and suggests a risk taking confidence in care and a collaborative and supportive network. It is also an improvement from previously reported conveyance rates of 50% [19]. We do not however know the number of returns to patients, which would paint a fuller picture of the safety issues. Never the less it is likely that many inappropriate admissions were avoided.

Training ECPs did transport more patients and treat less (than the other ECP grades) presumably because they are less informed and more risk averse, but this does point to the need for applicable mentorship in practice.

ECPs also reported that 27% of secondary responses were inappropriate and that alternative resources would have been applicable in 40% of cases; implying collaboration failure with Control, and other healthcare agencies, with consequential major resource implications. The transport prediction model (Table 9) may be of benefit here. With improved reports and coding of patient conditions it may be possible to more accurately focus ECP responses and transport requirements.

ECPs did claim that outcomes were satisfactory in 95% of cases, and that when working with other health professionals they made the referral decision in the majority of cases; implying a good level of collaboration and expertise.

The majority of patients were referred to A&E but a wide range of other treatment centres were made use of, the implication being that there is a broad collaborative network which could perhaps be extended to reduce A&E admissions still further. However, in the majority of cases (66%) ECPs felt that it was their intervention that avoided an acute Trust admission.

Findings related to the differences between reported condition and ECP diagnosis indicate the difficulty of correctly identifying reported conditions, which could be improved with a greater availability of paramedics and ECPs in Control. Correlations between ECP diagnosis and 24 hour diagnosis suggest that ECPs diagnosis is broadly unchanged.

Qualitative Results

This study is located within a broadly descriptive interpretive tradition based upon the 'situated' character of interaction in the natural setting. The interviews and observational data gave us facts about the setting that we were able to cross check between respondents e.g. ECPs and stakeholders, and between types of data e.g. quantitative and qualitative. As Silverman asserts, "interview data gives access to "facts about the world.....where that reality is imperfectly represented by an account, checks and remedies are to be encouraged in order to get a truer or more complete picture of how things stand" [33]; and as Selltiz et al [34] argue if respondents occupying widely different positions in the community agree on a statement, there is much better ground for accepting it as true, than if only one of these respondents makes the statement.

We used a semi-structured observational coding form (Appendix 6) to record observational notes and a semi-structured interview format incorporating open-ended questions to encourage respondents to select personal terms in their expression of emotion. For example, in the outline interview schedule (Appendix 10) 'What do you think are the specific benefits of inter-professional collaboration? When has collaboration failed?', the responses included emotional reactions, labour/material availability, and conflicts or co-operation with line managers/superiors or other health care professionals.

Data from observational records and interviews, with ECPs and stakeholders, were analysed using an interpretative approach drawing upon comparisons between individuals. Analysis was based on the three steps identified by Strauss & Corbin [see Mertens 35 p352]. Initially data was open coded with the naming and categorization of data, secondly axial coded whereby the open codes were drawn back together to make connections between categories, and finally selectively coded to produce, from a more abstract theoretical level of analysis, the key emergent theme and model. Care was taken by the researcher, in coding, and recording of the data to ensure that the picture was not distorted, for example, over-emphasising hindrances to collaboration, rather than examples of shared meanings/understandings, or vice versa.

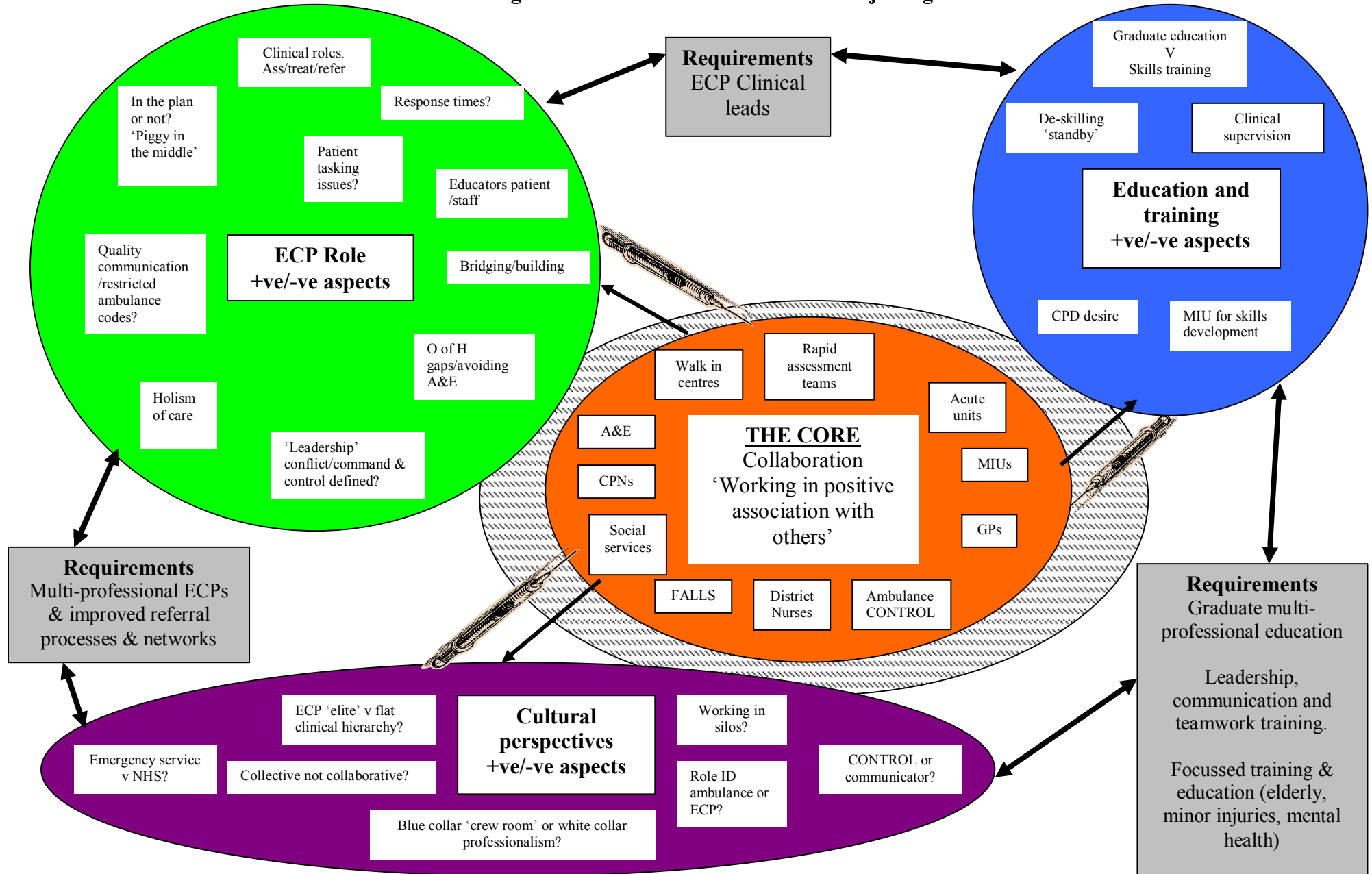
At the end of the study we invited all participants to a respondent validation event during which we presented provisional findings and invited interpretations and further thought. Five ECPs attended and one stakeholder. Views developed from this meeting assisted with our interpretation of both the qualitative and quantitative findings.

Twenty four ECPs were observed on 28 occasions (i.e. 4 ECPs were observed twice) over periods ranging from 5–12 hours in ambulance settings (21), in general practice (e.g. Cullompton Unscheduled Treatment Service (CUTS) (5) and in out of hours medical services (e.g. Kernow Doc) (x2). The mix of settings informed the context of ECP working practice.

Figure 1 illustrates the findings in a model of collaboration. Described as 'Influences on Collaboration - Injecting the core' the model illustrates the ECPs emerging contemporary role in unscheduled care and gives examples of the requirements for best practice. The central core illustrates the professional and organisational groups that ECPs are in contact with and the outer three circles illustrate themes related to the ECPs role, cultural perspectives and education and training. All influence the 'collaborative core' either positively or negatively, hence 'injecting the core' or taking away from it. The three boxes that link all the circles illustrate the key predicted requirements for the enhancement of collaborative practices.

In the following section the key themes are discussed in detail with quotations identified by participant, ECP or St = stakeholder; and by the setting Int = interview or Obs = observation; and where applicable interview number/line number.

Figure 1 Influences on Collaboration 'Injecting the Core'



The Core; Collaboration; “working in positive association with others”

.....“being able to keep the patient in the most appropriate place...their home...or family’s home...not in an A &E department” (ECP. Int 2/52).

This is not only the view of one ECP but a key national agenda for the Government. To achieve this there has to be considerable multi-agency working. In Cornwall and East Devon the **Minor Injury Units (MIUs)** seem to be the focus of such activity. This environment has a major training impact for ECPs with the large throughput of patients and considerable up-skilling which was of benefit to subsequent practice; “*it was something I could deal with on-scene...and skills at the MIU were employed to do that....wound care...wound closing...*” (ECP. Int 6/174).

The MIU staff reported a willingness to learn and exchange ideas with ECPs and in some rural areas, the MIU acted as the main base for ECPs, who would otherwise have been, “*sitting in the ambulance station or car for hours.....demoralising and de-skilling....*” (ECP Obs 8).

Communication expertise was cited as a vital skill in the MIU or Urgent Treatment Service environment, where regular liaison with other staff, such as Practice Nurses, Nurse Practitioners, and GPs has become the norm. But occasionally misunderstandings about the ECP role did arise; their clinical judgement or that ECPs were just, “*ambulance staffdon’t have admitting powers*” (ECP. Int 19/107)

In the more urban areas, Plymouth particularly, collaboration with MIUs, was in its infancy, with some ECPs attending MIUs for training out of the area. Another issue raised in both stakeholder and ECP interviews, was the time-bound service targets of the Ambulance Service, which “*pulls ECPs out of the (MIU) team*” (St. Int 17/69).

The recognition of each others’ skills and limitations in cross-boundary working in these environments was a frequently cited desirable aspect of collaboration. A Nurse Practitioner referred to “*drawing on each others’ expertise*”..... *I’m not as experienced in examining joints and limbs*” (St. Int 17/21755).

Rapid Assessment teams were the focus of significant inter-agency collaboration. The elderly population (see above patient audit) created a need for links with Rapid Assessment teams, **Falls** agencies and other applicable professional groups. The main challenge however was the lack of out of hours service from these agencies which effected referral pathways. Out-of-hours Doctor services then became the main care pathway, leading to inappropriate A&E admissions.

One Rapid Assessment team leader, however, expressed great satisfaction that ECPs were using the system for safety netting as they are, “*....all bits of one puzzle*” (St Int 3/33). But adding that it was important to recognise each others’ skills and limitations, “*ECP assessment is only a snap-shot of the moment....which could be a potential problem*” (St Int 3/97); and that there were at times some ambiguity in the referral criteria. For example, some teams would not accept an ECP referral unless the patient had been seen by the GP within the previous 48 hours. But where teams

were based within an A&E department, care pathway were more rapid (ECP. Int 3/209).

Falls groups were developed to reduce the burden on the unscheduled care system as falls constitute a high percentage of 999 calls. Some of the ECP cells had Falls Co-ordinators, who attended steering group meetings, and/or co-ordinate with HQ Control over frequent fallers. For example; (Named ECP)...*"is a member of the Falls Steering Group...and he's been coming to Falls Steering Group meetings which meet every 6 weeks to 2 months"* (St. Int8/8). In consequence *"all the referrals have been appropriate"* (St. Int 8/60). A positive collaborative experience, which seemed to be repeated across the study region.

Social Services were frequently mentioned as a referral pathway (via Call Direct). Generally, associations were positive, although only few examples were cited, for example a 17 year old who had had an asthma attack in a telephone box was found to have no home to go to. The ECP, having contacted the natural parents, successfully liaised with Social Services to get him bed and breakfast for the night, with a follow-up visit the next day (ECP. Int 3/60). However, there appeared to be issues with Call Directs ability to log and record calls, resulting in protracted waits on-scene and a lack of understanding of the ECP role; *".....we got invited to a case conference for a little girl who'd been taken away from her mother...and when the Chairman looked at the fact that I was "just a paramedic" I was uninvited, which was very frustrating.....it was us that highlighted it to them that there was a problem"* (ECP. Int 15/242).

Positive liaison with **A&E departments** was a common theme which often took the form of telephone discussions with A&E doctors regarding treatment or admission. This occurred more frequently in the rural areas, perhaps where conveyance was over a distance, or where the patients condition was less manageable, for example in the case of a patient with a diabetic hypoglycaemia who failed to respond to treatment; *".....the ECP telephoned the SHO for advice.....when this intervention also failed...it was decided to admit the patient. The ECP later met the SHO in A&E, who was wholly supportive and collegial...." I don't know how you managed to get a line into that patient.....I think there is something else going on here....we will see the test results..."* (Obs 6/2)

Psychiatric services (and Community Psychiatric Nurses - CPNs) was an area where cross-boundary working is not well developed. ECPs were perceived as being a transport services, although some assistance was acknowledged in sectioning patients under the Mental Health Act by a CPN lead (St. Int 4/11).

There was little face-to-face contact with ECPs and the reported poor attitude of some other ambulance staff coloured perceptions; *"yeah we always looked at them as witches and witchcraft...psychiatric.....wooh...we don't really get much training through the Ambulance Service, as a technician and paramedic...we had some good lectures on our ECP course as to where it was going...umm...and I know that that was one of my weaknesses....."* (ECP Int 9 /286)

However, this may not be widespread among ambulance staff. Some ECPs alluded to a positive association with psychiatric out-of-hours services in Cornwall and one

Ambulance Chief recalling an incident he observed commented; *“.....and because an inter-personal approach was needed a technician sat down and got closer to this lady and dealt with her in an empathetic way...”*(Stakeholder 11/233).

There does though seem to be a lack of common learning interface with mental health staff (St Int 4/50), and that in the urban areas; *“psychiatric health staff are disinclined to collaborate”* (ECP Int 16/92). But ECP/CPN collaboration did work on occasions; *“a lot of the Community Psychiatric Nurses....you speak to them...do they know the patient...yes they do know the patient, and if they do then nine times out of ten, they’ll say, don’t worry, we’ll sort it out, as long as there’s isn’t any drugs involved, or they’re likely to harm themselves...”* (ECP Int 9/213).

District nurses were important participants in collaborative working, with positive feedback from respondents. In some areas (East Devon and Cornwall), they seemed to be the first point of referral, via the GP surgery, with a role in follow up care for elderly patients, especially those needing on-going wound care and following falls.

However there were some situations where the network of communication failed due to a break in the chain, for example; *“Even face-to-face contact between ECP and GP surgery failed to result in a follow-up visit from the District Nurse”* (Obs 14).

The **GP** played a key role in ECP collaboration, in a variety of situations and settings. This included the Out of Hours (O-O-H) services, as well as a GP-run Unscheduled Treatment Service in Cullompton, Devon; and created telephone advice/triage, and training opportunities for ECPs. For example ‘hear and treat’ episodes were common. ECPs scanned the UTS appointments and contacted patients by phone. For example, in one episode, the ECP spoke to the mother of a one year-old child with an eye infection; consulted the GP who recommended Chloramphenicol, which was checked in the drug formulary (BNF), inputted into the patient system, and a prescription issued (ECP. Obs 15).

The GP O-O-H services provided the focus for GP collaboration in several ways. There are some schemes where the Ambulance Service takes triaged patients for ECP home visits, and some ECPs work directly for an O-O-H service. These services are often only able to offer A&E as the main care pathway, which can hamper ECP referrals, for example;

“...a chap was being driven home to a warden-controlled flat by his wife; she was struggling to get him from the car into the property which was probably a walk of about 25 metres, which was quite interesting, because there was nothing really clinically wrong with this chap at all... spoke to (O-O-H) central referral system, and they suggested I spoke to a Social Worker..., I was waiting in the dark and cold for a period of 20 minutesbecause it was the weekend and we couldn’t get hold of the relevant people,..... he actually ended up going to A & E” (ECP, Int 6/ 210)

However, ECPs working directly for O-O-H services claimed advantages in prescribing practice; *“in the KernowDoc role I can prescribe Voltarol, so I had a dilemma there...what was the best course of action...clearly I knew that she needed stronger analgesia, and had no access to them immediately, so I spoke to the staff at the MIU, checked they were happy for me to obtain some Co-Dydramol tablets, and*

so they were happy...it was a good use of three different agencies altogether....."
(ECP. Int 6/26)

Excellent collaborative and clinical practice did appear to be achieved in the GP-run Cullompton Unscheduled Treatment Service, included in the study, for example; *"now somebody else complaining about similar symptoms....is the advantage of a place like this, where you can speak to the doctor on a regular basis"* (ECP Int 13 /320)

The ECPs in this setting expressed the high satisfaction and benefits of being able to track patients through their care pathways (ECP Int 13/256) and *"The ability to bounce off each other with clinical decisions.....without having to stick absolutely 100% to protocol....being able to disseminate...share information....workload is quite important..."* (ECP Int 15/22).

From a stakeholder perspective, the ECP represented *"A fresh person in the team"* - developing collaboration through real understanding of others' skills and limitations. (St Int 15/62).

However, there were claims of potential conflict over employment contracts, conditions and roles (St Int 15/39), but from the same stakeholder, *"a buy-in by senior management of other healthcare organisations was needed to make things work..."* (St Int 15/40).

Without exception effective communication was seen as the key collaborative requirement in all settings, and was a prime feature of all Stakeholder and ECP interviews and observations. The following section describes some of the additional factors which appeared to influence effective collaborative practice, many of which are linked to communication processes.

ECP Role +ve/ -ve aspects

The key sub themes of **clinical roles of assessment, treatment and referral, of holism of care** and **avoiding A&E** were referred to often and clearly generate a high degree of job satisfaction.

For example a nursing home who had called ambulance control requesting the assistance of an ECP, after an elderly lady had fallen. The ECP assessed the patient came to a differential diagnosis and arrange an Urgent transfer Vehicle to transfer the patient for x-ray. Although A&E admission was not avoided, the staffs' confidence in his clinical skills was evident (ECP Obs 1).

There was also substantial evidence of the 'see and treat process', for example; *"...he had very thin papery thin tissue skin, so steri-strips and medical glue were the best closure items, so we closed that...it came up quite nicely..."* (ECP Int 12/20)

Referral though was not always that easy; *"you can be given the run around by agencies.."* (ECP Int 1/78) and *"Short-stay admissions can be hard to achieve"* (ECP Int 4 Line 268).

As mentioned above there were several references to the frustrations of accessing rapid assessment and Social Services teams where there seemed to be no call-logging systems and agencies were frequently under the impression that they were talking to 'a paramedic' with a lack of understanding of the ECP role. One ECP cell, however, was proactive in this area and produced an ECP Information Sheet, which they distributed to stakeholders/agencies in the locality (ECP Int 5/28). In fact throughout the study it was clear that most ECPs had a very clear idea about their role and the benefits of creating a seamless holistic form of care.

"It was all seamless, all joined up, the patient had a fall, I went round there ...two hours later she was admitted to a nice clean bed...she's on antibiotics for her problem...people are coming round to see her (Rapid Assessment team)....they're assessing her home to see if there is anything can be put in there to make it more safe for her....all in less than 24 hours....". (ECP Int 5/120).

ECPs and stakeholders also tended to be aware of their **bridge-building** role in the community; *"resistance by different agencies necessitating an educative approach, since many did not know who ECP's were"* (ECP Int 16/83).

In practice bridges were built by the 'blended role' of the ECP the "orchestrator of services" (St Int 1/103) and was reflected in ECPs perception of their role; referral process, and joining up the care pathway in multi-agency collaboration with, MIUs, Falls, and Rapid Assessment teams (ECP Int 20/72).

Some ECPs saw this as a component of effective leadership, for example; *"...the context here was a male patient with terminal cancer, who was non-compliant with medication, and had pressure sores.....I was having a great time...marvellous.....felt like I was conducting an orchestra...got that sorted out, got Macmillan sorted....and who after that?.....we put him on nurse rotation just to get some sheepskin for his peels....that took an hour and 20 minutes I think, but it just needed for somebody to go in and just conduct the orchestra...they're all playing a part, but they're all....don't know what part to play...and once you just weaved your way through the intricacies...everybody became compliant..."* (ECP Int 20/68).

Quality communication and restricted transport codes were another key sub theme of the study. For collaboration to be successful effective communication between healthcare actors/agencies is essential, with an understanding of the respective professionals working practices. The use of language is key to understanding ways of working, not only in understanding concepts, but also in discerning the quality of the links being made for single or multiple episodes. As this study has progressed, the importance of 'speech codes' has emerged, particularly during the observations. See/treat and refer episodes have drawn our attention to some of the implicit meanings and understandings between the different healthcare actors. The Ambulance Service, with its transport service tradition, has a team-working culture, with many contextual shared meanings. Emerging from this is what we call a 'transport service' code. This 'code' draws upon the notion of the 'restricted code' originally explored by Basil Bernstein [36, 37] when compensatory education was trialled in deprived areas of the UK. The 'restricted code' was associated with 'being working class', whereas the 'elaborate code' was akin to middle class identity

and is grammatically accurate, logical and descriptive [38]. As education is delivered in an elaborate code theorists argue that increased access to education and training will create a culture change. Such an approach may appear crude value-judgements; Rosen [39] for example, criticised Bernstein's work on the basis of his vague conceptions of class itself, and also the perceived inferiority/superiority of each "code". In fact it is likely that most actors tend to use the codes interchangeably.

Speech codes are related to grammar and syntax. The grammar of the 'restricted code' is characterised by an absence of adjectives and adverbs which describe and more precisely explain the phenomena with which people are dealing. In common parlance, a parent telling their child to 'get out of that puddle!' offers little explanation as to why this action should be avoided. By contrast, Bernstein's 'elaborate code' would postulate a reason such as...'it will take ages to get you dry'. In the ambulance service a restricted code was seen in the form of 'crew room banter', the day to day relations with ambulance colleagues conducted in a limited code which denied access to those outside of the ambulance team. Respondents, particularly those of a sub-degree educational level, tended to be restricted to this 'restricted code' demonstrating less ability to shift to the 'elaborate code' displayed by other healthcare professionals. However, many ECPs did use both 'codes' interchangeably, for example they tended to use a restricted code with junior ambulance colleagues and an elaborate code with senior medical staff especially when trying to persuade them to accept a patient and elaborate on the finer nuances of the patients' needs.

For example, meaning within the ambulance service can often be left implicit, such as "*we just gel, without having to talk*" (ECP Int 3/153). In other words, the restricted code is context-bound, largely excluding anyone not directly engaged in the activity.

By contrast, those with a degree level of education tended to use an 'elaborate code', with a wider vocabulary and more complex syntax, especially when arranging referrals. For example would it be possible to arrange "*a definitive examination in A&E*" (Obs 2/6) and the 'elaborate code' requirements of discussing findings of a 12-lead ECG with an A&E Registrar. Meanings that were left implicit tended to result in missed opportunities and a long wait at the end of a telephone. After waiting several hours for a return contact from Social Services one ECP admitted that; "*A&E would have accessed the care pathway quicker for the patient*" (ECP Int 3/209).

Bernstein's work was originally conceived as a class dependant code of communication, interestingly the legacy of the ambulance service as being merely a transport-to-hospital service, may reflect this. On the other hand, the greater access to higher education may impact on future culture change.

The ECPs **educative role** was another sub theme, for example, one ECP described the importance of a 'geriatric education programme' he taught on; "*their environment...is it clean, is it warm, is it dry, well-kept, cold, poorly kept...it gives you a good pointer as to what sort of state they're living in...how well cared for they...then 'M' which is their medications because an awful lot of elderly patients ...can I see your meds, and they pull out a whole boxful of medicines that they've had for years, then their husband's are in there too you know, so they have poor compliance with drugs regimes for various reasons, so you look at that....there's often a medical*

interaction going on....can cause problems for falls and things, so you consider that...if ...then...there's their social situation 'S'...are they seeing people on a day-to-day basis, so are they interacting with people very much...cos some of them sit there for days and days without seeing anyone"....(ECP Int 21/480).

Other ECPs educated the public about the use of 999 services, and related issues. For example; *"Son-in-law and ECP had diligent discussion re appropriateness of 999 call-outs and response times. ECP gave some clear time-bound criteria, as well as outlining worrying signs in an elderly person...stroke etc. Son-in-law was interested and informed ECP..... expressed satisfaction in being able to educate people about the service"* (ECP Obs 3/1).

Some ECPs offered courses to the public on issues like Neonatal Resuscitation which entailed significant collaboration with other healthcare professionals and there was some interface with voluntary organisations such as St John Ambulance, for example setting up a major incident practice day (ECP Obs 8/2).

Frequently emerging sub-themes were that of **patient tasking issues, targets and response times** and **in the plan or not 'piggy in the middle'**; these were seen as a hindrance to the ECP role and their development, with largely inappropriate patient tasking by Ambulance Control. These theme predominated ECP and stakeholder interviews. Many ECPs expressed frustrations about being used as a Rapid Response Vehicle, particularly in the urban areas, where ECP cars were often despatched to stand-by points where their skills declined; *"the sooner we get rid of response times the better"* (ECP Int 4/334).

Some ECPs expressed a wish to be free-roaming; *"and a job that they wanted me to go to 14 miles away...and it would have been a very good collaboration between ourselves and the Acute Care-at Home service, but because of the dynamic cover, I was unable to go because I was covering the area where I work"* (ECP Int 8/78).

And some ECPs experienced frustrations in negotiating with Controllers/Dispatchers over booking ECP assessments and patient reviews, especially if this conflicted with the standard emergency service known as 'the Plan'.

In fact stakeholders, including A&E Consultants, were often forthright in their strategic concerns about the ECPs role, *"What is this new beast?"* (St Int 12/30). A view replicated by ECPs who sometimes expressed a 'piggy in the middle view', Another A &E Consultant argued that; *"time, the most valuable clinical tool is lost"* (ST Int 18/62) and added that ECPs were often used to meet targets, and furthermore that such targets undermined clinical decisions (St Int 18/146 & 168).

These often cultural clashes are discussed in further detail under a sub them of CONTROL or communicator.

Leadership and/or management? – emerged as an inherent role of the ECP but was not clearly expressed, in fact at times we were left with the impression that wider collaborative teamwork may "be constrained by tribal affiliations" [40]. We had come to the study with the view that leadership must play an essential role in collaborative practice and therefore formally measured performance (see leadership ratings

above) and raised it as a question in all the interviews. We were particularly interested in time bound emergency situations and how ECPs perceived their role in an emergency. Cooper and Wakelam [26] describe the conceptual model of 'lighthouse leadership', an analogy of emergency leaders as a lighthouse keeper who's 'light' guides the team who have been appropriately allocated tasks; a 'hands off' global overview rather than a micro-managed situation.

This concept appeared to describe some observed ECP traits, and also provides a normative aspect for those in training. In one acute episode roles were allocated whilst the ECP took overall command; "*Paramedic and crewman ran to scene...whilst ECP awaited confirmation. Clear leadership displayed here.....ECP stood back and waited for precise details. Paramedic found precise spot and ECP joined resus team*" (ECP Obs 4/2).

This form of leadership is referred to as 'initiating structure' and is one of the elements measured by the Leadership Behaviour Description Questionnaire- LBDQ. The second element is that of 'consideration' which denotes the "extent to which leaders show consideration toward members of the team" [26, p28]. Such a leader, "shows appreciation for good work and supports, maintains and strengthens the self-esteem of the individual team members" [26, p28]. This element was also apparent in much of the ECPs work, for example; "*The ECP joined the family in the resuscitation room in A&E later, he was comforting the parents in resus, who were deeply distressed, as the A&E team worked on the baby..... his body language showed total empathy with them, he kept returning to parents to listen and assist in their distress*" (ECP Obs 4/2) .

Interestingly ECPs were asked to provide stories/examples of inspirational leadership as part of the interview schedule, some emerged, but on the whole, there was a notable cultural resistance to doing so. It appeared that they could not separate out a 'leader' for each situation, as leadership was context specific with appropriate leadership emergence. Leadership also appeared, to be strongly aligned with management which was an anathema in the clinical setting – management (and leadership) was something they did at headquarters.

One Ambulance Chief argued....."*different approaches work on-scene*" (St Int 11/38) side-stepping the question, another argued that leadership was implicit in the Ambulance Service (St Int 19/369) and ECPs would often cite stories about other professionals, including Police Officers and the Fire Service, rather than their ambulance colleagues.

It was Paramedic Supervisors who were the most frequently cited as 'leaders' usually in relation to resource-management, whilst pro-activity as opposed to reactivity and a dislike of command/control styles dominated discussions (e.g. ECP Int 10/277). However, at major incidents, it was acknowledged that command and control was an appropriate style. The perception that; "*the person normally first on-scene takes charge*" (ECP Int 15/131) predominated and the view that leaders must be effective communicators.

Cultural perspectives +ve/-ve aspects

This second major theme illustrates the traditional and changing cultures within the ambulance service. One of the key sub themes is described as an **ECP elite versus flat clinical hierarchy**. This is the contrasting views, from many quarters, about the cultural of working relationships; is the ECP role an elite one and if yes does this conflict with the need for a flat clinical hierarchy (to enhance collaboration)? For example the ECPs role is; *“the ability to share without prejudice or hierarchy, combined with an understanding of each others’ roles”* (St Int 5/4).

Multi-agency liaison, particularly in the rural areas of Cornwall, East Devon and Cullompton, seemed to promote the Practitioner role, as there were many opportunities for making referrals (usually to MIUs) which reinforced the ‘flat’ collaborative approach. In the urban areas, Plymouth and Exeter, the proximity to A&E seemed to constrain the ECP role. Here the GP was the key referral point with an emphasis on traditional hierarchy, for example, one ECP referred to GPs in grandiose fashion as; *“the masters of medical illness”* (ECP Int 1/232).

In Plymouth, there was a fledgling plan for ECPs to work directly with GPs observing and assisting with patients in a surgery, but other work and the tendency for HQ Control to allocate ECPs to Rapid Response Vehicles, stifled such initiatives (ECP Int 10/199). There were also some practice limitations which limited ECP developments, often related to prescribing rights, for example Trimethoprim (an antibiotic for a urinary tract infections), could only be authorised by a GP.

ECPs also expressed concerns about hierarchical ‘management power’ over clinical autonomy, a tick box mentality as opposed to a clinical review; *“whereas with a medical person reviewing it...a Consultant paramedic....or Consultant Physician...it would be specifically clinical”* (ECP Int 8/387). To balance this relationship, or perhaps to enhance professional status many ECPs and stakeholders, argued the need for ECP professional registration.

The conflict theme of **emergency service versus NHS** appeared to be less apparent than previously reported [19]. There was minimal alignment with other emergency services and ECPs and stakeholders seemed to be very aware of ECPs critical role in creating a ‘seamless service’ between emergency services and the rest of the NHS, especially in the more rural areas; *“the bridge between Acute and Primary care”* (St Int 13/11).

The unique Cullompton GP-run unscheduled treatment service (CUTS) was a great success in this area, with positive collaborative benefits; *“We’d be lost without them....they provide 5 days a week cover...the UTS could not operate without them....their expertise in trauma”* (St Int 16/47). The ECPs and other multi-disciplinary teams employed by this practice had a bridge building impact and enhanced ECPs skills in minor illness/injury in a safe supportive environment.

This developing role required culture change in the form of **blue collar ‘crew room’ or white collar professionalism**. Traditional crew room banter or ‘elaborate code’ communication with other professionals. For example one ECP asserted; *“ECPs are*

the start of change in the workforce” (ECP Int 8/112) whilst another said, *“the Ambulance Service is seen as blue-collar; the ECP, more professional”* (ECP Int 20/504).

Signs of the emerging white collar professionalism could be seen in several ways. ECPs were at the forefront of quality improvement programmes and expressed high job satisfaction and belief in the role, particularly in their ability to seek out learning opportunities, for example with reference to a training opportunity with a paediatric unit; *“Self-directed study time creates a new interface”* (ECP Int 20/703), and their holism of care *“squeezing out referral pathways”* (ECP Int 7/222) to create *“mind-set of collaboration”* (St Int 6/51).

However there was also uncertainty about their emerging role – the checks and balances. Hesitancy about referrals or lack of negotiation/persuasion power, for example; *“it needed it closing properly and effectively and I wanted this done somewhere other than where it was in a public place....do you see what I mean...she wouldn't accept the patient on what I was telling her and yet what I was telling her was that it was acceptable for an MIU...she was likewe had a difference of opinion...and to me she was making it a difference of clinical opinion”*. (ECP Int 18 Lines 53-59).

Paramedics also expressed the view (perhaps quite rightly) that wound care and referral pathways should be part of their role with some frustration at not being able to see a job through to the end, *“without ECP intervention”* (St Int 9/166) and with resource duplication on-scene which may not be in the best interests of the patient *“5 minute wound closure...having to wait for an hour for an ECP on the other side of the city....”* (St Int 9 Line 166-9).

But on the whole the ECPs were regarded as *“part of our team”* (St Int 10/52) and were *“useful minor injuries is a big thing for us, where we don't clog up hospitals with people who just need a couple of stitches...suturing...a bit of glue...um...UTIs and things like that...people who really need a bit more assistance in the home. It's quite a big thing...we go to a lot of minor injury or non-injury calls, where they need referral to the RITA team and things like that....obviously ECPs are a gateway for that”* (St Int 10/19).

The integration of nurses into the role represents a tangible workforce change which is likely to impact on crew-room culture. For example a shift in the traditional male dominated gender stereotypes experienced by one female nurse ECP, who reported initial negative views of her ECP role which evaporated over time (ECP Int 7/147); and the advantages of working with a nurse who because of many years experience in general practice or MIUs is able to *“squeezing out referral pathways”* (ECP Int 7/222).

Role identity was another key theme with a heavy emphasis on the **collective, rather than the collaborative**. The legacy of the Ambulance service as a mere transport-to-hospital service was evident in the way that many ECPs expressed themselves during observations, often referring to themselves as *“the paramedic”* or *“from the ambulance service”* (ECP Obs 7). Many had a marked perception of still being *“one of the crew”* (ECP Obs 9/4) and used coarse humour or re-counted past

'jobs' which aided team morale but appeared unprofessional when expressed in front of the patient. In fact patient-focused behaviours tended to decline, once 'back-up' teams arrived on-scene.

Whilst team-working remains very much a part of ambulance service culture, and a necessary part of a joined-up NHS, there are also dangers when lines of authority are diminished or where there is diffusion of responsibility. This was often apparent at handovers where the PRFs were often handed over, half completed, to other crews and where there was an atmosphere of banter leading to confusion, for example, from field notes; *"the ECP assisted the paramedic with the rest of the PRF for handover to Sister. A&E staff showed confused understanding as PRF was being passed around, between ambulance staff"* (ECP Obs 5/9).

It was clear however that many ECPs saw themselves as misunderstood competent autonomous professionals spending much of their time driving forward the ECP agenda; *"I'm an Emergency Care Practitioner...not a paramedic, not because I'm a snob...but we have to start educating the public, as to what we do"* (ECP Int 1 Line 252); and, for example on autonomy *"we work by ourselves, we've just generally gotta make our own decisions"* (ECP Int 17/272). This was even more marked in the rural areas, where geographical distance from a district general hospital made ECP liaison with services such as MIU or general practice essential. In fact one respondent expressed the view that *"close proximity to hospital hinders the role"* (ECP Int 7/198).

The emergent practitioner role was highlighted most of all in out of hours provision *"Filling the gap created by the change in GP contracts"* (St Int 12/211), but this created many clashes between this new role and the need to cover 999 services for the ambulance service. Even when there was no employer conflict issues there were still role conflicts relating to professional identity and role misrepresentation. This was particularly apparent when ECPs were working for out of hours doctors services and appeared 'out of uniform' at patients homes in a car marked 'doctor'. ECPs were aware of the incongruence and risks of misrepresentation but were limited by the public's understanding of the ECP role; *"it is important not to misrepresent yourself (as a doctor), but if your doing a home visit to a 95 year old who's semi-comatose, it's hard to explain that you're not a doctor"* (ECP Obs 16). This may be the case but it is essential that ECPs do not misrepresent themselves to the public or other professionals. A form of uniform would resolve this issue but would clearly have to represent the ECPs employer, i.e. a WAST uniform would be inappropriate if the ECP was working for an O-O-H doctors service.

Working in silos was a theme expressed by respondents; that ECPs represented *"another silo...the more silos.....less efficiency"* (St Int 13/130) and that the whole emergency care pathway was ill considered with a complete lack of understanding and strategic planning of the ECPs role *"this new beast..."* (St Int 12/22). The same stakeholder felt that the threshold for seeking access to emergency care had been reduced in recent years; it was now much easier to access a variety of emergency services with the result that it was more difficult to assess the impact of ECPs on the A&E admission rates. And going on to argue that a paramedic could equally well take on some of the ECP tasks a view supported by an Ambulance Technician who said.....*"Urine dips and that sort of thing...a skill that they use to tell the difference*

between a muscular or a bony injury...I think that's something that should be pushed on more towards a paramedic, because they should be able to triage somebody for that as opposed to having to call an ECP" (St Int 10/28).

Headquarters **CONTROL or communicator** is the final sub theme of this section and illustrates the continuous conflict between the perceived role of HQ Control as a 'controlling' allocator of tasks or a communicator of condition for best fit care. Of course the role is a dual one dependant on the situation, but situation assessment is taken from differing standpoints, which often causes conflict. Call takers at Control are often given very limited information by the call maker and then have to make a judgement about the applicable resource allocation. Once on scene the applicability of the response, technician, paramedic or ECP is then often challenged. In fact ECP respondents suggested that communication with Control had improved significantly over the years but that there was still a need for paramedics and ECPs to work in Control (call takers are often lay staff working from set algorithms) perhaps through a system of job rotation. Interestingly in academic terms the conflicts between Control and ECP teams is similar to those illustrated by Bleakley [41] in work with theatre operating teams where he discusses what he calls 'convergent rhetorical strategies' which are illustrated, within the siege mentality of a busy operating theatre, as 'we're all in this together' and by contrast, 'divergent rhetorical strategies' as remarks which maintain boundaries through stereotypical comments such as 'don't expect to be taken notice of'.

Education and training +ve/-ve aspects

There were continuous direct and oblique references to training and education throughout the study and the sub themes are often clearly linked. For example ECPs were concerned about the level of **de-skilling whilst on standby** and that this could often be solved by basing ECPs in MIUs , whilst training ECPs expressed a desire to work in **MIUs to gain the skills** required to complete the ECP role.

One of the main outcomes of this study, however, is that an ability to communicate effectively is an essential aspect of multi-agency collaboration, team-working and leadership, and that multi-professional education would be one way to achieve this; multi- professional "*education once you sit down and speak to people.....you find out their problems*" (ECP Int 1/19)

Work, for example, by Weiss and Davis [22] suggest that level of education does influence collaborative ability. They found that nurses with "less than a baccalaureate degree scored lower on assertion of professional expertise and opinion" [p303] and scored lower in their collaborative practice than more highly educated professionals. These findings are supported by Lockhart-Wood [42] who found that "nurses educated below degree level were ill-prepared for collaborative practice and found it difficult to relate to their medical colleagues in a collegial capacity" [p279]. Focussed **graduate education versus skills training** concerns were often raised in our study, for example focussed training to equip them for their role, i.e. more on elderly care and issues around the 'level' of training as one GP indicated "*Level One training is too basic*" (St Int 5/58) as it focuses primarily on practical, wound-care skills, at the expense of communication expertise needed for referrals. It could be argued that a more extensive higher level qualification enables

professional and patient-focussed behaviours and gives time for the development of skills. In this study the graduates (Bachelors and Masters Level) appeared more competent in the handling of referral mechanisms based upon an holistic understanding of care, improved networks and enhanced communication skills. The Level 1 practitioners appeared to struggle at times and admitted for example that; *“referrals...that’s something I’ve had to learn on the way....we didn’t cover that...ummm.....it is quite an interesting concept ringing these people up, saying...what can you do”* (ECP Int 9/200).

Or in a Level 3 practitioners view *“now some of the lesser trained individuals (that sounds a bit derogatory) are constrained by some of the procedures/protocols”* (St Int 1/47); and a stakeholder expressed the view that it was essential to employ ECPs who could see beyond the presenting complaint, and to be aware of their skills and limitations, since they cannot carry the level of risk, of a fully trained GP.(St Int 18/127).

In this study we have also identified a culture of team working which appears to hinder in some way the development of applicable situational leadership, especially in time bound emergency settings. A dislike perhaps of ‘management’ authority in the clinical setting or perhaps a desire to be rated more highly on ‘consideration’ than on a command and control rating such as ‘initiating structure’. In fact we have shown that Level 3 practitioners are more effective leaders (see quantitative section above) which we assume, in part, is because they have been trained in specific aspects of situational leadership.

Finally it is clear from recent publications [18] and our observations, ratings and respondent feedback that there is an urgent need for **clinical supervision** in the form of what we would loosely term a mentorship framework. This would enable the safe development and supervision of largely autonomous ECPs in initial training, and fulfil ECPs desire for **Continuous Professional Development (CPD)**. The format and style of supervision should be considered carefully, perhaps in a loose framework of ‘critical friends’, a ‘domain expert facilitator’ [41 p86], or through the development of ‘opinion leaders’ [43]

Conclusions and Recommendations

The validity and reliability of our quantitative measures have been discussed and found to have high internal consistency and good validity. However, as some of our data was collected in observational settings there may have been a change of behaviour related to ‘observer effects’, a Hawthorne effect [44]. However this was hopefully balanced by the variety of methods and sources of data to produce an accurate consensus overview. In addition, some of our findings are based on a generalised overview of ECPs and their patients, for example the re-categorisation of patient conditions gives a broad overview within which there is likely to be a range of requirements. Such findings should therefore not be taken out of context. The study was also set in one region of the UK within one ambulance Trust, the results therefore, may not be generalisable across all regions. For example, other Trusts may have different Control and response procedures. However, it is likely that most Trusts in the UK have similar cultures and training programmes.

It is also important to consider the overall rigour of our qualitative work. Caelli, Ray & Mill [24] suggest that for a credible piece of generic qualitative research the *theoretical positioning of the researchers* should be described especially in relation to their disciplinary affiliation, what brought them to the question, and the assumptions they make. In this case the research team came from a multi-disciplinary team of emergency nurse academics with senior experience in the ambulance service; a business studies academic with an interest in organisational learning; and a sociologist. We were drawn to the question by our previous experience in the field [19] and from our broad range of professional backgrounds making the assumptions listed above. Secondly it is important to describe the *methodology and methods* which in this case are generic in that we combine both an ethnographic approach (i.e. the culture of the ambulance service) with a grounded theory approach (i.e. the development of collaborative theory in unscheduled care, which has emerged from the data through constant comparison). Methods are based on the grounded theory analysis strategy of open, axial and selective coding (this third stage because we are developing theory), and we achieved 'saturation' within the three key themes due to the large number of interviews (n=45), within which there was marked repetition of codes relating to all the sub-themes. Thirdly Caelli, Ray & Mill [24] suggest that studies should demonstrate '*rigour*' the post-modern approach to credibility and dependability. In this study our rigour is illustrated by the close account, or audit trail, that we have described in all aspects of the study. Finally Caelli, Ray & Mill [24] argue that the *analytical lens* should be clear, by which they mean that researchers should state how they have engaged with the data. This has hopefully been made explicit through our discussion of the observational processes, issues such as the Hawthorne effect, as well as the process of co-verification of data coding and thematic analysis.

In conclusion we have identified that Government and others are driving forward the agenda for unscheduled emergency care to create appropriate care, in the right place and at the right time. Part of this process has to be the development of collaborative practices. We have considered concepts of collaboration [20], for example, it is clear that, whilst developing well, there is some way to go before ECPs and other professionals are truly '*sharing*' their patient responsibilities; that '*partnership*' and collegial-like relationships exist but need enhancing; that there is some '*interdependency*' but also a lot of isolated 'tribal' affiliations; and that '*power sharing*' between the professions is becoming apparent, especially in the divulged responsibilities between GPs and ECPs.

We have met our objectives in that we have identified key instances and hindrances to collaboration with the development of a model of current collaborative practices (Figure 1). We hope that, as Leathard [5, 21] suggests this model will firstly allow other fields of inter-professional practice to compare and possibly apply the findings, secondly to display a manageable context of how professionals can work effectively together, thirdly to indicate how professionals and organisations may need to change, and fourthly to provide a basis for future evaluation.

We have also identified the significant number of professionals that ECPs collaborate with and the positive benefits of collaboration, such as appropriately low and focussed referral rates, up-skilling through applicable work areas (MIUs & CUTS), enhanced teamwork and greater fluency in patient care.

But we have also identified reasons for collaborative failures such as level of education, communication and language failings, leadership and team work ability, lack of clinical supervision, process issues between Control and responders, and cultural limitations. Staff are 'ripe for change' and quickly adopt innovative concepts in order to meet the challenges they experience [45], but there remain many organisational constraints that limit collaborative practice.

These results lead us to the recommendations listed in Table 10.

This study has produced a unique body of knowledge based upon the insights of a multi-professional research team in the context of a new and emerging role. The work adds to bodies of knowledge in sociology and psychology, for example, communication and speech codes, team work and leadership; and develops an understanding of organisational learning and collaboration, based on the influences of role, culture and education. Finally, and importantly, the work is unique in its description and solutions for collaborative practice in a clinical setting. It is hoped that these findings will have an impact on patient care.

Further research is required to fully understand collaborative practices and to evaluate new and emerging roles. For ECPs a comprehensive cost benefit analysis is notably lacking; we know little about the culture of learning and influences on practice, and there is little work which addresses the potential and actual dangers inherent in the rapid development of roles in autonomous settings.

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Table 10: Study Recommendations for the enhancement of collaborative practices (no specific order)	
Appointment of ECP clinical leads	Lead ECPs should be appointed, ideally at Consultant & Masters level, to drive forward the clinical, education, supervision, networking, audit and research agenda.
Degree level multi-professional education	Based upon uni-professional and multi-professional sessions within a modular programme [46]. Encompassing, for example, advanced clinical skills, leadership, mentorship, team working, cultural issues, communication and handover skills.
Leadership, communication and teamwork training	Short post registration courses such as the current DH funded 'Developing excellence in leadership within urgent care' [47] which aims to break down traditional boundaries, relationship management, self management, patient/client focus, political awareness, networking, leadership effectiveness measures, team resource management & situation awareness.
Clinical supervision/mentorship	To ensure safe practice & continuous professional development
Focussed Training & Education	The curriculum should be aligned with clinical practice e.g. care of the elderly, minor injuries, mental health & learning disabilities.
Full non-medical prescribing rights	Inclusion in educational provision for the independent/supplementary prescribing course.
Up-skilling - clinical practice in MIUs/A&E/GP	To reduce de-skilling (from long periods of standby) ECPs should be based in areas of high clinical activity e.g. MIU, A&E or general practice.
Multi-professional appointments to the ECP role	Experienced Nurses [48] (and other professions) should be recruited in greater numbers to diversify the skill base, develop culture & enhance collaborative practice.
Improved task allocation, referral processes & networks	Expert task allocation in HQ Ambulance Control and improved links with Social Services (Care Direct) & mental health services
Sharing of good practice	For example the multi-professional Cullompton Unscheduled Treatment Service (CUTS)
ECP publicity	Explanatory ECP role publicity to providers and public
Enhanced organisational senior management links	To develop organisational collaboration & to resolve contractual & working practice limitations
Improved ECP out of hours cover	The ECP role should have a strong focus on out of hours cover
Developments of Paramedic education	To enhance paramedic 'treat & release' & referral process a wider more focussed curriculum e.g. diverse clinical skills, communication and referral processes.
Focussed secondary ambulance responses	Development of transport prediction models & a focus on the requirements for secondary responses
Patient treatment issues	Further consideration of on scene times, treat and release and conveyance rates. 'No blame' and patient safety issues.

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Appendix 1 - Collaboration Competencies

1. ECP Specific [4]

- Demonstrate a good knowledge of inter-service working involving all the emergency services, including collaboration and communications and understanding of the role and contribution of the wider multi-disciplinary team to the delivery of emergency./unscheduled care.
- Demonstrate familiarity with referral processes in relation to the wider health community and how these may be utilised by ECPs

2. Competencies for collaborative teams [5 p100]

Superordinate

Adapting to change

Participating in change

Managing self and others

Communication

Subordinate

coping with ambiguity and uncertainty. Critical reasoning

Continuing own education

Identifying and analysing problems, selecting appropriate means towards their resolution, monitoring progress, evaluating outcomes

Practising empathy

3. Characteristics of collaborative team working [6]

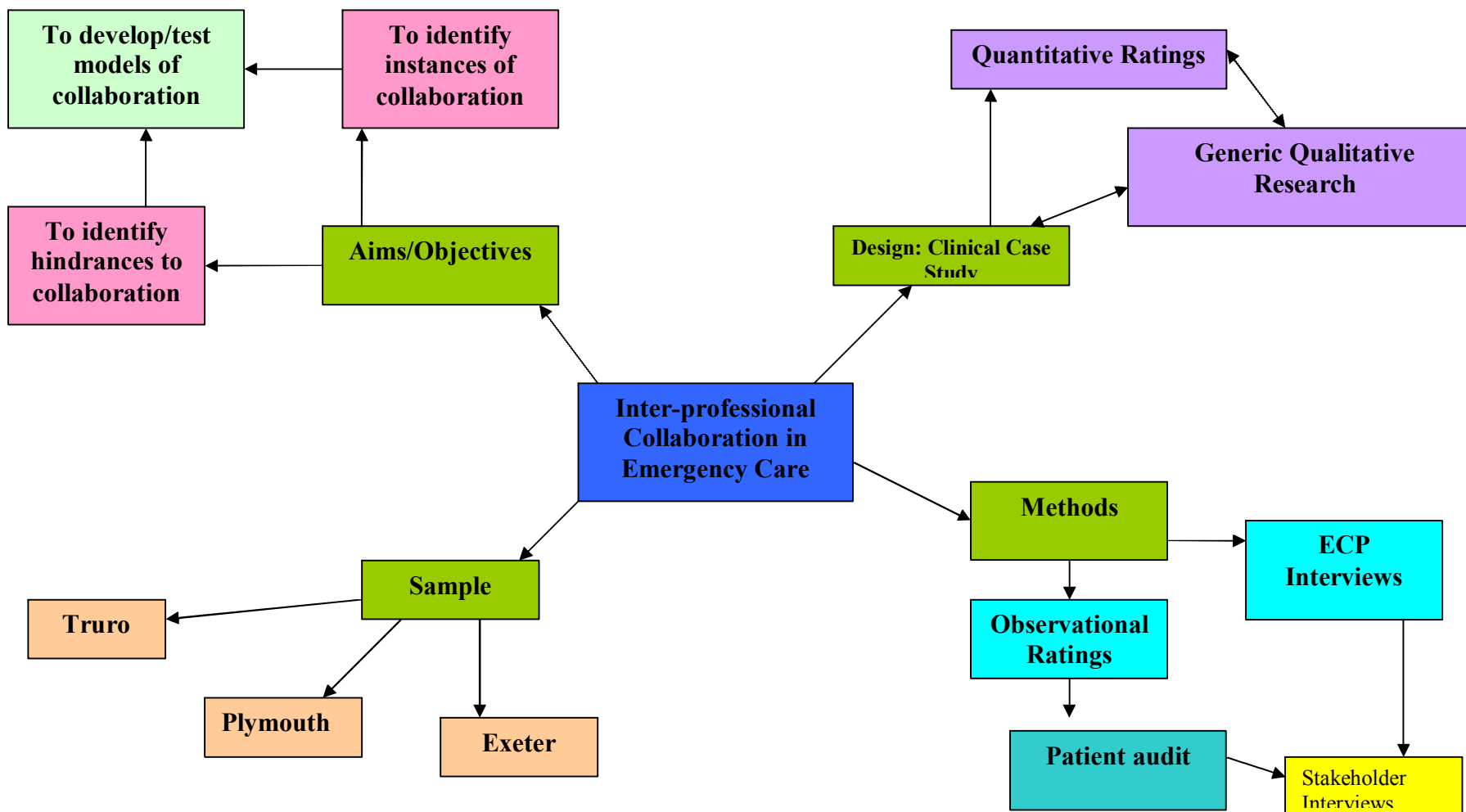
- Shared vision of team working and patient care
- Team members all contributed to problem solving and decision making
- Shared responsibility for team actions
- Communication was multi-layered, acknowledgement that professional concerns were all recognised as important
- Clear understanding of team roles
- Role boundaries were flexible according to patient requirements
- A pool of team skills and knowledge enabling joint practices

In other words an egalitarian team approach (Leathard 2003b)

4. Collaboration fostered by 'appreciation of expert contributions and agreed distribution of roles' [49]

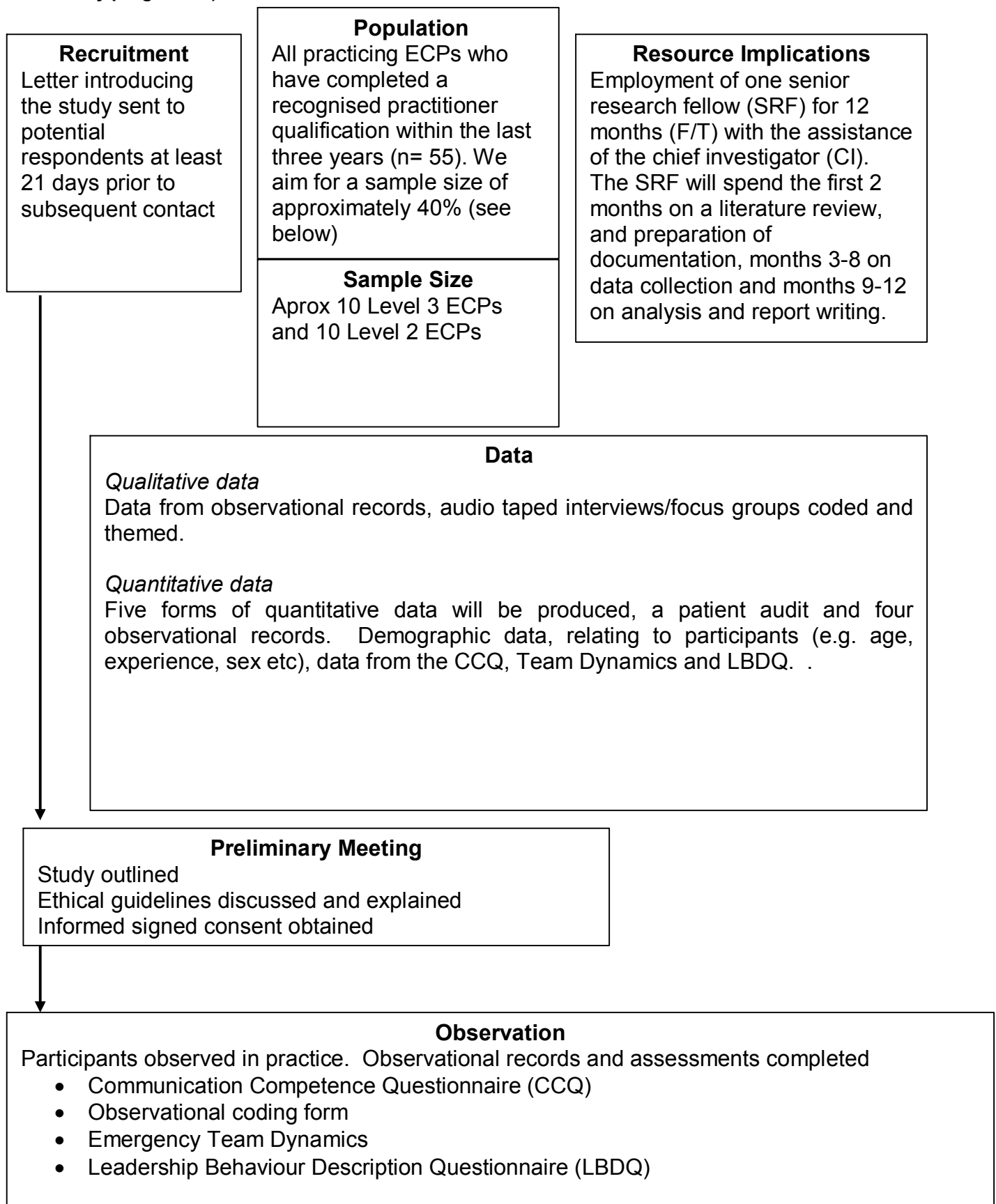
Appendix 2

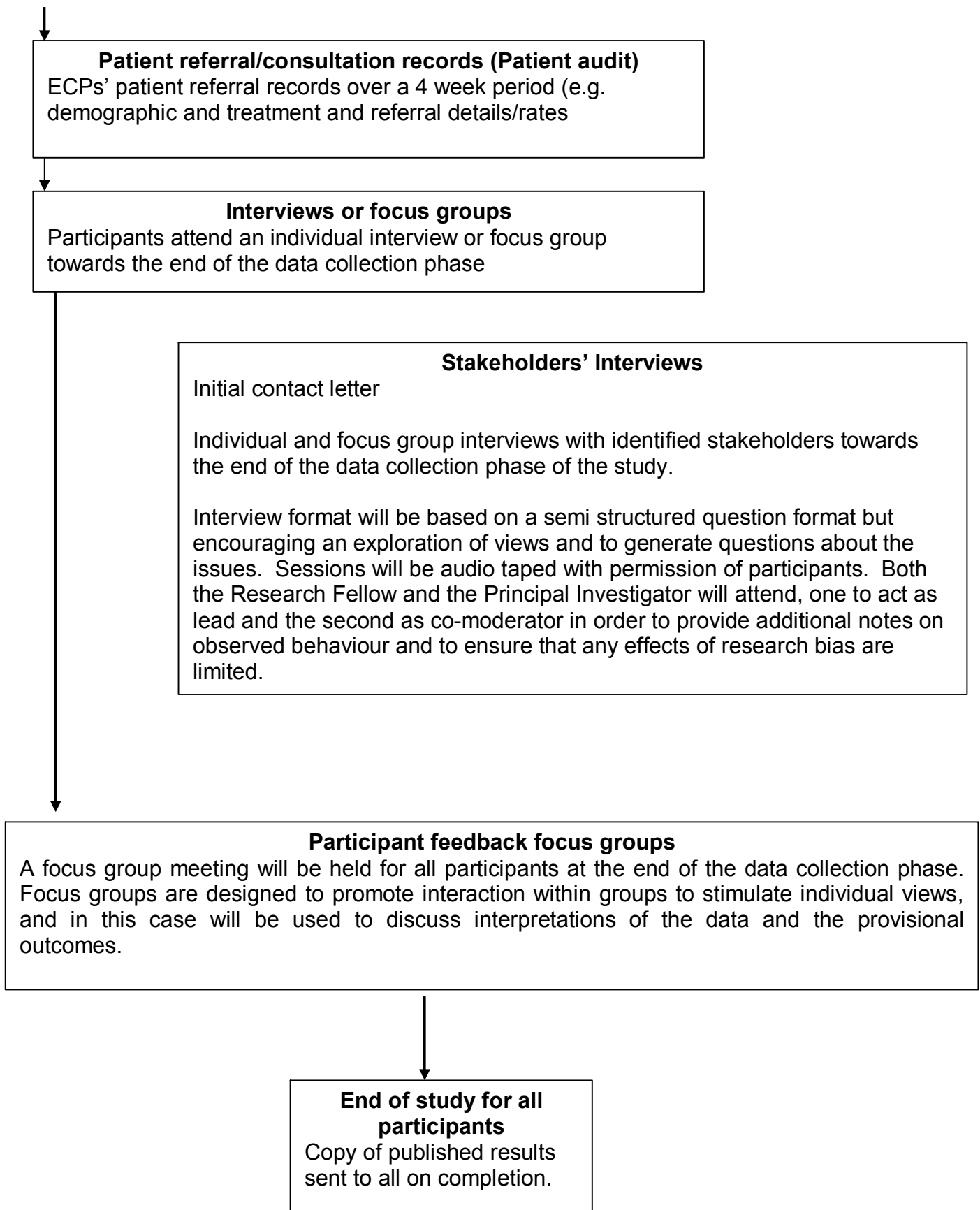
Outline Plan: Inter-professional Collaboration in Emergency Care (Colour change indicates a 'feed to' direction)



Appendix 3

Anticipated Respondents'/Participants' Journey (details may change as study progresses)





Appendix 4 (a): Participant Information and consent (ECPs – Nurse and Paramedic)

Inter-professional collaboration in emergency care: Information sheet and ethical guidelines

Thank you very much for meeting with us today, it is much appreciated. We hope that you, and other staff and patients will benefit from this study. The University of Plymouth has been awarded funding by the Burdett Trust for Nursing to study inter-professional collaboration in emergency care. Dr Simon Cooper from the Faculty of Health and Social Work is the lead investigator and would welcome any queries you may have about the study.

Set out below are the guidelines for the study. If you are happy with these please sign on page 3 and return to the researcher. A copy will be made and returned to you.

Study Guidelines:

- Right to withdraw: Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you of any kind. You may withdraw from participation in the project at any time and without any disadvantage to yourself.

Should you agree to take part in this project, you will be;

1. Observed in practice with a particular focus on your working relationships with other professionals. The researcher will complete an observational record and rate your communication competence. Where you are leading a team you will also be rated on leadership performance and team dynamics.
 2. Asked to complete a brief record of the patients that you see over a four week period focussing on the consultation and referral pathways.
 3. Asked to complete a critical incident reflective diary focussing on examples of inter-professional working
 4. Attend an audio taped individual interview or focus group to explore issues pertaining to inter-professional working
- Strict confidentiality guidelines will be adhered to throughout the study.
 - All information and results gained from you will be anonymised before being transcribed to an electronic medium. Written records will be destroyed within one year.
 - You will remain anonymous in the final published records.

Please note, an exception to the above. If the researcher observes potential or actual risks to patient safety the issue will be discussed with you and may be referred to your line manager

- Openness and honesty: No deception will be used in this study. You will be fully informed as to the purpose and procedure of the research.
- Protection from harm: No harm is anticipated. Participation is voluntary and all data will be aggregated to maintain anonymity.
- Debriefing: Please feel free to address any questions you may have to the research team. We will provide you with full results from the study on completion
- Informed consent: We ask you to provide written consent to this study (see below) once you feel you have sufficient information for informed agreement

Inter-professional collaboration in emergency care

ECP Participant consent

Are you involved in any other research project at present?

Y / N

If yes please give the title of the project below:

Title of project:

Please tick as appropriate and sign below;

I understand and accept the above guidelines and agree to take part in this study

I agree to the audio taping of interviews and/or focus groups

I do not understand the above guidelines and require further information

I do not accept the above guidelines and wish to withdraw

Full Name -----

ECP Level (e.g. Level 1 or Level 3) -----

Address -----

Contact telephone number -----

Mobile number -----

Email address (if applicable) -----

Signature-----

Date -----

Contact details for Principal Researcher

Dr Simon Cooper, C403 Portland Square, University of Plymouth, Plymouth, Devon PL4 8AA. Tel 07891 916773

Email simon.cooper@plymouth.ac.uk

Appendix 4 (b): Participant Information and consent (Stakeholder Interviews and focus groups)

Inter-professional collaboration in emergency care: Information sheet and ethical guidelines

Thank you very much for attending today, it is much appreciated. We hope that you will benefit from this discussion and that future staff/patients will benefit from this study. The University of Plymouth has been awarded funding by the Burdett Trust for Nursing to study inter-professional collaboration in emergency care. Dr Simon Cooper from the Faculty of Health and Social Work is the lead investigator and would welcome any queries you may have about the study.

Set out below are the guidelines for the study. If you are happy with these please sign on page 3 and return to the researcher. A copy will be made and returned to you in the next few days.

Study Guidelines:

- Right to withdraw: Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you of any kind. You may withdraw from participation in the project at any time and without any disadvantage to yourself.

Should you agree to take part in this project, you will be interviewed individually or asked to join a small group of your colleagues (a focus group) to discuss what you perceive as the key issues relating to inter-professional collaboration in emergency care. The interview will be audio taped with one researcher leading the discussion and another observing and taking notes.

- Strict confidentiality guidelines will be adhered to throughout the study.
 - All information and results gained from you will be anonymised before being transcribed to an electronic medium. Written records and the audio tapes will be destroyed within one year
 - You will remain anonymous in the final published records.
- Openness and honesty: No deception will be used in this study. You will be fully informed as to the purpose and procedure of the research.
- Protection from harm: No harm is anticipated. Participation is voluntary and all data will be aggregated to maintain anonymity.
- Debriefing: Please feel free to address any questions you may have to the research team. We will provide you with full results from the study on completion.
- Informed consent: We ask you to provide written consent to this study (see below) once you feel you have sufficient information for informed agreement

Are you involved in any other research project at present? **Y / N**

If yes please give the title of the project below and contact the researcher before signing the attached form

Title of project:

Inter-professional collaboration in emergency care

Stakeholder Participant consent

Please tick as appropriate and sign below;

I understand and accept the above guidelines and agree to take part in this study

I agree to the audio taping of interviews and/or focus groups

I do not understand the above guidelines and require further information

I do not accept the above guidelines and wish to withdraw

Full Name -----

Signature-----

Date -----

Contact details for Principal Researcher

Dr Simon Cooper, C403 Portland Square, University of Plymouth, Plymouth, Devon PL4 8AA. Tel 07891 916773

Email simon.cooper@plymouth.ac.uk

Appendix 5 – Communication Competence Questionnaire

(Adapted from Monge et al [25])

In the following series of questions rate how the observed ECP communicates. Think about his/her behaviour in general, rather than about specific situations. The questionnaire should be used as a global rating of ECPs performance at the end of a period of observation.

Use the following rating scale for each question;

6 = Very strong agreement

5 = Strong agreement

4 = Mild agreement

3 = Neutral feelings or don't know

2 = Mild disagreement

1 = Strong disagreement

0 = very strong disagreement

ECP Name

Date

1. The ECP has good command of the language

0 1 2 3 4 5 6

2. The ECP medicalises language appropriately*

0 1 2 3 4 5 6

3. The ECP is sensitive to others' needs

0 1 2 3 4 5 6

4. The ECP typically gets right to the point

0 1 2 3 4 5 6

5. The ECP pays attention to what other people say to him/her

0 1 2 3 4 5 6

6. The ECP deals with others effectively

0 1 2 3 4 5 6

7. The ECP is a good listener

0 1 2 3 4 5 6

8. The ECP's writing is understandable
0 1 2 3 4 5 6
9. The ECP expresses his/her ideas clearly
0 1 2 3 4 5 6
10. The ECP is understandable when he/she speaks
0 1 2 3 4 5 6
11. The ECP generally says the right thing at the right time
0 1 2 3 4 5 6
12. The ECP is easy to talk to
0 1 2 3 4 5 6
13. The ECP usually responds to messages quickly (phone calls, emails etc)
0 1 2 3 4 5 6

Appendix 6 – Observational Coding Form

Date of Observation?		Time/length of observation?	
Name of observed ECP?			
Sex	M / F	Ethnicity?	
Age group (in years)?	<i>(please circle as appropriate)</i>		
	= 20 or less	21-30	31-40 41-50 51-60 61-70
Profession?	Paramedic/Nurse	Grade?	
Place of work?		Speciality?	
No. of years working as a health care practitioner?		No. of years as an ECP?	
Level of ECP education?	Level 2 / Level 3 / M Level		

Complete the following for each collaborative episode

Time?	
Length of consultation/discussion (minutes)?	
Clinical Issue?	
Consultation/discussion with whom?	
What was said (general outline)?	
How was it said? For example; <ul style="list-style-type: none"> • Ambiguity? • Appropriate medicalisation of language? • Apparent agenda similarities/differences? • Power relationships? 	
What was done/agreed? Referral? Treatment? Conveyance?	
Overall?	
What was effective about the episode?	
What was ineffective about this episode?	

Appendix 7 – Team Dynamics rating scale

Emergency Team Dynamics (ETD)

An observational rating scale for emergency teams

(adapted from Leadership Behaviour Description Questionnaire (LBDQ - Form X11) [27] Initiating Structure and Team Dynamics (TD) [26, 28])

Note: each item should be based on an holistic judgement of the leader/teams contribution to each factor:

Item 1 a below should be used if the full LBDQ is not being used

1a. The leader let the team know what was expected of them (*through direction and command*)

A = Always B = Very Often C = About as often as not D = Seldom E = Never

4 3 2 1 0

Comments

1b. The team transferred information (Communication Skills)

A = Always B = Very Often C = About as often as not D = Seldom E = Never

4 3 2 1 0

Comments

2. The team were adaptable (*within the roles of their profession*)

A = Always B = Very Often C = About as often as not D = Seldom E = Never

4 3 2 1 0

Comments

3. The team were co-ordinated

A = Always B = Very Often C = About as often as not D = Seldom E = Never

4 3 2 1 0

Comments

4. The team co-operated

A = Always B = Very Often C = About as often as not D = Seldom E = Never

4 3 2 1 0

Comments

5. The team used initiative

A = Always	B = Very Often	C = About as often as not	D = Seldom	E = Never
4	3	2	1	0

Comments

6. The team put effort into its work

A = Always	B = Very Often	C = About as often as not	D = Seldom	E = Never
4	3	2	1	0

Comments

7. The team had a positive spirit and morale

A = Always	B = Very Often	C = About as often as not	D = Seldom	E = Never
4	3	2	1	0

Comments

Score =

Mean = -----

8. The team leader was willing to make changes
4 3 2 1 0
9. The team leader explained his/her actions
4 3 2 1 0
10. The team leader consulted the group
4 3 2 1 0

LBDQ (Form X11) 'Initiating Structure'

1. The leader let the team know what was expected of them (*through direction and command*)
4 3 2 1 0
2. The leader encouraged/demonstrated the use of uniform procedures/guidelines.
4 3 2 1 0
3. The leader tried out his/her ideas in the team
4 3 2 1 0
4. The leader displayed a positive attitude
4 3 2 1 0
5. The leader decided what should be done
4 3 2 1 0
6. The leader decided how things should be done
4 3 2 1 0
7. The leader assigned group members to particular tasks
4 3 2 1 0
8. The leader made sure that his part in the team was understood by the team members
4 3 2 1 0
9. The team leader planned the work to be done
4 3 2 1 0
10. The team leader maintained definite standards of performance
4 3 2 1 0

**Appendix 9: Emergency Care Practitioner
Impact Measures
National Audit Data Sheet**

Form No.
(Last 4 digits of PRF)

Site ID:

Patient Age <input type="checkbox"/> 0-11 \Rightarrow Please specify <input type="text"/> <input type="checkbox"/> 12-16 <input type="checkbox"/> 17-64 <input type="checkbox"/> 65-74 <input type="checkbox"/> 75+	Patient accessed system via: <input type="checkbox"/> 999 Call <input type="checkbox"/> A&E <input type="checkbox"/> Treatment Centre (MIU/PCC/WiC etc) <input type="checkbox"/> GP Surgery <input type="checkbox"/> Home Visit <input type="checkbox"/> Ambulance Referral <input type="checkbox"/> Other (please state) <input type="checkbox"/> In Hrs Out of Hrs (18:30 – 08:00hrs)		Times: First Contact by Patient <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> ECP contact with patient / arrival on scene <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Patient discharge/referral <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
	Patient Gender <input type="checkbox"/> Male <input type="checkbox"/> Female		

Patient Condition (Code or Text)

Patient Transport:

Call given as (if appropriate.):

Provisional Diagnosis:

Diagnosis after 24hr (if poss.):

	No Ambulance / Transport	In your opinion, what would have been the most suitable INITIAL resource for this patient?
	Transported by Emerg Amb	Ambulance
	Emerg Amb stood down	RRV
	Emerg Amb downgraded (IC/Urgent/STV)	ECP
	ECP transported Patient	GP
Y/N	Was another resource sent?	Other (specify)
	If YES what e.g. Amb. RRV. GP (Please specify)	Please state why?
	N/A	

Patient Outcome:
to (where appropriate)?

Patient Outcome unsatisfactory due

<input type="checkbox"/> See & Treat (ECP Discharge) <input type="checkbox"/> Hear & Treat <input type="checkbox"/> See & Treat with assistance from other clinician (eg GP) <input type="checkbox"/> Other clinician attended / discharged <input type="checkbox"/> Refer <input type="checkbox"/> A&E <input type="checkbox"/> Other	<input type="checkbox"/> Lack of Equipment <input type="checkbox"/> Lack of PGD <input type="checkbox"/> Social Reasons <input type="checkbox"/> Pain Control <input type="checkbox"/> Access to Services <input type="checkbox"/> Unable to refer appropriately <input type="checkbox"/> Pathway refused patient <input type="checkbox"/> Patient refusal <input type="checkbox"/> Other
Drugs Administered: Notes:	
Was anyone else on scene? NO Paramedic GP Other(specify)	

Referral Pathways:

Who made referral decision? Yourself Paramedic GP Other(specify)																																																								
<table border="1"> <tr> <td><input type="checkbox"/></td> <td>Pathway Successful</td> <td><input type="checkbox"/></td> <td>Pathway tried but failed</td> <td><input type="checkbox"/></td> <td>Outcome unknown</td> </tr> <tr> <td><input type="checkbox"/></td> <td></td> <td><input type="checkbox"/></td> <td></td> <td><input type="checkbox"/></td> <td></td> </tr> </table>	<input type="checkbox"/>	Pathway Successful	<input type="checkbox"/>	Pathway tried but failed	<input type="checkbox"/>	Outcome unknown	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>																																													
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<input type="checkbox"/>	A&E	<input type="checkbox"/>	Treatment Centre (MIU/PCC/WiC etc)	<input type="checkbox"/>	Elderly Care Team																																																			
<input type="checkbox"/>	Medical Admissions (MAU)	<input type="checkbox"/>	GP Surgery Appointment	<input type="checkbox"/>	Falls Team																																																			
<input type="checkbox"/>	Surgical Admissions (SAU)	<input type="checkbox"/>	GP home visit In-Hrs Urgent	<input type="checkbox"/>	Home Assessment Team																																																			
<input type="checkbox"/>	Outpatients Clinic	<input type="checkbox"/>	GP home visit In-Hrs Non-Urgent	<input type="checkbox"/>	Intermediate Care Team																																																			
<input type="checkbox"/>	Fracture Clinic	<input type="checkbox"/>	GP home visit OoHs	<input type="checkbox"/>	Mental Health Team																																																			
<input type="checkbox"/>	Gynaecology	<input type="checkbox"/>	District Nurse	<input type="checkbox"/>	Social Services																																																			
<input type="checkbox"/>	Orthopaedics	<input type="checkbox"/>	Nurse Specialist	Other Care Pathway: Other Speciality:																																																				
<input type="checkbox"/>	Paediatrics	<input type="checkbox"/>	Practice Nurse																																																					
<input type="checkbox"/>	Physiotherapy	<input type="checkbox"/>	ECP Follow-up																																																					
<input type="checkbox"/>	X-Ray	<input type="checkbox"/>																																																						
Notes / Referral Reason:																																																								

Did you perform an ECP-specific intervention, which avoided Acute Trust involvement?		Yes	No
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Details:

Trust Avoided:

Guidance on completing the ECP impact measures form

The following guidelines are designed to clarify any queries you may have on the completion of the form overleaf. Please contact Judith O’Carroll if you have any questions; judith.o’carroll@plymouth.ac.uk or call 01752 233831

ECP ID

This section is **essential** for you to identify your personal CPD records and for us to identify your role and place of work.

Site ID

This section is **essential** for the in-depth analysis to identify local and national trends.

Form No.

Please enter the first 4 digits of the Patient Report Form (PRF)

Patient Age

Please specify the age for any children in the first age group (0-11) in decimals (e.g.1.5). It is not necessary to record the exact age of any other patients.

Patient accessed system via?:

This information is essential for local and national analysis. Please identify the way in which the patient accessed the emergency system e.g., were you as an ECP the first responder to a 999 call, did you see the patient whilst working out of A&E or MIU, did the GP surgery call the ambulance service, were you making a repeat home visit, or was the patient referred via another ambulance crew?

Times

Please use four-digit 24-hr clock. ‘Time of patient referral’ is the time that the patient was first referred to you. This may be the same time as the box below if you were returning for a home visit.

Patient Condition

Please use appropriate keywords to describe your provisional diagnosis. If you can get the diagnosis after 24hrs this would be very helpful.

Patient Transport

Please identify the response to each incident and transfer process where applicable. This section should be completed no matter how the patient accessed the ECP.

‘Emerg Amb downgraded’ – refers to the use of a non-blue light IC/Urgent/STV-type vehicle instead of a traditional blue-light ambulance. It should also be ticked if this form of transfer has been booked for a patient not necessarily via the 999 system.

Patient Outcome

More than one box may be ticked as applicable. ‘Other clinician attended/discharged’ should be ticked where you (as the ECP) did not play a major role in the treatment / discharge of the patient. Drugs administered are those administered by you or any other professional. Please also specify ‘who else was on scene’ and ‘who made the referral decision’ by ticking the applicable boxes.

Unsatisfactory Patient Outcome

Please tick more than one box where applicable. ‘Lack of PGD’ - Please specify the PGD you would have required on the line provided.

Referral Pathways

Please tick more than one box where applicable, indicating the pathway success, route of referral and in the open ended box the reason for referral.

ECP –Specific Interventions

Please tick ‘Yes’ if you feel that you avoided Acute Trust involvement (A&E or hospital admission) due to an ECP-specific intervention (i.e. an action/treatment that you could not have carried out prior to your training as an ECP). NOTE: ‘Acute Trust involvement’ does not include calls to Trusts for advice.

Please return this form in the SAE provided by May 22nd 2006. Many thanks.

Appendix 10 – Outline Interview Schedules

ECP Interviews

Interview Schedule/Topic Guide	
Name:	Date:
Interview	
Collaboration defined prior to the interview: 'working in a positive association with more than one professional group'	
What professionals have you collaborated with? (What professionals do you work with? - including other paramedics/techs etc)	
On what occasions have you collaborated with these individuals? (Tell me about how you work with these guys?)	
What do you think are the specific benefits of inter-professional collaboration? (What works well about these links?)	
When has collaboration failed? (What does not work well?)	
What do you think are the key requirements and attributes for inter-professional collaboration? (What do you think would help improve collaboration with other professionals?)	
Critical incidents: important or 'critical incidents' that you have experienced in relation to communication episodes with other professionals. These may be situations that, in your opinion, could have gone well or could have been improved upon. (may be repeats of above)	
Can you describe a salient episode that illustrates how working with other professionals has been of <u>benefit</u> ? Where things have gone well?	
<ul style="list-style-type: none"> • Prompt – what were their thoughts and feelings • Prompt – What did they learn from it • Prompt – how will this episode change their practice 	
And a salient episode that illustrates how working with other professionals was <u>not beneficial</u> ? Where things have not gone well?	
<ul style="list-style-type: none"> • Prompt – what were their thoughts and feelings • Prompt – What did they learn from it • Prompt – how will this episode change their practice 	
Emergency leadership	
Thinking about yours or others leadership skills in emergency situations, can you give me some examples of where things go well, where the leader is good?	

And where they go badly or could have been improved?
With these things in mind what do you think are the particular attributes of an effective team leader?
GPs role in emergencies
How often do you work with GPs at an emergency?
What positive experiences have you had when working with GPs in these situations?
What negative experiences have you had when working with GPs in these situations?
What do you consider GPs role to be in an emergency?

Stakeholder Interviews

Interview Schedule	
Name:	Date:
Interview Collaboration defined prior to the interview: 'working in positive association with more than one professional group'	
Which ECPs have you collaborated with?	
On what occasions have you collaborated with these individuals?	
What do you think are the specific benefits of inter-professional collaboration?	
When has collaboration failed?	
What do you think are the key requirements and attributes for inter-professional collaboration?	

Appendix 11:

It is anticipated that in some observational situations patients may request information on the nature of the observation/study. The following information will be made available

Patient information Sheet

Inter-professional collaboration in emergency care

We are observing your Healthcare Professional today to see how they work with other professionals.

This is part of a study with the University of Plymouth who have been awarded funding by the Burdett Trust for Nursing to study inter-professional collaboration in emergency care.

All information that we collect is subject to strict confidentiality guidelines.

If you would like further information on the study please ask the researcher.

If you would like the researcher to leave at any point please do not hesitate to ask.

If you would like to contact the Principal Researcher the contact details are below;

Dr Simon Cooper, C403 Portland Square, University of Plymouth,
Plymouth, Devon PL4 8AA. Tel 07891 916773
Email simon.cooper@plymouth.ac.uk

Appendix 12: Sample Powers

LBDQ (full 20 item scale) aiming to identify a difference of 24% (score difference of 19) between ECPs Level 3 (n=10) and Level 1 (n=10). Computation assumes that the mean difference is 24.0 and the common within group standard deviation is 16.6

With the proposed sample size of 10 and 10 for the two independent groups, the study will have a power of **86.4%** to yield a statistically significant result.

CCQ aiming to identify a difference of 30% (score difference of 23.4 on the 13 item scale) between ECPs Level 3 (n=10) and Level 1 (n=10). Computation assumes that the mean difference is 23.4 and the common within group standard deviation is 11.3

With the proposed sample size of 10 and 10 for the two independent groups, the study will have a power of **99.2%** to yield a statistically significant result.

ETD aiming to identify a difference of 25% (score difference of 7 on the 7 item scale) between ECPs Level 3 (n=10) and Level 1 (n=10). Computation assumes that the mean difference is 7 and the common within group standard deviation is 4.5

With the proposed sample size of 10 and 10 for the two independent groups, the study will have a power of **90.8%** to yield a statistically significant result.

Sample power calculations were also performed to identify the sample size for correlation between the above questionnaires. Based upon previous data on the population correlation and a sample size of 20 the study will have a power of **>95%**.