Ambulance Service Treat and Refer Guidelines:

A qualitative investigation into the use of Treat and Refer Guidelines by Ambulance Clinicians

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ABSTRACT

Background: Over the last decade there has been a steadily increasing demand for unscheduled healthcare services, including the ambulance services. To address this demand, various projects have been developed to reduce admissions to the emergency department. One of these was the introduction of Treat and Refer (T&R) guidelines, to allow ambulance clinicians to treat certain groups of patients in the community without the need to convey them to hospital. **Aims:** This study aims to explore the challenges and barriers faced by ambulance clinicians in the use of T&R guidelines, to inform the future development and governance of non-conveyance guidelines and interventions. **Methods:** Semi-structured interviews were conducted with a group of 18 ambulance clinicians. Data were analysed using framework analysis. **Setting:** A national United Kingdom NHS ambulance service. **Key results:** There was a broad support for the concept and policy of T&R; however the participants had mixed views with respect to the actual practice of treating and referring patients. Participants acknowledged the potential benefits of T&R for patients and the health service, but identified several risks in using T & R in routine practice. Their perceptions of risk seemed to determine whether and how the guidelines were used. Challenges in the use of T&R included: lack of training and knowledge, fear of litigation, a lack of support from the management and difficulties in decision making. **Conclusions:** This study and the supporting literature do not support the use of T&R guidelines in their current format by traditionally trained ambulance clinicians. Ambulance clinicians have identified the need for further education and support. The conceptual support for T&R may provide a foundation to develop and improve the education and support

for ambulance clinicians. This should be combined with implementation/review strategies, clinician-led decision support and management support which can provide the ambulance clinician with the skills and confidence to take responsibility for non-conveyance.

Glossary

Advanced Life Support	Care provided by trained healthcare professionals during resuscitation e.g. intubation, vascular access, administer medication.
Ambulance Clinician	A term used in this study to describe either an ambulance technician, ambulance paramedic or ambulance pathfinder.
Ambulance Paramedic	Working autonomously or with an ambulance technician, they assess the patient's condition and then provide essential pre-hospital treatment, following JRCALC guidelines. Paramedics can administer a rage of lifesaving medications and perform several invasive procedures e.g. intubation, intravascular access, intraosseous access, and needle decompression tension pneumothorax.
Ambulance Pathfinder	This term was used within the study ambulance service to describe a small cohort of ambulance paramedics that had completed a short course which was developed by BASICS Scotland. The course provided some training in extended clinical skills and patient assessment. The course is no longer run.
Ambulance Technician	Work alongside paramedics and technicians delivering emergency and urgent pre-hospital care. They use JRCALC guidelines and can provide a range of medications by the oral or intramuscular route.
British Medical Association (BMA)	The professional association and trade union for registered medical doctors in the United Kingdom.

Community Paramedic	Ambulance Paramedic who has completed additional training and education in minor injuries and acute illness, with an emphasis towards Primary Care patients. They will have referral rights and the authority to issue/prescribe a wider range of medications. At present there is no UK standard definition for this role. The titles Community Paramedic/Emergency Care Practitioner/Paramedic Practitioner all refer to similar roles.
Diagnosis	The label given to a disease on the basis of its clinical picture.
Department of Health	The UK Government department responsible for health, social care and the NHS in England.
Emergency Department	The hospital department where ill or injured patients are assessed and treated i.e. those with chest pain, unconsciousness, seizures or trauma etc.
Emergency Care Practitioner	Ambulance Paramedic (sometimes a nurse) who has completed additional training and education in minor injuries and acute illness, with an emphasis towards Primary Care patients. They will have referral rights and the authority to issue/prescribe a wider range of medications. At present there is no UK standard definition for this role. The titles Community Paramedic/Emergency Care Practitioner/Paramedic Practitioner all refer to similar roles.
Emergency Medical Services (EMS)	A term that is used in some western countries to describe the ambulance service.

Emergency Care Practitioner	Ambulance Paramedic who has completed additional training and education in minor injuries and acute illness, with an emphasis towards Primary Care patients. They will have referral rights and the authority to issue/prescribe a wider range of medications. At the time of submission there is no UK standard for this role.
General Practitioner (GP)	The general practitioner is the first point of contact for most medical services. Most consultations are in the surgery and during home visits. GPs provide a wide spectrum of care within the local community, working with multidisciplinary teams: dealing with problems that often combine physical, psychological and social components.
Guideline	Systematically developed statements to assist practitioner and patient decisions about appropriate healthcare for specific clinical circumstances.
HEAT	HEAT targets are a core set of Ministerial (Scotland) aims for the NHS in Scotland which ensure that issues of national concern are prioritised locally.
Health Board	There are fourteen regional Scottish NHS Boards. These are responsible for the protection and the health of the population and providing healthcare services.
Health Professions Council (HPC)	The regulatory body for a range of healthcare professions who have a protected title under law e.g. paramedic, physiotherapist radiographer etc. The HPC also maintains a register of individual healthcare professionals.

Integrated Care Pathway	A guideline that uses a multi-disciplinary approach to provide care for a patient e.g. ambulance crew, fall team and a GP.
Joint Royal Colleges Ambulance Liaison Committee **(**JRCALC)	Provides robust clinical speciality advice to ambulance services. It produces UK Ambulance Service Clinical Practice Guidelines.
Litigation	The act or process of bringing or contesting a lawsuit.
National Health Service (NHS)	The United Kingdom health system which is funded from the UK taxation system but free at the point of contact, providing therapy and preventive healthcare.
NHS 24	A 24/7 online and telephone-based service providing health advice and during the in and out of hours periods the service will also co-ordinate appointments for patients to access primary care services.
Out of Hours (OOH's)	Outside normal working hours. The NHS regards this as 1830-0800 hours Monday to Friday and 24 hours at weekends or bank holidays.
Paramedic Practitioner	Ambulance Paramedic (occasionally a nurse) who has completed additional training and education in minor injuries and acute illness, with an emphasis towards Primary Care patients. They will have referral rights and the authority to issue/prescribe a wider range of medications. At present there is no UK standard definition for this role. The titles Community Paramedic/Emergency Care Practitioner/Paramedic Practitioner all refer to similar roles.

Post Proficiency Course	A mandatory annual two-day course for all ambulance clinicians from the study ambulance service, where clinical refresher training is provided, new skills are taught and other mandatory training is completed e.g. moving and handling, infection control. etc.
Patient Report Form (PRF)	A paper or electronic form used to record the details of a consultation between an ambulance clinician and a patient. Copies are left with the receiving hospital department and also kept on file for seven years by the ambulance service.
Primary Care	Health services provided in the community, predominantly by general practitioners, community pharmacies, dentists and opticians. The majority of healthcare is provided within Primary Care.
Protocol	The rules of correct or appropriate behaviour of a group, or profession in response to specific events.
Root Cause Analysis	A process that is used to identify the causes of problems not the symptoms
Scottish Ambulance Service	The NHS ambulance service for Scotland providing routine and emergency pre-hospital care.
Secondary Care	This follows referral from a general practitioner or other healthcare professional for patients who require in-hospital treatment for conditions; this can be acute (emergency) or elective (planned).
Special Health Board	There are seven Special Health Boards in Scotland which provide a range of national and specialist services (e.g. Blood Transfusion Service, Ambulance Service, NHS 24 and NHS Education for Scotland).

Treat and Refer (T&R)	A guideline which empowers an ambulance clinician to treat a patient at scene without the need to transport the patient to the Emergency Department.
Treat and Refer Form (TARF)	A colloquial term for a paper-based form (Patient Advice Leaflet) used by ambulance clinicians to record a consultation. A copy of this is left with the patient to forward to their GP and a copy is retained by the ambulance service for seven years.
Team Leader (ambulance service)	Supervisory role involved in the daily operational management of an ambulance station. Generally works either as part of an ambulance crew or a single response on a rapid response vehicle.
Thrombolysis	The use of thrombolytic drugs during a myocardial infarction (heart attack) to break down a thrombus and help restore blood flow to affected parts of the heart muscle in order to reduce further damage and aid healing.

Foreword – A personal perspective

Before beginning this study, I worked as an ambulance paramedic for 12 years in a busy city centre and urban setting. Two of these years were spent working as a Paramedic Practitioner, providing normal paramedic response but also autonomous care to patients in a hospital minor injuries unit and the Primary Care Out of Hours service, covering urban and rural settings. It was during this time that I began to appreciate the complexities of minor injuries and illnesses. A subsequent 'golden' opportunity for a secondment to a developmental research post at the Nursing Midwifery and Allied Health Professions Research Unit at the University of Stirling provided the opportunity to work with an inspiring team and complete this study, which explores the use of Treat and Refer guidelines by ambulance clinicians.

Dissemination

An oral presentation has been made to the Scottish Ambulance Service Research Governance Group. An executive summary and presentation will be provided to the Scottish Ambulance Service Clinical Advisory Group and National Clinical Governance and Quality Group. The results of this study will be submitted for publication to an academic journal.

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I am indebted to the many people who have provided their time and support during this study: many experienced researchers, librarians and the staff of the School of Nursing, Midwifery and Health, have all provided a warm welcome to a paramedic who was new to the world of research and at the bottom of a steep learning curve!

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I was lucky to have Len as one of my supervisors, he was always willing to give his time, support and has made me think about the world in a different way, sadly Len died as a result of Leukaemia in 2010. I feel very privileged to have experienced his guidance in the few years that I knew him and am grateful for the patience and direction he gave. As supervisors Professor Catherine Niven and Dr

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I am lucky to count David Fitzpatrick as a friend and colleague; we developed the study and collected data together. David has been a constant source of reassurance and guidance over the last years, during a time when he has been facing his own research challenges. I wish him the best of luck with his PhD and his commitment to improve the provision of pre-hospital care, although I know he will not need it.

My parents in law Professor Ken Bowler and Chris Bowler, who regularly provided me with reassurance over any doubts of completing the study. To my Mum and to my Dad, he sadly did not live to see this study; I hope he would have liked it. To my brother John, who through his own adventures and writing has provided motivation to many people to help them achieve their personal goals.

Most importantly thank you to my wife Kate and children Claire and Alisdair; without your love, support and sacrifices I would not have completed this study. I love you and could not wish for more.

What this study adds

The ambulance service is a relatively new and evolving health profession with a growing quantity and quality of pre-hospital research. The role of the ambulance clinician has changed from one of treat and convey to one that is now expected to provide appropriate groups of patients with treatment and avoid the need to attend the emergency department using non-conveyance guidelines. This study provides insights into how these guidelines are viewed and used by ambulance clinicians in routine practice and the issues faced by them in using the guidelines. Findings from this study will inform the future development and implementation of non-conveyance guidelines.

Overview of Thesis

In the United Kingdom (UK) there is a steadily increasing demand in the use of unscheduled healthcare. This has created pressures on many different types of services, including ambulance services to develop ways to manage the increasing demand while ensuring safe and effective patient care. Some UK ambulance services have responded to this demand by changing some aspects of the delivery of care. One strategy to reduce the pressures on unscheduled healthcare services has been the introduction of non-conveyance and Treat and Refer (T&R) guidelines (Annexes A-D). These guidelines provide the opportunity for ambulance clinicians to treat patients within the community without the need to take the patient to hospital. However, there is a relatively small evidence base for this emerging practice by ambulance clinicians. This thesis focuses on the use of the T&R guidelines by frontline ambulance clinicians in a national ambulance service. The thesis is arranged into four chapters.

- **Chapter One** describes the challenges faced by healthcare providers and policy makers in dealing with the increasing demands on unscheduled healthcare services in relation to the literature at the time of the study and specifically the response by one national ambulance service with the introduction of T&R guidelines.
- **Chapter Two** describes the methods used in this interview-based qualitative study including the design, sample, study materials, procedure and analysis.
- **Chapter Three** presents the results of the thematic content analysis of the interview data.

- **Chapter Four** provides a discussion of the study findings in light of the literature, suggesting areas for future research and the implications for the ambulance service.

Keywords

Ambulance

Community Paramedic

Decision-making

Emergency Care Practitioner

Non-conveyance

Non-transport

Paramedic

Treat and Refer

Ambulance Service

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CHAPTER 1 - Introduction

The study described in this thesis investigates the introduction and use of Treat and Refer (T&R) guidelines by the Scottish Ambulance Service which is a National Health Service (NHS), ambulance service.

1.1 Unscheduled care

The guidelines were introduced against a background of increasing demand for Emergency Department (ED) unscheduled care. This type of care can be described as:

> *'NHS care which cannot reasonably be foreseen or planned in advance of contact with the relevant healthcare professional, or is care which, unavoidably, is outwith the core working period of NHS Scotland. It follows that such demand can occur at any time and that services to meet this demand must be available 24 hours a day.'*
>
> Scottish Executive (2005a) page 92

Traditionally in the UK the NHS has provided two main access points for this type of healthcare; either through self-referral to a General Practitioner (GP), who provides family healthcare within the community setting known as primary care; or by attending a hospital ED either through self-referral, referral by a GP or by ambulance. Although other access points are available e.g. community pharmacies and walk in clinics; the GP and ED are considered the main gateways to the wider NHS (Simon et al 2003).

1.1.1 The role of the ambulance service.

There are 14 NHS ambulance services in the UK (Scotland, Wales, and Northern Ireland have national services and England has 11 services), which are publicly funded to provide two core functions:

- Response to unscheduled emergency and urgent calls made by the public, healthcare professionals or other emergency services, the ‘blue light service’.
- The less high profile patient transport service which provides transport for stable patients attending scheduled appointments but are unable for medical reasons to use personal methods of transport (car, bus or taxi).

The unscheduled response is broadly provided by ambulance technicians and paramedics who are described in this study under the collective term of ‘ambulance clinicians’.

The traditional core role of an ambulance clinician in unscheduled care has been to provide a rapid response to life-threatening calls where urgent treatment and transfer to hospital is required (Snooks et al 2001). The traditional role involved the use of Standard Operating Procedures (SOP) and skills in the recognition and stabilisation of serious medical or traumatic conditions. The ambulance clinicians were expected to transport all patients to hospital, regardless of the diagnosis as they were not given any formal training, education or guidelines to make decisions about referral to other healthcare professionals or discharge. The only exception would be in the case of a patient refusing transport (Snooks et al 2004b, Snooks et al 2006). This traditional practice has roots in the times of ancient military conflicts (Beatson 1891) when armies were supported by teams who would provide care to the injured and move them from the battlefield. Today the ambulance service continues to be influenced by principles influenced from times of military conflict (Hodgetts et al 2006) but it has also evolved in many ways by developing care for illness and injury as part of an integrated healthcare system (Ball 2005).

1.2 Increasing demand

Over the last decade there has been an annual increase of between 3-10 per cent in demand for ambulance service and ED unscheduled care in Scotland and the UK (Scottish Office 1998, Wrigley 2002, Scottish Executive 2005a, Scottish Executive 2005b, SAS 2006). This has created increasing pressure on the ambulance service, ED and in-patient services. Policy makers and health providers have needed to rethink and explore new ways of arranging an integrated approach to the provision and delivery of safe and effective unscheduled care. As a result, both the UK Government and the devolved Scottish Government developed policies to address the rising demand for unscheduled health care provision. The policies have called for closer working between the ambulance services, primary and secondary care. New roles and guidelines were developed by adapting established healthcare systems to meet the pressures created by the increasing demands and restructuring of the provision of primary care services (Department of Health 2001, Scottish Executive 2003, NES 2004, SAS 2004, Scottish Executive 2004, Scottish Executive 2005a, Scottish Executive 2005b, Department of Health 2005, Department of Health 2006). The aim was/is to maximise the use of resources and deliver treatment in the most appropriate facility (Department of Health 2001).

> *"Ambulance clinicians should be equipped with a greater range of competencies that enable them to assess, treat, refer, or discharge an increasing number of patients and meet quality requirements for urgent care."*
>
> Department of Health (2005) p44

The increasing demands on unscheduled care are similar to a rising tide rather than a sudden wave. Factors like an ageing population, reducing birth rate and rise in chronic conditions (Scottish Executive 2005b) may contribute to the 'rising

waters' but there does not appear to be a single clear cause for the increases in demand. Many different types of changes have increased the pressures on the gateways (defences) of health services.

Some of the more recent increases in the demand for unscheduled care could be attributed to changes in European employment legislation. These changes have resulted in changes of contracts and the development of new government policies which have meant that the demand for ambulance services has also increased (Lang et al 1996, SAS 2006). These changes are summarised below.

The introduction of the European Working Time Directive (EWTD 2001) across all sectors, including health, led to a reduction in the working hours of many grades of healthcare staff and therefore fewer numbers of available skilled staff. The new European employment regulations increasingly limited the hours worked by doctors. Although this was seen by some as a benefit for staff and patients, it had an impact on the way healthcare services were delivered. There was a drive (or a need) for patients to be seen in the primary care or out of hospital setting by other health professionals rather than by a doctor in the traditional hospital setting (Scottish Executive 2003).

In 2003 changes were made to the contracts of GP's such that they were only responsible for providing care within a stipulated period. Traditionally GPs had been contracted under the General Medical Services Contract to be responsible for providing 24-hour care for their patients. The GP Committee of the British Medical Association (BMA) and the United Kingdom Health Departments

negotiated a new national contract, General Medical Services 2 (GMS 2 2004), which was approved in June 2003. Part of this contract allowed GP's to opt out of providing primary care outside of the usual working hours i.e. Monday to Friday 1830 hours – 0800 hours and 24 hours at weekends and bank holidays, while retaining responsibility for care during the working hours, i.e. Monday to Friday 0800 hours – 1830 hours. This signalled a need to develop alternative resources to cover the provision of unscheduled care outwith this period.

In Scotland during 2001 the NHS 24 service was launched as a Special Health Board to provide consistent and accurate telephone healthcare advice, working with partners in Primary Care, the ED and ambulance service (Heaney et al 2005). Following the changes to the GMS contract, NHS 24 became the gateway for primary care unscheduled care provision. This service is a nurse-led single point of contact for Out of Hours (OOH's) unscheduled primary care. It provides telephone and online services in partnership with local health boards. Qualified nurses use clinical decision making software to provide homecare telephone advice or triage patients to have a face-to-face consultation with a healthcare professional. If the patient requires a face-to-face consultation they can be directed to a Primary Care Emergency Centre, where they will see a GP, nurse or in some areas a community paramedic. Alternatively responsibility for the care of the patient can be immediately transferred to the ambulance service following triage by NHS 24. Following the implementation of GMS 2, the ambulance service experienced some peaks in the demand of referrals from NHS 24, however it is difficult to apportion the steadily rising demand on the ambulance service as a direct result of the activity of NHS 24 (Heaney et al 2005).

All these factors have increased the pressure on ambulance services and policy makers to explore alternative ways of working, while ensuring the safety of patients (Lammy 2003, Scottish Executive 2004, Robertson-Steel 2004).

1.2.1 Ambulance Service Response to the Increasing Demand

At the time of a significant report by Professor Kerr (Scottish Executive 2005a), which considered the structure and the ways to deliver healthcare in Scotland, the ambulance service was beginning to report its performance in reducing hospital admissions (SAS 2005, SAS 2006). Scottish Health Boards, including the ambulance service, regularly report to the Scottish Government on performance against agreed targets, for example Local Delivery Plans (SAS 2004, SAS 2005), which include a percentage reduction in hospital admissions. Reducing hospital admissions was a major shift in policy from traditional practice.

Following reviews by unscheduled care providers and researchers it has become apparent that not all patients who present to the ambulance and ED services have immediately life-threatening conditions (Institute of Medicine 2006) e.g. myocardial infarction, cerebral vascular accident or catastrophic haemorrhage. Instead some patients present with what are often acute, alarming and sometimes painful conditions which can create anxiety. Some types of chronic conditions, for example seizure or hypoglycaemia, may warrant an immediate 'blue lights and sirens' response from the ambulance service. However, once the initial treatment has been delivered by the ambulance clinicians at the scene, there is not always a continuing or immediately life-threatening episode that requires the full services of an ED (Walker 2006). Emerging evidence suggests that these groups of patients

may not require the full facilities of an ED and that it may be safe to provide treatment by enhancing the care provided by other existing pathways e.g. minor injuries clinics and ambulance services (Institute of Medicine 2006). Although there is some agreement that not all patients who attend the ED need the full facilities, there can be disagreement between ED doctors and ambulance clinicians on which patients should or should not be taken to the ED (Gratton et al 2003).

There was a need to determine the safest and best way to care for the groups of patients who may not present with an immediately life-threatening condition or may not warrant the services of a full ED (Institute of Medicine 2006). Before the study described in this thesis was developed, three projects had been introduced by the ambulance service in Scotland to address the increasing demand for unscheduled care and contribute to a reduction in hospital admissions. Two of these projects involved a change in role for several small cohorts of ambulance clinicians and one involved changes for all ambulance clinicians.

In 2004 several small cohorts of paramedics (located in Grampian, Lothian, and Lanarkshire) initially known as paramedic practitioners, but subsequently community paramedics (and as Emergency Care Practitioners or ECP in other parts of the UK), were introduced (Scottish Ambulance Service 2005). The aim was to improve patient satisfaction by reducing unnecessary transport to hospital, irrespective of where the patient presented; whether via the Scottish Ambulance Service or NHS 24. The community paramedic is part of an integrated healthcare team working alongside colleagues in the ambulance service, primary care, minor

injuries units and the ED. The community paramedic is expected to use evidence-based practice to safely manage patients within the area they present. If the injury or illness is outside their scope of practice, referral to the appropriate speciality is arranged using the existing health pathways. The community paramedics were all experienced paramedics, who following selection completed two established graduate-level nursing modules in minor injuries and acute illness. The community paramedic can assess, diagnose and treat a range of minor injuries and illnesses to the level of a nurse practitioner, while working for the ambulance service or the local health board services (OOH's, Minor Injury Clinics & ED's). The community paramedic has a range of additional core skills to aid the examination, diagnosis and treatment of certain patient groups. They receive education in enhanced history taking, clinical examination and decision making. They are trained and have access to a wider range of diagnostic tools and procedures, for example: X-ray request and reporting (limbs), suturing, urinalysis and the use of the auriscope. The use of over 30 additional medications for a wider range of conditions than covered by the standard ambulance clinical guidelines, allow the community paramedic to treat and discharge some patients in the community setting. This might include those suffering from urinary tract infections, chest infections, and Ear Nose Throat (ENT) or wound infections. The community paramedic can also manage a range of bony and soft tissue injuries. During their training the community paramedics are taught to identify patients who are outside their scope of practice and use existing health board pathways to refer these patients.

The second development involved the pathfinder paramedic's scheme which was introduced in 2004 (BASICS 2004). Three small cohorts of paramedics attended a

two-day course which was delivered and facilitated by doctors from the British Association of Immediate Medical Care Scotland (BASICS). This was followed by a short in-hospital period of training to consolidate the teaching from the course and practise the newly acquired skills. On completion of this, the pathfinder paramedic was able to practise. Not all pathfinders were able to complete the in-hospital placement due to pressures of work and scheduling release time. There were some additional problems within the ambulance service, where a clear definition of the role created problems in the success of the programme (Johnston 2005, Kelly 2005).

Some of the aims of the course were defined by BASICS Scotland as:

- *" To identify patients whose acute problem may not mandate transfer to hospital*
- *To learn the techniques of history taking and examination which will assist the Ambulance Officer in making the decision to transport or not transport.*
- *To learn to apply these techniques to specific patient and patient groups*
- *To learn some specific medical and surgical management techniques and their appropriate application"*

  Paramedic Extended Skills Course (Basics 2004) page 1

> *"Once a patient is established to be low risk, it may be possible to leave the patient, if necessary supervised, at home, perhaps having received some basic treatment. The Course will outline guidelines for making such management decisions."*
>
> Paramedic Extended Skills Course (Basics 2004) page 1

In 2005 Treat and Refer (T&R) Guidelines were introduced for use by all ambulance clinicians (Annexe E). The aim of these types of guidelines was to reduce unscheduled admissions to the ED (SAS 2006). Ambulance clinicians were to follow the new guidelines and identify patients whose condition did not

require attendance at the ED or admission to hospital. The concept of such guidelines, which are also referred to in the literature as non-transport or non-conveyance guidelines, is to identify low risk conditions (Kamper 2001) and empower ambulance clinicians to safely treat these conditions in the community. Subsequently the patients involved should be referred to the appropriate healthcare practitioner (usually the GP). In Scotland the use of T&R was seen as an alternative way of delivering care by the ambulance service. However there were no national or international guidelines available for the service to use. Therefore the Scottish Ambulance Service developed its own set of T&R guidelines. The guidelines were developed by a working group comprising the ambulance service medical director, managers, instructors, and medical doctors. Initially four guidelines were developed to allow ambulance clinicians to treat patients at home without the need to transport them to hospital:

- asthma - mild (annexe A)
- spontaneous epistaxis (nosebleed) -resolved or treated (annexe B)
- hypoglycaemia (annexe C)
- seizures -recovered (annexe D)

This thesis focuses on a study to investigate the use of these four T&R guidelines.

1.2.2 Treat and Refer Guidelines – change in practice

The introduction of T&R guidelines required a significant change of practice and a transfer of responsibility from other health professionals to the ambulance clinician. This change can create challenges for both ambulance and hospital-based clinicians who have to 'trust' the decisions that are being made. For

example, in a trial of guidelines to allow ambulance clinicians to triage patients away from the ED to a Minor Injuries Unit (MIU) change-management issues were identified (Snooks et al 2004a). Ambulance clinicians involved in the trial reported a lack in confidence in the MIU staff in accepting the patients they had triaged as suitable for MIU treatment. Because of this doubt, the ambulance clinicians transported patients to the ED instead of the MIU.

The introduction of T&R required ambulance clinicians to assume responsibility for a specific group of patients from assessment to 'discharge' at home. T&R requires the ambulance clinician to assess the patient, provide a diagnosis and check to see if it is appropriate to use the guideline and then follow the treatment plan; all without any formal means of external decision support. This practice involves the use of significant judgement and decision-making skills around leaving the patient at home, which were not required as part of traditional practice, thereby increasing responsibility for the clinicians.

As a consequence of the change in practice following the introduction of T&R, record-keeping practice was also altered. At the time of the study the normal practice for Scottish ambulance clinicians, when attending all types of call was to complete a handwritten paper Patient Report Form (PRF) (annexe F). The ambulance service retained the 'top' copy and during the patient handover at hospital a carbonised copy of the PRF was left with the hospital clinicians. In the event that a patient refuses transport or treatment, the patient is asked to sign the refusal section of the PRF (annexe G) to confirm their decision. If the patient refuses to sign the refusal section of the PRF the ambulance clinicians would

record this on the PRF and also by recorded radio/telephone communication with the ambulance control centre. Refusal is only accepted if in the opinion of the ambulance clinician, the patient is capable and competent to make the decision to refuse treatment or transport. The ambulance service retains the PRF with the completed refusal section. However anecdotal evidence suggested that in the event of patient refusal to travel, some ambulance clinicians would leave a copy of the PRF with the patient. The rationale for this practice was to provide the patient with a record of any observations or treatment.

A new paper based recording system called the Patient Advice Leaflet (PAL) which is commonly referred to by ambulance clinicians as the “T&R form” (annexe H) was developed to complement the existing paper based PRF. When the T&R guidelines are used, both the handwritten PAL and PRF have to be completed. The ambulance clinicians should leave a carbonised copy of the PAL with the patient, who is asked to take the PAL to their own GP for filing in their medical records. The PAL does not have a refusal section. The use of the PAL shifted the responsibility for non-transport to hospital from the patient to the ambulance clinician.

1.3 The use of Treat and Refer Guidelines

T&R guidelines were implemented in Scotland in 2005. Similar schemes were implemented in London and Toronto. All three schemes have been audited, with concerns being expressed about various aspects of T&R practice (Snooks et al 2004c, Feldman et al 2005 and Colver et al 2007a).

1.3.1 Treat and Refer Guidelines in Scotland

In Scotland, internal audits showed that the expected rise in use of the PAL (which is known colloquially and referred to in this thesis as the Treat and Refer Form (TARF) did not occur. A study was commissioned by the Scottish Ambulance Service to investigate the apparent underuse of T&R (Colver et al 2007a). Anecdotal evidence had emerged that ambulance clinicians were not using the T&R guidelines in the way the Scottish Ambulance Service had intended. Internal audits suggested the correct reporting forms (the TARF) for T&R were not being used in the quantities that were expected. A preliminary count of the use of TARF in the study ambulance service suggested that of the approximate 50,000 calls in a period of about five weeks there was a reported usage of 300 TARF's. However the usage rates of the PRF remained at the same levels as before implementation of the T&R guidelines (D Scott personal communication, November 2005). Some managers in the ambulance service felt this suggested that T&R was not being used correctly and clinical practice had not changed (Colver et al 2007a).

The commissioned study selected a random sample of 600 ambulance clinicians, (121 participated) in a questionnaire study using likert scales and comments boxes. The commissioned study established that there was an inappropriate use of the PRF when using the T&R guidelines (Colver et al 2007a). Its main findings are:

- *Participants are generally positive about the concept of T&R.*
- *Participants were only mildly positive about the implementation process of T&R, rating 58 out of 100 saying that they require more training and education.*
- *There was a self-reported inappropriate use of a PRF instead of a TARF on at least one occasion by 65% of respondents.*

- *For confidence in the application of the four 'T&R' guidelines, a rating of 64 out of 100 was given.*
- *For comfort with the increased professional responsibility of the 'T&R' guidelines a rating of 62 out of 100 was given.*
- *A higher volume of work was reported for those with inappropriate PRF use.*
- *The higher the grade the more positive the effect on confidence and comfort.*

(Colver et al 2007a)

There was a self-reported inappropriate use of a PRF instead of a TARF on at least one occasion by 65% of respondents. The responses to the questionnaire gave some broad indicators as to why participants were not using the TARF. These included the need for better training and education which appeared to be an issue for many of the participants; fear of litigation and lack of support by management; and also the design of the TARF. The design of the study did not allow the authors to explore clinical outcomes but did highlight difficulties with the use of the guidelines and the associated record keeping.

1.3.2 Treat and Refer Guidelines in London

The London scheme involved the use of its own T&R guidelines and was evaluated by Snooks et al (2004c) in a controlled study where crew members from one ambulance station were trained to use T&R protocols and processes, and outcomes of care for patients attended by these crew members were compared with those for patients attended by crews from a neighbouring station. There were 251 patients in the intervention arm and 537 in the control arm. The study found that there was no difference in the proportion of patients left at the scene in the control or intervention arms. Crews spent more time on scene with patients in the intervention group. The authors concluded the use of T&R protocols did not

increase the numbers of patients left at home despite the protocols being used by the crews and being acceptable to patients. Some safety issues were identified and the authors recommended that the content of the protocols, and decision support and training needs further study.

1.3.3 Treat and Refer Guidelines in Canada

In Canada a set of four T&R protocols (table 1) were introduced, for paramedics working at a pop concert (Feldman et al 2005). Following a one-hour training session, paramedics were able to treat and release patients attending the pop concert. Overall 357 out of 407 patients treated under the protocols were discharged. During follow up, no patient who was treated at the concert required Emergency Medical Services (EMS) transport within 24 hours of the end of the concert. There was no control group in this study and the patients who were treated had a mean age of 28 years and therefore did not represent the normal spread of the population seen by ambulance services. Although it cannot be established from the published study, some of these patients may have self-treated and purchased these medications if they had access to a chemist/pharmacy. However it is likely this facility was not available within the confines of a pop concert. Although their trial was successful, the author's state there are risks associated with paramedic discharge and that further research in this area is required.

- Acetaminophen for headache/musculoskeletal pain
- Dimenhydrinate for nausea/vomiting
- Diphenhydramine for allergic rhinitis or isolated urticaria
- Polymyxin B ointment for small wounds not requiring sutures/debridement.

Table 1 – List of medicines used for Treat and Refer at a Canadian Pop Concert.

The results of these three very different studies suggest that the use of T&R does not always result in reduced rates of transfer to hospital. The strongest study methodologically is the Snooks et al (2004c) study which does not show any effect of the use of T&R protocols. All three studies raise concerns about the application of T&R protocols. These are the only three studies directly concerned with the use of T&R, other studies have identified concerns around the ability of ambulance clinicians to safely identify and diagnose those groups of patients who do not require transfer to the ED.

1.4 Accuracy of ambulance clinicians' judgement

A number of prospective studies have looked at the ambulance clinician's ability to determine the need for the patient to attend hospital (not at their actual transfer practice). Many of these have examined the clinicians' decisions without the provision of additional guidelines or training (Hauswald 2002, Silvestri et al 2002, Gratton et al 2003, and Levine et al 2006). In these studies participants were asked to continue with their normal transport practice but decide, and record, if they thought the patient required ED attendance. Other studies have used similar methods but have provided protocols and some training for the ambulance clinicians to base their decisions on (Schmidt et al 2000 and Pointer et al 2001). Both groups of studies have reported under-triage rates of around 5- 17% by the ambulance clinicians (Silvestri et al 2002 Snooks et al 2002 and Snooks et al 2004b). Triage is the process of sorting patients into an order of priority which is determined by their level of injury or illness (Wyatt et al 2005), under-triage occurs when the severity of the illness or injury is underestimated. Some of the patients in these studies were subsequently admitted to hospital including on occasions the

intensive care unit (ICU), when ambulance clinicians had indicated the patient did not require to be conveyed to the ED. This level of under-triage presents a clinical risk to the patient and the acceptability of this level has been questioned by many authors but not all (Haddock et al 2004).

The study by Schmidt et al (2000) also found that between 3-11% of patients not categorised as requiring hospital admission were actually admitted to hospital. That study, like the other prospective questionnaire studies, showed that ambulance clinicians did not follow the guidelines in every case. However Schmidt et al (2000) identified one case involving an elderly patient with a knee injury after a fall due to dizziness where the protocol did not capture all the relevant clinical indicators. This demonstrates that under-triage may not always be the fault of the ambulance clinicians even when they follow guidelines correctly.

A number of other relevant studies have been carried out which have considered the implementation of a range of non-transport practices which did not involve T&R, for example transfer to a MIU rather than ED. In 2002 Snooks and her colleges reviewed the literature on alternatives to current emergency ambulance provision but found no RCT or controlled trials. In the included studies issues were found with inadequate documentation which was shown to be the most common reason for inappropriate ‘discharge’, one US study was suspended after safety concerns regarding under-triage (Schmidt et all 2000). In 2004 Snooks et al (2004b) appraised the literature regarding on-scene alternatives to conveyance to the ED. They found a lack of evidence to indicate the best way to care for patients who call for an ambulance but do not need conveyance to the ED.

Concerns were raised around under-triage, poor documentation, the need for training and concerns around litigation.

These three groups of studies have employed a range of methods. They have examined the decisions ambulance clinicians make about whether or not a patient requires to be transferred to the ED; and have explored alternative ambulance service provision designed to provide safe and effective care to patients who are not transferred to the ED. These alternative practice studies include the study of T&R. All of the studies have raised concerns about misdiagnosis and under triage, and inadequate documentation. Some of these problems may be due to issues associated with non-conveyance guidelines.

1.5 Use of the Guidelines

Both Haddock et al (2004) and Pointer et al (2001) report in their findings that the ambulance clinician failed to correctly apply the guidelines in all cases, which could have resulted in under-triage and therefore harm to the patient. Alternatively, the guidelines themselves may have been inadequate (Schmidt et al 2000). Some authors (Pointer et al 2001, Gratton 2003, Haddock 2004) have reported that ambulance clinicians have not followed the clinical guidelines for non-conveyance. This may be due to the design of the guidelines (Schmidt et al 2000, Gratton et al 2003). However when clinical guidelines have not been followed, the reported non-compliance has been in the minority of cases which suggests the issue may lie in a combination of factors including the guideline and also the interpretation of it by the ambulance clinician.

1.6 Responsibility and Litigation

There is a common thread throughout the literature about apparently inadequate decision making by ambulance clinicians, resulting in misdiagnosis and under-triage (Bissell et al 1999, Schmidt 2000, Pointer 2001, Kamper et al 2001, Foltin et al 2002, Silvestri 2002, Hauswald 2002, Gratton et al 2003, Snooks et al 2004a, Snooks et al 2004b, Snooks 2004c, Snooks et al 2005, Levine 2006, and Snooks et al 2006). Current education and training programmes are commonly cited as not sufficient to allow clinicians to make the types of decisions that are required around the need to travel to hospital (Bissell et al 1999, Pointer 2001, Foltin et al 2002, Hauswald 2002, Silvestri 2002, Snooks et al 2004b, Ball 2005, Snooks et al 2005, Levine 2006, Snooks et al 2006). An alternative argument could be made which suggests that, rather than inadequate education, it is the inability of clinicians to take responsibility for clinical decisions which is at fault. Colver et al (2007a) found that ambulance clinicians used a PRF when they should have used a TARF; this transferred the responsibility from the clinician to the patient.

The risk of litigation to the clinician and ambulance service following non-conveyance to hospital has been recognised both in the UK and USA (Krohmer 1999, Richards & Ferrall 1999, Schmidt 2000, Feldman 2005, Snooks et al 2006). Authors (Krohmer 1999, Institute of Medicine 2006) agree that a number of patients that are conveyed to the ED by ambulance don't require the full services of the ED, however there is a challenge in identifying criteria or guidelines to allow ambulance clinicians to identify appropriate patients without the risk of an adverse incident which may also result in medico-legal action against the organisation or the clinician (Schmidt et al 2000).

Authors (Krohmer 1999, Richards & Ferrall 1999, Schmidt 2000, Feldman 2005, Snooks et al 2006) have discussed issues around under triage and misdiagnosis by clinicians with regard to non-conveyance. Within this literature there is no mention of any risks that may be associated with the content or development of the guidelines. Hurwitz (1999) discusses the legal and political considerations of clinical practice guidelines and states that:

> *"...have not found any UK common law cases in which the courts have had to consider whether authors of clinical guidelines could be liable for incorrect or misleading statements in circumstances where patients have suffered harm"*
>
> Hurwitz 1999 BMJ p 663.

Some authors (Kamper 2001, Snooks et al 2002, Snooks et al 2004a, Colver 2007) have also reported concerns regarding record keeping. Accurate record keeping is a key component in the provision of good healthcare (Guly 1996), poor recording keeping presents risks to the organisation and also the care of the patient. Colver et al (2007a) reported that participants inappropriately used the patient refusal form when instead they should have used the TARF, thereby transferring the responsibility for non-conveyance from the clinician to the patient and potentially avoiding litigation. Kamper (2001) found that the recording of the chief complaint was not consistent and in a review of the literature in 2002 Snooks and her colleagues found that inadequate documentation was the most common reason for inappropriate release (non-conveyance) of a patient. In contrast, Snooks et al (2004a) found that record keeping by the ambulance clinicians was better in their intervention group in a study which evaluated the effectiveness of ambulance clinicians using triage guidelines to transfer appropriate patients to MIU rather than ED, suggesting that T&R record keeping can be satisfactory.

Hurwitz (1999) also discusses that in the United States, clinicians feared that the development of guidelines could increase their medico legal exposure. However it was reported that guidelines only played a significant role in less than 7% of malpractice cases.

1.7 Summary

The literature provides a good consensus regarding the rising demand for unscheduled emergency care and the need to explore novel ways of resolving the problem. One aspect has been to develop guidelines or procedures for ambulance services to divert patients away from the ED to alternative facilities, or indeed allow ambulance clinicians to treat patients in the community by following written T&R guidelines.

However in the low number of schemes that have been reported, problems have been identified with under-triage, misdiagnosis, poor record keeping and problems following the guidelines. Authors and clinicians have also raised concerns regarding risks of litigation, education of clinicians and the responsibility of using T&R. Considerations of time at the scene, delayed responses and distance to ED have also been highlighted (Bissell 1999, Schmidt et al 2000 and Snooks et al 2004a).

These concerns need to be resolved in order to improve the use of non-conveyance guidelines. One approach is to further explore the views of the ambulance clinicians themselves with regard to the issues associated with the implementation of T&R. Colver et al (2007a) had used a questionnaire to obtain

some information about clinician's comfort and confidence in using T&R. However, the questionnaire format may have restricted the amount and depth of information which the clinicians could provide. A semi-structured interview format may be more effective. Accordingly, the study to be reported in this thesis aimed to follow up the questionnaire study (Colver et al 2007a) with a series of interviews.

This study is an in-depth exploration of the use of ambulance service T&R guidelines and the challenges faced by clinicians in using them, in one of the largest UK ambulance services. This will inform the future development, governance and safety of these types of clinical interventions by ambulance clinicians. Without this information it will be difficult to develop and implement robust evidence-based guidelines, which clinicians are confident to use and suit the needs of our patients. This in turn will enable ambulance services to meet strategic objectives in the response to the rising demand in unscheduled care.

CHAPTER TWO - Methods

2.1 Methodology

This study is situated within an interpretive paradigm which aims to understand social phenomena by exploring the meanings people confer upon their own and others' actions (Kinash 2013, Robson 2007). Within the broad interpretive position, a methodological approach that seeks to understand how people make sense of their world was seen as appropriate for exploring the views and experiences of ambulance clinicians in relation to using the T&R guidelines. Hence, the study used a qualitative, analytically inductive methodological approach to explore these phenomena in a way that allowed participants to express their own accounts of the use of T&R guidelines (Robson 2007). For the qualitative enquiry, the study used semi-structured interviews. The study is the follow up investigation of a previous quantitative study (Colver et al 2007a) into the use of T&R Guidelines. Therefore, the choices about methodology and methods were to some extent restricted. The methods used in the study are described in detail in this chapter.

2.2 Setting -The Scottish Ambulance Service

The setting for this study was the Scottish Ambulance Service, which is a national ambulance service providing care to a population of over 5 million people in all parts of Scotland. In 2003-04 the Scottish Ambulance Service responded to over 500,000 emergency calls; including over 3200 air ambulance responses and a further 1.8 million non-emergency patient journeys. At the time of the study the service employed 2034 accident and emergency clinicians (paramedics n=1166 and technicians n=868). The service co-ordinates its operations through three

Emergency Medical Dispatch Centres (EMDC) in Inverness, Glasgow and Edinburgh, where calls are received and ambulance resources are dispatched from one of the 178 ambulance bases across Scotland.

2.3 Training and education of ambulance service staff

In 2005 the training standards and content of courses delivered by the Scottish Ambulance Service were governed by the Institute of Health and Care Development (IHCD). Ambulance technician training consisted of a ten week course divided into seven weeks of Ambulance Aid which covers the general aspects of pre-hospital emergency care and a three week advanced driver training course. On successful completion, technicians must then complete a one year probationary period prior to qualifying as a technician. A further year of clinical practice was required before being eligible to apply for paramedic training. Ambulance paramedic training involved a ten week IHCD course divided into six weeks theoretical learning and four weeks of Medical Consultant level supervised practice and competency based in-hospital assessment. The training included Advanced Life Support (ALS), Pre-hospital Paediatric Life support (PHPLS), Pre-hospital Trauma Life Support (PHTLS) and Emergency Obstetrics.

2.3.1 Treat and Refer Education

At the beginning of the study period (April 2006) T&R guidelines had been in use for approximately 14 months. No formal education, training or assessment was involved during the implementation process of the T&R guidelines.

All ambulance clinicians attended a mandatory annual two day 'Post Proficiency' course (PP) where the latest guidelines were reviewed and refresher training provided on core skills i.e. resuscitation, immobilisation & moving and handling. In addition to this all paramedics attend a compulsory triennial course which provides the opportunity to review the core paramedic skills. Practical assessments are usually included in the courses and occasional written/multiple choice knowledge checks have to be successfully completed.

2.4 Study Design

2.4.1 Choice of Method

This study used a cross sectional survey design with qualitative methods The study was designed to follow up the previous questionnaire study (Colver et al 2007a) aimed at exploring views about the T&R concept, implementation of guidelines, levels of confidence and comfort in using the guidelines and factors influencing their use in practice. Colver et al (2007a) identified concerns about the misuse of the PRF, educational needs and support; however the design of the questionnaire could not identify the reasons behind these issues. While questionnaires provide unambiguous, structured, quantifiable data from large samples, they mainly address the researcher's agenda, with the possibility that issues important to the respondent may be missed. (Bowling 2009)

At the design stage of the study the use of three key methods was considered, to establish the most appropriate method to achieve the aims of the study: participant observation, focus groups, and in-depth interviews.

Participant observation is appropriate when seeking to observe behaviours in the normal environment through the eyes of the researcher (Ritchie and Lewis 2008). However this study aims to explore issues that were identified in study one (Colver 2007a) and understand the use of T&R guidelines from the clinicians perspective. The use of T&R guidelines forms a small proportion of the normal workload of the ambulance clinician. This would therefore require an extensive period of time for data collection. There may also have been challenges regarding observing clinicians in the emergency setting where informed consent would have to be gained from patients at the time of the emergency consultation (Foëx 2001).

The use of focus groups in research has been increasing in recent years. They are useful in gathering data on the practice of the group where participants can interact and reflect on other participant's views (Ritchie and Lewis 2008). However, in a study investigating the trial of T&R guidelines, in two ambulance stations, the researcher reported challenges in managing the groups due to the jokey atmosphere, although the authors report that a sufficient quality of data was collected (Snooks 2004c). The national use of T&R guidelines in Scotland, would pose challenges in both securing sufficient numbers of clinicians from all regions of the service, due to shift patterns or locations of base stations, and also finding suitable venues to hold the groups. Although focus groups can empower participants to talk openly about sensitive issues (Snooks 2004c) it was thought some participants may find this difficult if they were discussing practice that may be contrary to policy (Colver 2007a).

In-depth interviews can provide rich data on individuals' personal experiences, especially sensitive topics. Unlike questionnaire surveys, interviews allow an in-depth exploration of complex issues with scope for probing and clarification, providing 'rich' data (Bowling 2009). Study One demonstrated some practice that was contrary to the ambulance service policy and participants also highlighted difficulties in using the guidelines. It was possible that participants would be more comfortable to discuss these personal experiences in an environment where their anonymity and confidentiality was known only to the interviewer and there was the opportunity to clarify individual points (Ritchie and Lewis 2008).

After reviewing the key methods it was decided the most appropriate method for data collection in this study would be the use of semi-structured interviews with a subset of participants who had consented from the questionnaire study (Colver et al 2007a).

2.4.2 Sample

The sample were employed by one national NHS ambulance service which provides service to areas of high population (cities and towns), rural areas and also remote island communities. The ambulance service is classed as a Special Health Board and delivers pre-hospital care across 14 Scottish NHS Health Board Areas**.** From the 78 respondents of the questionnaire survey who had consented to interview, a subset of 20 respondents were invited to take part in this study. A sample size of 20 was used as it was considered to be adequate to generate a broad range of experiences and views (Robson 2002, Bowling 2009). However,

the option was available to increase the size of this sample if data saturation was not achieved (Marshall 1996, Polgar and Thomas 2008).

The sample was purposively selected to include an equal number of ambulance technicians and paramedics. This was achieved through a random selection from each group of respondents (paramedics and technicians) using Statistical Software for the Social Sciences (SPSS) v10. Ten participants from the paramedics (n=61) and ten from the technicians (n=17) who had consented to interview where selected. Although this did not accurately reflect the divide of varying grades of staff from the questionnaire study (Colver et al 2007a), it more accurately reflected the staffing establishment of the study ambulance service as a whole group; which increased the representativeness of the sample and allowed the researchers to elicit responses from all staff groups.

2.5 Materials

2.5.1 Interview Schedule

Findings from the questionnaire survey (Colver et al 2007a) regarding barriers to the use of Treat and Refer guidelines were used to inform the development of the interview questions for this study (Annexe J). The barriers to using T&R guidelines identified in the questionnaire study appeared to centre around; training, paperwork, responsibility, litigation and future development of the guidelines. The aim of using interviews in this study was to explore in depth, clinicians' views about the T&R guidelines and challenges in using them in routine practice. The use of interviews provided a form of triangulation in the exploration of the use of

T&R guidelines. Some general self-reported demographic information was collected at the start of each interview (Annexe I); unfortunately some full information (location, number of calls and grade) is missing for one participant. The participants were asked to describe their normal geographical working area as urban/rural/semi-rural. These are not recognised descriptors for the operational areas which are generally divided into rural/urban/island for the purposes of reporting response time performance. However it was felt that using the descriptor of urban/semi-rural or rural would provide a recognisable 'view' of where the participants worked; the aim was to also attempt to identify if there were any potential differences in practice between the participants, due to location/workload. Definitions/parameters were not provided to the participants when selecting a category.

2.5.2 Study information and consent form

A letter and consent form (Annexe K) was sent out to the participants selected from the questionnaire study and interviews were arranged by telephone. The letter explained that the participant had been selected after agreeing to be contacted for further research/interview and that the purpose of this study was to gain a better understanding of the general themes highlighted from the questionnaire study. The letter assured that interview data would be treated in confidence and access to the information was only permitted by the researchers at the University of Stirling. Any data used in the study would be anonymised and third parties would not be allowed to view or listen to any identifiable data from any of the interviews.

2.6 Ethics

Following an application, including the study protocol, the study gained ethical approval in February 2005 from the Department of Nursing and Midwifery, University of Stirling, Ethics Committee and also gained approval from the study ambulance service Executive Board and Research and Development Committee. External ethics approval was sought; however the Chairman of the MREC for Scotland 'Committee A' advised that the project is not one that is required to be ethically reviewed under the terms of the Governance Arrangements for Research Ethics Committees in the UK. There was no requirement to submit an external ethics application (personal communication from Walter Hunter to Prof Len Dalgleish 8 March 2006). Funding was provided from the study ambulance service Research & Development budget.

2.7 Pilot Study

Prior to conducting the interviews with study participants the researchers completed some training sessions and 'trial' runs, led by experienced researchers within the NMAHPRU. Following this training, a pilot interview was arranged and held with a non-study participant ambulance clinician on an ambulance station. This allowed the researchers to gain immediate feedback from the ambulance clinician to ensure the format of interviews flowed easily, testing the word order was correct, was understood by the participant and the terminology used was clear to everyone. The pilot provided an opportunity to test the digital recording equipment was working correctly and suitable for the task. This pilot went without

any issue and no alterations were made to the questions or format of the planned interviews.

2.8 Procedure

Study participants were interviewed by two research paramedics (KC author of this thesis & DF) employed by the study ambulance service and were seconded full-time to the NMAHP RU University of Stirling. These semi-structured interviews were completed between October 2006 and February 2007 and were conducted either face to face or over the telephone, to ensure the best use of the available resources. Journeys were planned with economy and safety in mind. The researchers attempted to plan interviews in the same area in the same day to reduce travel costs and mileage (Bowling 2009). However this was not always possible to do due to the shift patterns of the participants. Interviews were all completed on weekdays: in the morning, afternoons and evenings. Participants were asked to select an interview location that was convenient and suitable for them. Subsequently, all the face to face interviews were held in ambulance stations and the telephone interviews were used during shift time for staff working from home.

A letter was sent to the ambulance service Divisional General Managers to inform them of the study and ask for their support. The ambulance service Emergency Medical Dispatch Centre (EMDC) was notified when the interview was taking place and the participants were allowed time to complete the interviews. It was important that the study did not interfere with the operational response of the ambulance service. Therefore if the participants were on shift they were still available for 'call-

out' to attend any emergencies during the interview. However no interviews were interrupted because clinicians were required to respond to any emergencies. Due to the busy, operational nature of ambulance stations it was not always possible to find a totally quiet environment to conduct the interviews. The researchers did not wear ambulance service uniform when conducting the interviews, in order to reduce interviewer effects and demonstrate a neutral stance as researchers.

The interviews were conducted by two researchers; table one details the numbers of interviews completed by each researcher.

18 Interviews [DF n=10 KC n=8]

	Face to Face	Telephone
DF	n=5	n=5
KC	n=6	n=2

Table Two: Interview Format and Researcher

Some of the participants selected for interview were known to DF and KC, so in an attempt to reduce any interviewer bias (Bowling 2009) KC and DF only interviewed people whom they did not know well. The same procedure was applied to the telephone interviews, although this process was generally made easier because the persons interviewed by telephone generally worked in the more remote areas of Scotland, where neither of the researchers had previously worked.

All interviews were recorded on a digital voice recorder (Olympus DS-2200 Digital Voice Recorder) which was placed in a suitable position in the 'interview room'. The voice recorder was unobtrusive, about the size of a mobile telephone, and of good quality, which removed any need for personal or obtrusive microphones. Following the interview the recordings were backed up to laptop computer then on return to the office the files were saved to the secure computer network server. No written notes were taken during the face to face interviews. The telephone interviews were conducted from a private office in the research unit; and were recorded using a 'conference' telephone and the same Olympus DS-2200 Digital Voice Recorder. This produced a good quality recording without the need for any additional cables or specialist equipment.

To ensure a consistency of approach each researcher followed an interview schedule (Annexe J) to explain the interview procedure to the participants and also gain consent (Annexe K) from the participant prior to the interview. The researcher explained that the participant could withdraw at any time and did not have to answer all of the questions. This consent was recorded in written format (including signatures) in the face to face interviews and verbally onto the digital voice recorder, with written notes made by the researcher, at the start of the telephone interviews. Some demographic information (Annexe I) regarding length of service, location and number of calls attended by the participant was collected before a series of open ended questions was asked (Annexe J). A total of 18 participants were interviewed (two participants from the 20 withdrew from the interviews), n11 face to face and n7 by telephone. The results of the demographic questions show that the self-report of the average number of calls per month was higher for the

urban participants compared to rural/semi-rural although the rural participant did report a higher number of calls than their ‘semi-rural’ colleagues.

2.9 Thematic Content analysis of the interviews

Digital recordings were transcribed verbatim by a professional secretarial service, which provided the raw descriptive information for this study (Pope et al 2000). A five stage process (Pope et al 2000) using ‘hand sorting’ and a framework analysis was used to ensure a systematic method for analysing the data (Table 5). A consultation with experienced colleagues produced an equal split between those who favoured the use of an electronic software programme to sort the data and those that felt that hand sorting the data was more effective. The decision to use a manual method was chosen because it was felt the amount of data from the interviews was of a manageable size and it would allow for a greater synthesis of the data.

To ensure the criteria of reliability of the data (Bowling 2009) the transcriptions were summarised in their original form by KC and DF. Each researcher summarised nine written transcripts, these were then reviewed by the other researcher for comment and accuracy. Following this process KC then listened to the full recording of each interview while reading the transcription summaries to identify any remaining material. KC found that during this iterative process that most of the data had been identified. However it took much iteration to ensure all the comments had been correctly identified and ‘labelled’ for further analysis. This was a time-consuming process of capturing the information whilst providing some quality assurance.

The summaries were then grouped into individual documents by KC and printed onto adhesive address labels, which were then stuck onto 'post-it' labels for sorting into themes. Themes were identified and an indexing system was systematically applied. These themes were then used to develop a framework which was developed using a 'Microsoft Word' table to allow further analysis to refine the categories using an iterative process. This method for content analysis allows the researcher to maintain a close relationship and awareness of the data and also enables space for cross-referencing and tracing back to the original source to be achieved (Carr 1994, Pope et al 2000, Robson 2002, Bowling 2009).

1. Familiarisation – immersion in the raw data
2. Identifying a thematic framework – identify the key issues to develop a manageable detailed index of the data
3. Indexing – systematically apply a thematic framework to the data
4. Charting – Sorting the data into the themes they belong. This stage requires a great deal of time and analysis.
5. Mapping and interpretation – use the framework to define concepts and find associations between the themes in order to develop explanations for the information. This stage is influence by both the original research question and the emerging data.

(Pope et al 2000)

Table 3 - Five Stages of data analysis in the framework approach

The themes were then compared to the results of the questionnaire study (Colver et al 2007a), which had used mainly quantitative methods to identify its findings. This process allowed the reasons behind the results of the questionnaire study to be explored and provide answers to the 'why' questions (Cooper et al 2010). The results are presented in the next chapter of this thesis (Chapter 3).

CHAPTER THREE- Results

3.1 Participants demographics

Interviews were completed with 18 participants, 12 worked from a semi-rural base, 3 from rural bases and 2 from urban bases. The number of calls they attended (self-report) ranged from 14 to 140 calls per month, with a whole group average of 73 calls per month. The group consisted of: 2 pathfinder paramedics, 10 paramedics and 8 ambulance technicians. Three paramedics were team leaders and one was also an ambulance service instructor. Twelve (67%) reported using the T&R guidelines.

Location	Number of participants	Number of calls - range	Number of calls - average	Technician	Paramedic	Ambulance Pathfinder
Urban	2	130-140	135	1	nil	1
Rural	3	60-100	80	3	nil	nil
Semi-Rural	12	14-100	62	3	8	1

Table 4 Participant Demographic Information
(Missing full data for one participant)

3.2 Themes

Five themes (presented in table five) emerged from the analysis of the participants' accounts of the T&R guidelines. The first covers themes relating to participants' opinions about the guidelines and advantages and disadvantages of using them. The second covers themes about the way T&R guidelines were implemented and the extent of training they received. The next two cover themes about the actual use of these guidelines in routine practice and the impact on their decision making. The final theme relates to participants' suggestions about the

future development and format of T&R. These themes are described in detail below.

1. Views about Treat and Refer
2. Implementation and Training
3. Participants accounts of how and why they use T&R
4. Decision Making
5. The format and the future development of the T&R guidelines

Table 5 – Thematic Content analysis - Themes

3.3 Views about Treat and Refer

The majority of participants expressed conceptual support for the T&R guidelines; they appreciated the idea of treating patients in their home or community and acknowledged that using T&R could benefit the patient, the ambulance service and ED. For patients, particularly those in remote areas, the benefits involved avoiding unnecessary visits to hospital, particularly at unsociable hours and avoiding long waits at the ED when no significant treatment was required. Treating the patient in their home can avoid arduous journeys to hospital when clinical conditions are treatable at home, this can reduce the potential inconvenience for patients and relatives who would have to facilitate their own return journeys from the ED. The ambulance service could also benefit in saving time by avoiding long transfer journeys with the additional benefit of the ambulance remaining within the operational response area and therefore available for immediate response to other calls.

However, participants also noted some disadvantages to using T&R guidelines. For patients, there were concerns around the safety of those who are remotely located due to the travel time it would take for ambulance to return to them if their

condition deteriorated and a second call was made. Use of the guidelines was also thought to be dangerous for patients because ambulance clinicians were felt to lack the depth of knowledge required for their safe and appropriate use. For the ambulance service, some felt that T&R didn't really save time because sometimes it was quicker to take a patient to hospital rather than provide treatment at home. The participants also felt that when using T&R guidelines the ambulance clinicians would remain on scene for longer periods in order to complete the treatment plan correctly. Participants understood the policy drivers to leave patients at home and recognised it was a strategic objective for the ambulance service, however on a personal level it was not seen by all clinicians as a priority objective.

> *"...the whole treat and refer thing would be good in a … in a city or a town base but where we are, because we are so far away from the hospital … you know, if we're in any doubt at all, then we'll take the patient to the hospital simply because, you know, you can … you can be looking at two, two and a half hours from, you know, our furthest away point to get to a hospital. So if we actually go out to get the patient, you know, they have to … they would have to show very good signs of complete recovery. If there was any doubt, we would just take them, you know, to save getting called out again."*
>
> Semi-rural -Ambulance Technician

> *What I like about it is … the fact that we're not taking people into the hospital unnecessarily. It's quite good for that. What I don't like about it is that sometimes it can actually tie you up longer than it would going to hospital. Just depending on where you are. By the time you've actually carried out the checks, treated the patient and everything's resolved to your satisfaction, you would probably be quicker sometimes just taking the patient to hospital.*
>
> Semi-rural Ambulance Technician

> *"The danger is paramedics don't know what they don't know. Do you know what I mean?....Had I not done additional training … I'm not saying that I'm a super paramedic but it's opened my mind up to … there's a helluva lot I don't know. I think they're quite dangerous."*
>
> Urban - Ambulance Teamleader Pathfinder

3.4 Implementation and Training

3.4.1 Implementation

The participants felt that the implementation of the T&R guidelines was rushed and not enough time was allowed to prepare for the introduction and use of the guidelines. The implementation strategy was described as simply providing pads of T&R Forms to the ambulance stations with copies of the guidelines being distributed as inserts to the clinicians existing pocket book guidelines and highlighting the introduction of the new policy in a national paper-based staff bulletin (Annexe E). There was not an opportunity to absorb the change in practice, receive structured training or seek advice from managers or instructors.

> *"...I think to put handouts out to people and expect everybody to be professional enough not only to read them but read beyond them and extend their sort of professional sort of knowledge, I think it's being somewhat naïve"*
>
> Urban Pathfinder Paramedic Teamleader

> *"… it was just done kinda on a wing and a prayer. You were given stuff, read that, em … he came and had a chat with us, you know, we fired a lot of stuff backwards and forwards and that was really it..."*
>
> Semi-rural Ambulance Paramedic

3.4.2 Inadequate knowledge and skills

The problems with the T&R implementation strategy were coupled with the ambulance clinicians' perception that they lacked the knowledge and skills required for using T&R. Some participants described that their own clinical examination skills had reduced since moving from a busy urban environment to a more rural setting, where they were not exposed to the same volume of patients.

They had little opportunity to use T&R guidelines as the number of patients who presented with conditions that are treatable with T&R was very low.

> *"...I've noticed it massively from xxx where I was doing, you know, 12 jobs a day to coming up here,… my diagnosis and skills retention is absolutely shocking… I've noticed a big drop in it … in sort of 3 and a half years."*
>
> Semi-rural Paramedic

> Participant *"…Yes. I have … you know, I have left … well, you know, it was an adult, you know. But, no, you know … it was quite successful. I was quite happy with that one really. I've never had … I've never had a seizure. I've had asthma and one patient with asthma I've left and that's … I've only had 3 asthmas you know, and 2, I have transported."*
>
> Researcher "*What about the hypoglycaemia?"*
>
> Participant *"Never had one."*
>
> Semi-rural Technician

Participants felt they lacked in-depth knowledge of the conditions and how to complete the correct process of patient examination for the conditions covered by the guidelines, but did not feel the required depth of knowledge would be beyond them. They shared a feeling that more clinicians may use the guidelines if adequate training was provided:

> *"...I do feel that there would be benefits in further underpinning knowledge training for the staff that are gonna be expected to use it. . Perhaps more practise and underpinning theory relating to patient assessment would be one of the critical things for making see and treat and treat and refer work better."*
>
> Semi-rural Paramedic

3.4.3 Lack of adequate training

Most participants felt that they did not receive adequate training in using the T&R guidelines. However, there was a clear difference in the reports of those who had completed the BASICS Pathfinder course and those attending the ambulance service training sessions. The instructors of the BASICS course, who were all practising doctors, were described to have deeper knowledge and enthusiasm, were happy to answer questions and provide experience, guidance and rationale with their instruction. In contrast, those who had recently attended the ambulance college or received limited training at station level from ambulance service instructors described that the instructors were protocol or 'check list' driven. It was felt that clinicians would use the guidelines if the appropriate training was provided.

> *"...That (*Pathfinder course) *was superb. three days … doctors... it was … it wasn't like a normal Ambulance Service course...you could pick the brains of the doctors... So you've got more sorta respect for these guys and they were willing to sorta give you loads of information. I think sometimes instructors are teaching you because they have to, you know, they've got a protocol for doing, they've got tick lists and check lists ... they teach you what they need to teach you and don't go over the mark. But the doctors were all for giving you as much information as you could absorb and everybody on the course just absorbed the information like sponges. It was a good course.*
> *... they had the backup knowledge to sorta take it right back to basics and then the in depth knowledge they sorta go further if you wanted."*
>
> Semi-rural Pathfinder Paramedic

> *"..at the college we got the treat and refer little cards to put into our JRCALC but we weren't shown any paperwork … it wasn't really identified what we were supposed to do with them. They were just another couple of pages in the JRCALC ...when we came back, I really didn't know anything about it and then it wasn't till about six months down the road that I thought, oh there's a form for this."*
>
> *Rural Ambulance Technician*

Other participants described a lack of continuous professional development culture within the wider ambulance service. They felt that much of the training was left to

the individual and that ambulance clinicians generally didn't fully practise the concept of self-learning and that when they did and guidance was sought from within the service, it wasn't provided. The lack of training or guidance on the application of guidelines was thought to have discouraged ambulance clinicians from using the guidelines. Participants stated that specific training should be provided during the annual post proficiency (PP) course, which all ambulance clinicians are required to attend. It was felt the current course did not meet the needs of the ambulance clinicians and it may be of benefit to include an exam or test regarding the application of T&R.

> *"Well, I can't honestly remember ever being shown how to fill a treat and refer form in. They just appeared in the vehicle one day... it's that important, it should have been sat down or went over it with or given a sheet of guidelines to go with it but we've never had anything and I think that's what puts people off using it, to be honest"*
>
> Semi-rural Ambulance Technician

> *"The problem I found with our treat and refer programme is that it was rolled out too quickly and there was very little support. Now, we were one of the stations that was actually trialled , em … as the original trial … so we had a lot more support than most other folk and, eh … I still felt that there was very, very, very little or no continued support after the original roll out"*
>
> *Semi-rural* Ambulance Paramedic

> *"There was no training as such. Maybe there could be, I think, to get some people's confidence pretty high, you maybe could have, you know, incorporate it into PP courses or something... But certainly incorporate it or at least reinforce it into the PP courses every year and I think that's all it takes. .... It's a big issue in the Ambulance Service in that we're leaving people at home now but it's not such a big issue if you really think about it logically*"
>
> Semi-rural Ambulance Paramedic Instructor

> *"It's up to yourself and, as you know well fine, there's … you know, self-training doesnae happen."*
>
> Semi-rural Ambulance Paramedic

3.5 Participants accounts of how and why they use T&R

3.5.1 Too risky to use

Participants' accounts of how and why they used the guidelines varied; some viewed the use of T&R as too risky and therefore didn't use them. Their concerns were twofold: first, they were concerned that the patients who were left at home could be at risk. They preferred a risk adverse approach to their practice and patient care with the need to complete tasks as thoroughly as possible to avoid harm to the patient, by missing a diagnosis. Secondly, they were concerned about the litigation issues which may ensue if anything went wrong. So they tried to minimise what they view as the chances for harm by not using the T&R guidelines. The majority of participants describe an increase in responsibility when using the T&R guidelines, but the effect this has is divided between those who welcome the increase and those that do not. They describe the change in accountability from the patient to the clinician and the concern they will be held to be accountable if something goes wrong:

> *"Because it's not just yourself that's gonna … pay for it. It's the patient you're dealing with …"*
>
> Semi-rural Ambulance Technician

> *"just needs a GP and then arrange for a doctor to come out and I'll get the patient to sign the PRF...get a wee bit paranoid, why give them something to get you with."*
>
> .
>
> Semi-rural Ambulance Technician

> *"from the litigation side, you cover your own back, if you know what I mean and if in doubt, take them in"*
>
> Rural Ambulance Technician

3.5.2 Guidelines provide protection

In contrast, others described feeling comfortable with T&R because they felt the guidelines provided protection as long as the details of the patient consultation were fully recorded on the appropriate paperwork and that everything had been completely satisfactorily. They stressed the importance of accurate recoding of the consultation, recording both what has and has not been done. For them, the guidelines weren't too risky as long as the clinician ensured there was a good safety net for the patient who could call back at anytime if they needed. This was especially the case with the epistaxis guideline.

Although they recognised the increasing fears amongst their colleagues regarding litigation some participants explained that by adhering to the guidelines and following the policies, the ambulance service would provide protection. They felt comfortable using the guidelines as they were aware that they could always take the patient to hospital if there was any ambiguity about the suitability of treat and refer.

> "*I don't particularly see any of them as being risky, to be honest because, you know, if I do treat and refer somebody, leave them the treat and refer form, I do tell them that should the condition return, especially maybe an epistaxis and I don't think I've really … I've only dealt with one epistaxis that I can remember … but I do tell the people that should the … you know, the incident recur, don't hesitate, phone us back out again.*
> *... It's no a problem, you know, so I'm quite comfortable to leave the person there, knowing that either them or their relative will call us back out again"*
>
> Semi-rural Ambulance Paramedic Instructor

> *"I feel comfortable that if I can justify any … anybody that I leave at home … that there's somebody competent that they look after … and I've left them appropriately at home … I feel if something adverse … if*

you … providing I document everything what I see at that time, then I'm as covered as I'm going to be"

Urban - Teamleader Ambulance Pathfinder

"... they'll (some colleagues) take people to hospital that probably don't require to go to hospital just simply because they're not prepared to leave themselves open."

Urban - Teamleader Ambulance Pathfinder

"...the fact that as long as I … as long as I had recorded everything (on the TARF) that I've done, recorded it accurately what I've done, my reasons for doing it, I would hope I would get full support … if something ever went wrong … God forbid."

Rural Ambulance Technician

"*So long as you've did everything within your training and you've documented it … and what I also do, sorry … is I document things that I don't do, you know, on my PRFs as well. I document things that I don't do, you know, to cover myself in that way"*

Semi-rural Ambulance Paramedic

"...yes, I have increasing fears about litigation now but I tend to feel that … well, if I follow the service's procedures, within those parameters, then the service can field that litigation because I'm only doing what is available to me, provided I've done a proper and full assessment and not gone outwith the treatment regimes.

Semi-rural Ambulance Paramedic

"*Maybe it was because of the Pathfinder course I am, the responsibility is … that's what we're here for. The guidelines are such that if somebody needs to be taken to hospital, then they will be, the responsibility's no really mine if I follow the guidelines properly.*"

Semi-rural Paramedic Pathfinder

3.5.3 Inappropriate use of a PRF

Before the introduction of T&R, ambulance clinicians had two pathways or options with their patients: either take them to hospital or get a Patient Refusal Form (PRF) signed by the patient. After the introduction of the guidelines, there was no

reduction in the rate of PRF use and the questionnaire study (Colver et al 2007a) found that 65% of the participants were using the PRF inappropriately as they reported having used the PRF on at least one occasion when they could in fact have used the TARF (Colver et al 2007a).

The interviews in this study have provided the opportunity to explore the reasons for this increase in inappropriate PRF use. Participants in this study reported that T&R guidelines had led ambulance clinicians to practise defensively and view the PRF as a method to provide protection for them if there was an adverse incident. They reported observing a practice of persuading the patient not to go to hospital and then getting them to sign the PRF which the participant saw as providing protection to the clinician.

> "*Aye. It is … it easy for people to … instead of using the treat and refer, to use the PRF and talk … talk patients into refusing cos nobody wants to go to hospital and it is very easy if you wanted to, to talk somebody into no going to hospital... A lot better. Like I say, once you've talked somebody into it, then litigation wise, you've got a … I'd expect a good defence anyway because, on paper, they've refused."*
>
> Semi-rural Ambulance Pathfinder

> *"As long as they've signed that PRF, I'm covered, you know. That's … that's the bottom line."*
>
> Semi-rural Ambulance Technician

> *"...it gets to a stage with a lot of them you don't actually use the treat and referral, you end up using a patient with a refusal form, you know."*
>
> Semi-rural Ambulance Paramedic

> *"… if that casualty signs that form … your form … then that obviously lets me off the hook if you like as far as the condition of the casualty."*
>
> Urban Ambulance Technician

3.5.4 Support if practice goes wrong

Another barrier in the use of the guidelines is the participants' feeling of a lack of support from the ambulance service management if there was an adverse patient incident as a result of using the guidelines. Interestingly there was also some concern about the role of the Health Professions Council (HPC 2011) if a complaint involved a paramedic (the HPC is the regulatory organisation for ambulance paramedics; but not ambulance technicians). The majority of participants described varying levels of doubt as to the level of support they would expect to receive. However one of the Teamleaders felt they would receive support and described what they viewed as an improving situation. Interestingly the participants did not report personal experience of being subject to investigation or discipline but talked of other peoples' experiences. However some participants had asked for support in other areas (like training) but had not received this and therefore assumed that they would not receive support if there was a problem or complaint.

> *"I feel yes. I think we're getting more support in the service now than we ever did and I think as things like this increase and the job changes again, I think we'll get more support."*
>
> Semi-rural Ambulance Paramedic Instructor

> *" I love my job and I dinnae want to sorta say that we wouldnae get back up from the management. But you sometimes feel with the questions … the things they say"*
>
> Urban Ambulance Technician

> *"I must admit recently I've become a wee bit more concerned, if you like, because of the HPC's role. I mean, I've looked up the HPC website recently and looked at complaints"*
>
> Semi-rural -Ambulance Paramedic

3.6 Decision Making

Introduction of the T&R guidelines created changes to the way paramedics and technicians practised. Prior to the guidelines, they reported following the standard operating procedures which were highly prescriptive in nature, i.e. they told the clinician to do A in case of B. However, with the introduction of the guidelines, they were now required to make a judgement about the patient's condition, make a decision about their suitability for Treat and Refer and implement that decision by carrying out clinical examination, delivering treatment and making a referral. Several difficulties were reported by participants in incorporating T&R guidelines into routine practice. Routine practice was described as involving the use of SOPs which were more prescriptive than guidelines; the guidelines were felt to create grey areas by calling for the clinician's judgement and decision making. This theme summarises participants' accounts of how they make the judgements and decisions required by the guidelines and the factors influencing and constraining their decision making processes. These findings are grouped into three areas: those relating to making a diagnosis, to assessing suitability for T&R and to delivering treatment and making a referral.

3.6.1 Difficulties in making a diagnosis

Participants described a need for certainty around their diagnosis when considering the use of T&R and the need for what they interpreted as objective measurements for baseline observations. Some examinations were seen as clearly objective, for example the interpretation of a blood glucose sample using a spot of the patient's blood on a analysis strip which is 'read' by a calibrated

electronic machine. One participant also described the benefit of observing the positive results of the treatment when dealing with a patient suffering from a hypoglycaemic episode and seeing the obvious changes or improvement in the patient's condition.

This compares to what is viewed as the subjective examination of a patient who has suffered a seizure, this examination relies on the patient assessment skills of the clinician and how they interpret their findings. This need for certainty in the diagnosis leads some participants to take patients to hospital for observation in case there is a relapse in the condition; even when the clinicians know the patient will not receive any treatment.

> *"So unless I'm 100% confident the patient's OK and has the necessary back-up, you know, family around or … or somebody popping in to visit or a telephone at hand, I wouldn't use the treat and refer unless I felt 100% that it was OK."*
>
> Semi-rural ambulance technician

> *"No, it doesn't cross my mind cos let's say if I was sort of a wee bit worried about it, then I would make sure they went to hospital anyway and I wouldnae be 100% if somebody was left in the house"*
>
> Semi-rural Ambulance Pathfinder

> *"Whereas with a BM, it's blood and if you've cleaned the site, then it's probably gonna be right but with peak flow, it's an individual person and* if somebody knows how to use it properly, then fair enough. So I could *see why people would be a wee bit more wary of asthma attacks for that reason."*
>
> Semi-rural Ambulance Paramedic

3.6.2 Delivering treatment and making referrals

Some participants use the concept of the expert patient when deciding on a diagnosis and referral pathway. They explain that generally the patients

understand the conditions with which they live with on a daily basis and therefore are a good source of information; therefore the responsibility is not only that of the clinicians but also the patient.

> *"I think things can go wrong anywhere at any time in any situation and it would also need to be a case if you were thinking something was going wrong, you cannae be responsible for what that person does after you leave. I mean, if you treat an asthmatic and gie them advice and they are fine when you leave … if I walk out the door and they start running up and doon the stairs and haeing ten fags and six whiskies, there's no a lot I can dae. So at the end of the day, they need to be responsible as well for their health."*
>
> Semi-rural Ambulance Paramedic

> *"...you know, diabetics and epileptics I find are pretty well genned up on their conditions anyway, as are any family members, you know. So no, there's nothing really. I'm quite happy, yeah, and I know that the safety net's there, give us a call back, it's not a problem..."*
>
> Semi-rural Ambulance Paramedic

3.6.3 Patient assessment – suitability for T&R

The personal thresholds of the participants for the decision to leave the patient at home influence the use of T&R; participants recounted reports of incidents involving other clinicians including doctors where patients had died after being left at home. A participant explained they were happy to deal with what they saw as a straightforward case but would not take risks because of a series of local adverse incidents involving the death of four patients with asthma in three years. Others were influenced by their own experiences of medical conditions or having a family member diagnosed with one of the conditions covered by T&R. There was also inconsistency in the view across the four guidelines, a participant may feel comfortable with using T&R for asthma or epilepsy but not epistaxis; because of concerns that a clot dislodges after the ambulance clinician leaves and the bleed restarts. The age of the patient is also a consideration, with some feeling

comfortable with certain age groups while others would exercise caution and be risk adverse with the same group. Others spoke of instinct when seeing a patient and just knowing they were going to or not going to use T&R, while some exercise caution because of their own perceived lack of experience with dealing with the conditions.

> *"...if you've got somebody that's asthmatic, you know, they've had a wee asthma attack or forgotten their inhaler, then fine, you know, you get quite comfortable, treat that and, eh … they're fine. But if you've got somebody, you know, who's, em … using an inhaler and that sort of stuff and it's not working, people get very nervous."*
>
> Semi-rural Ambulance Paramedic

> *"It's mainly dislikes. I dislike the extra sort of responsibility, you know, sometimes I get the feeling that they want me to play God, you know. .... On the plus side of it, you know, I like … (LAUGHS) … I quite like having that responsibility at times. It depends on the patient, you know. If it's a youngster … a child, then, you know, I don't like the responsibility, you know. But if it's an adult then I do like it, you know. I don't know if that makes sense.*"
>
> *Semi*-rural Ambulance Technician

> *" … you're walking in the door looking at the patient thinking, aye you're getting treat and referred... other times, it's … you know, you've got to really watch what you're doing ..."*
>
> Semi-rural ambulance technician

Participants describe the use of joint decision making when deciding on the use of T&R looking for agreement between the attending clinicians, the patient and relatives, and also referring decisions to the senior clinician present. If agreement could not be reached, then the patient would be taken to hospital. Some participants described an increased level of self-satisfaction when using the guidelines by providing treatment for the patient from start to finish and view the development of T&R as a personal career development opportunity to enhance their own diagnostic and treatment skills.

> *"…it also gives you a sense that you're doing something when you know that somebody's come out the other side of your treatment, you've done it. You know …"*
>
> Rural Ambulance Technician

Others described the way they felt T&R guidelines had formalised existing 'unofficial' practice by ambulance clinicians, which for them meant the new guidelines were not actually a radical departure from normal practice.

> *"...I think it's a fantastic idea because everybody's … we've all been doing it … sometimes off our own back for things that we aren't covered for and it was just a case of actually getting it down into black and white and giving people a bit more guidance and protection on what it is.*
>
> Semi-rural Paramedic

3.7 The format and future of Treat and Refer Guidelines.

3.7.1 Duplication of work

Participants were generally satisfied with the format of the TARF but reported frustration because of the need to duplicate records between the TARF and the PRF. The TARF may benefit from slight amendments to include space for recording the blood glucose level.

> *"Treat and refer paperwork is alright on its own but the treat and refer … well, the normal patient report form, the PRF, has the same information on it so it would make sense if it was one paperwork … (LAUGHS) … you know, one set of paperwork cos you're duplicating a lot of things. Anything else? If you're gonna take a set of observations, why write it down twice?"*
>
> Semi-rural Paramedic

Participants also raised concerns regarding the follow up of patients, because the responsibility of the follow up rests with the patient when they are left with the T&R form to take to the doctor. This was highlighted by the report of a 'regular' patient who had a collection of T&R forms in the house, which suggested they were not receiving adequate follow up care.

> *"I personally have been at a job where there's been 3 treat and refer forms lying."*
>
> Semi-rural Paramedic

3.7.2 Future development

Participants suggested the guidelines could be developed to cover conditions like minor wounds, which would avoid the need to take patients, especially the elderly into hospital in the early hours of the morning, when they could either be treated by the ambulance clinicians or wait a few hours to be treated by the primary care

health team. Some thought that a falls guideline would be of benefit for helping to deal with those patients who had suffered a fall at home. This was because of the demands placed on the NHS and the patient by taking this group of patients to hospital; on-going work by Warwick University regarding falls care was discussed.

Some also felt that the development of a guideline for patients with mental health conditions would be beneficial to the patients and the NHS, by avoiding unnecessary admissions to the ED when other options like community psychiatric health teams would be more appropriate. However it was felt that any new guidelines had to be underpinned by research.

Participants commented that the layout of the guidelines was generally straightforward but it would be helpful to have some rationale for actions or decisions provided within the guidelines. It was also highlighted that clear parameters should be provided for measurements or frequency of episodes or signposting to care pathways which would also help the clinician to make an informed decision based on the information in the guideline.

> *"… it's just a wee bit of a grey area for me ...just in the wording like for seizures … frequent recent seizures. I mean, obviously that's just … how would you know what's frequent..."*
>
> Semi-rural Paramedic

Some described what they saw as challenges of using the new NHS 24 out of hours service which they felt sometimes used the default option of sending an ambulance when another type of resource may be appropriate. However the participants do value the opportunity to discuss their clinical findings with a GP or

NHS 24 and then have the opportunity to use the service as a clinical pathway for the patient, rather than leaving the patient at home with no immediate follow up.

CHAPTER FOUR – Discussion

4.1 Key findings

This study explored the views of ambulance clinicians towards using the T&R guidelines, the way in which the guidelines were used in routine practice and the challenges faced in using them. The key findings of the study are:

- There was a broad support for the concept and policy of T&R; however the participants had mixed views with respect to the actual practice of treating and referring patients.
- Although participants acknowledged the potential benefits of T&R for patients and the health service, they identified several risks in using T & R in routine practice. Their perceptions of risk to the patient and/or the clinician seemed to determine whether and how the guidelines were actually used.
- The participants identified several challenges in the use of T&R: lack of training and knowledge, fear of litigation, a lack of support from the management and difficulties in decision making.
- When asked about the future development of the guidelines, very few other conditions were felt to be a candidate for the practice of treat and refer.

These findings are discussed in detail in the following three sections: views about the use of T&R, the use of T&R and the future development of T&R. When compared to the findings of Colver et al (2007a), who used a questionnaire to investigate the use of T&R guidelines, this study has been able to identify some of the reasons for the way T&R guidelines have been used.

4.2 Clinicians' views about the Treat and Refer Guidelines

The idea of treating patients at home or in the community was generally supported by the participants, but they identified both advantages and disadvantages of the guidelines for the patient and the clinician. In terms of the benefits for the ambulance service, clinicians were ambivalent about whether the guidelines brought any saving in time; there was agreement that in the urban environment it was quicker to take the patient to hospital, but in the rural setting there was ambivalence as to whether time would be saved by using T&R guidelines.

This finding reflects a challenge for policy makers and guideline developers, when trying to develop a single guideline that meets the needs of all those who are using a national service which covers a wide range of population densities, spread over a large and often challenging geographical environment. Treating patients in the community can be more time consuming than conveying them to the ED (Snooks et al 2001) as it requires clinical assessment, diagnosis, decision and treatment/referral (Wolf 1999). In some areas there may be direct benefits to the ambulance service and patient in reducing long journeys to the ED, for example, when the location of the call is a long distance away from the ED. However, in the urban environment there may be times when it is quicker (for the ambulance service) for patients to be taken to the ED as the travel distance is short. In the urban setting taking the patient to the ED may be in the best interest of the ambulance service by ensuring that more ambulance resources are available elsewhere (Bissell 1999), but it will not address the demands on the ED or the needs of the patient.

For patients, although the T&R guidelines had the potential to avoid long and arduous journeys to the ED, there were concerns about the safety of patients who were treated and left in the community. Clinicians perceived an element of risk in leaving patients in the community in case their condition was to deteriorate. This not only posed a direct risk to patients but also increased the risk of litigation to clinicians if their decisions and actions resulted in patient harm. This finding is supported by previous literature on non-conveyance of patients where the fear of making a mistake to the detriment of the patient or being disciplined or the subject of litigation is a common theme. The risk of litigation, following non-conveyance to hospital, is internationally recognised as a risk to both the clinician and organisation (Lang 1996, Schmidt 2000, Snooks et al 2006, Gray and Wardrope 2007, Lowthian et al 2010, Lowthian et al 2011, Burrell 2012) and non-conveyance has been identified as a significant cause of litigation and cost (Dobbie and Cooke 2008).

4.3 Use of Treat and Refer Guidelines in Practice

Whether or not the T&R guidelines were actually used by clinicians in routine practice was influenced by their perceptions of risks involved in T&R. Those who thought using the guidelines could bring protection for the clinician and patient reported being comfortable in using them routinely. However, those who felt treating and referring patients in the community posed a risk to patient safety and/or exposed clinicians to litigation, preferred not to use the T&R guidelines and associated forms. They reported feeling safer to use the traditional patient refusal form. The participants viewed the refusal form as simpler to use and the clinician does not have the same responsibility compared to using the TARF. Some also

suspected a practice of persuading the patients to sign a refusal form instead of using the T&R form so that the responsibility for the non-transport decision was removed from the clinician. The inappropriate use of the PRF demonstrates practice which is against policy and may also be a patient safety concern with regard to patient follow up. However the area of patient refusal is complex and it is possible that only a small percentage of patients are truly 'refusing' (Shaw et al 2006). Ambulance clinicians have been found to use the PRF when dealing with social problems or calls that the clinician deem inappropriate or as means to 'cover their backs' or in some cases if not all the information is available they may not complete a form to avoid being disciplined for incomplete completion (Porter et al 2008).

The conveyance of patients to hospital when it may have been appropriate to treat and refer in the community is similar to risk-averse practices of other clinicians reported in previous literature. For example, Evans and Harris (2004) found that doctors ordered many diagnostic tests when they may not have been required, which may have been done in order to protect the clinicians rather than to ensure the best care for the patients. Although there are growing concerns amongst clinicians about medico-legal exposure (SIGN 2011) and the role of guidelines in providing medico-legal protection, in reviews of the literature there is no mention of any risks that may be associated with the content or development of the guidelines (Hurwitz 1999). Guidelines should provide guidance and are not designed to replace clinical judgement (SIGN 2011). In court the practice of clinicians would be compared to the normal practice of their peers (SIGN 2011) however they may have to justify why they have deviated from a guideline (SIGN 2011).

4.3.1 Barriers and challenges in using T&R guidelines

Participants described a range of challenges in using the T&R guidelines in routine practice. These are discussed below.

4.3.2 Difficulties in judgement and decision making

The introduction of T&R brought changes to the traditional practice of ambulance clinicians; they were traditionally trained in, and used to following, a protocol driven practice that tended to be prescriptive in nature. With the T&R guidelines, they were now required to make judgments on the need to transport patients. Clinicians found making these judgements challenging as they often desired absolute certainty about a patient's condition when making a diagnosis. They also raised concerns about skills atrophy because of the limited numbers of patients that present with conditions that are suitable for the T&R criteria.

For some conditions like hypoglycaemia providing a definitive diagnosis was thought to be possible as the diagnostic tests were available that produced unambiguous results (e.g. blood sugar). However, other conditions like asthma or seizure were described as presenting grey areas as the diagnostic procedures were not felt to provide absolute certainty. On some occasions they reported using their instincts and 'just knowing' to make these judgements on conveyance. Participants also described using the patient's own knowledge of their condition (the expert patient) to help with joint decision making. However, this type of decision making could be heavily influenced by the clinician's own experiences of illness, either professionally or with a relative which may have lowered their threshold for the decision to transport. It may be that the guidelines do not contain

sufficient detail or rationale to support the clinicians in their decision making (Colver et al 2007b). The clinicians often preferred to err on the side of caution and transported the patients to hospital if there was any degree of uncertainty about the patient's condition.

Decisions about non-transport are complex (Porter et al 2007, Halter et al 2011) and clinicians want a balance between the rigidity of protocols/guidelines and the reality of practice which will allow some flexibility in delivering care (Porter et al 2007). Education will play an important role in developing the decision making skills of ambulance clinicians (Jensen 2010) who are currently not taught any decision making skills. This is likely to be because of the historically protocol driven practice. Traditionally the ambulance clinician will generally make decisions based on a *working diagnosis* and transport the patient to hospital for a definitive diagnosis. However, diagnosis is not only a science but also an 'art' which requires a systematic approach to gathering information, by detecting abnormalities and matching these with known diseases. This information allows the clinician to allocate a name for the complaint which will enable them to make decisions about the treatment options (Jamison 1999). Diagnosis is not always 'clear cut' and a balance has to be struck between using rigid protocols or guidelines that provide adequate information for the clinician but also allow them to use clinical judgment. Sometimes the use of guidelines in the format of algorithms can lead the clinician down a 'single' pathway and not always reflect the complexities of patient assessment (Woolf et al 1999), for example treating a knee injury after a fall when the important factor is the dizziness that caused the fall (Schmidt et al 2000).

Education in decision making may help the clinician use different thinking strategies and this could become part of the mandatory training syllabus (Jensen 2010). Although there is no international standard ambulance clinician education programme, which can make like for like comparisons between countries/services difficult, Jensen (2010) reported that:

> "*Currently paramedic educators likely have little insight into their own metacognition. It is possible that they are passing on poor decision-making habits to their students, such as the inappropriate use of heuristics, and allowing biases to affect CDM"*
>
> Jensen 2010 page 78

Providing feedback to clinicians about clinical decisions is used in other areas of ambulance service practice. For example clinicians receive feedback from coronary care units during the treatment of patients suffering an acute myocardial infarction (Mclean et al 2008). This process of feedback improved the numbers of thrombolysis being completed. For guidelines and interventions to succeed they need to address the needs of the organisation, the clinician and the patient (Dahan et al 2007).

4.3.3 Lack of adequate training

Many participants felt that their traditional training programme and current core skills in patient assessment and diagnosis were not adequate to safely use T&R. The minority of participants who had recently completed their basic training at the ambulance college, where they had received some training in the use of T&R, reported the training did not provide the depth of knowledge they felt was needed. This was in comparison to the few who had attended the BASICS led Pathfinder course, who described a positive experience during the training. It appears the

ambulance instructors did not display the depth of knowledge in relation to T&R that ambulance clinicians were seeking, while the BASICS doctors were able to satisfy this need. Some participants also discussed challenges around a lack of culture of continuous professional development within the ambulance service. This culture should be considered during the development and implementation stages of guidelines or procedures to ensure clinicians remain fully informed and confident with new policies. Colver et al (2007a) reported that Pathfinders and Paramedics had a significant increase in confidence and increased professional responsibility in using the T&R guidelines, however there was no significant difference in the number of times they used a PRF inappropriately. This may suggest that enhanced/continuous education improves confidence but many factors can affect clinical practice and there is still a challenge with delivering the care.

Participants highlighted the need for additional training to enhance their skills in diagnosis and decision making. The systematic approach to diagnosis is not formally taught in the traditional paramedic education model, therefore future education programmes should identify and include the teaching of skills to correctly triage patients (Clesham et al 2008) and provide accurate diagnosis to ensure safety of care.

4.3.4 Perceived lack of support from management

Participants in this study reported a lack of trust or support from the ambulance service management team if there was an adverse incident, but did not identify any specific cases where T&R was directly involved. However they were able to

identify adverse incidents involving various types of health professionals, where misdiagnosis or non-transport to hospital was involved. This finding was also reported by Porter et al (2007). It is not unusual to find issues with trust or distrust within large organisations which has been described as:

> "...*lack of confidence in the other, a concern that the other may act so as to harm one...*"
>
> *Kramer (1999) p 587*

People can pay more attention to negative information and may even prefer negative gossip (Kramer 1999). This can impact on decision making when clinicians may practise in a risk adverse manner following adverse incidents involving their colleagues (Styles 2008).

4.4 The future development of T&R guidelines

When asked about the future development of guidelines some participants felt guidelines for minor wounds and falls would be useful, however not a large number of additional conditions were felt to be suitable for T&R guidelines. Currently there is no structured review process for the guidelines or incentive for ambulance clinicians to identify possible further conditions for treatment using T&R.

4.5 Implications for practice

The results of the study have implications for policy and clinical practice, because of the drive to look for novel ways of dealing with the increasing demand and the methods used to deliver the clinical care. Part of the current clinical strategy of the Scottish Ambulance Service is to increase the extent of use for T&R (SAS 2011).

This study has explored and identified some concerning themes in an evolving area of practice that has a small but consistent, developing evidence base. The results have highlighted the challenges that participants have faced when using T&R guidelines.

Clinicians need to be educated in medical risk management and decision making and need to feel supported in the decisions they make. Clinical case reviews and root cause analysis methods should be used to explore adverse incidents rather than 'investigatory' procedures. This same process can also be applied to successful cases to identify good practice and help inform future developments.

The use of and development of T&R guidelines is challenging. The guidelines do not always reflect the uncertainty of clinical practice and therefore the development of care pathways with access to multi-disciplinary teams and decision-making may provide the flexibility required in clinical practice, within a defined safe set of parameters. The use of care pathways requires joint decision making between the ambulance clinician and other healthcare professionals (e.g. nurse practitioner GP, district nurse.) to enable the patient to be placed on a multi-disciplinary pathway, with clear safety nets. Rather than 'discharge' at home with all the decision making responsibility on the ambulance clinician and the subsequent follow up responsibility on the side of the patient. Shared decision making has been shown to improve patient satisfaction (Gravel et al 2006) and it may provide the ambulance clinician with the knowledge that the patient will be fully supported when the ambulance clinicians leave the scene. This may provide

reassurance for the clinicians who have raised concerns about the patient deteriorating once they are left at home.

This study has not examined the clinical aspects of the T&R guidelines. In the UK the Joint Royal Colleges Ambulance Services Liaison Committee (JRCALC) produce evidence-based practice guidelines (JRCALC 2006) which are used by the majority of ambulance services, although there are sometimes local variations. However, JRCALC currently do not produce T&R guidelines and there are no other nationally (UK) agreed T&R guidelines. If ambulance services wish to use non-conveyance guidelines they have to develop their own, which can be a resource intensive process (SIGN 2011). If T&R or non-conveyance practice is to continue there may be benefit from ambulance services combining their resources and expertise to develop a UK standard in non-conveyance guidelines.

The initial implementation of T&R was thought to be rushed and followed a passive process, using a written national bulletin (annexe E) and individual clinicians also received individual copies of the guidelines for their pocket book (annexe A-D). There were also supply problems with the distribution of the new TARF to ambulance stations. The implementation of research or guidelines is often challenging, however the effectiveness of the introduction of T&R may have been enhanced by using an active multifaceted implementation programme. This may include for example: interactive education, audit feedback, reminders and the use of local opinion leaders (Bero et al 1994, Thomas et al 1999, Gross & Pujat 2001, Grimshaw 2004 and Grol et al 2005).

The need to complete both a PRF and a TARF created a duplication of work which didn't aid the use of T&R. Since the introduction of T&R the study ambulance service has changed from a paper-based patient records system to a computerised one. However clinicians continue to use a paper TARF. It may help with completion of a TARF and save time on scene, if the clinicians were able to print a summarised 'TARF' for the patient, from the electronic system. This would also create an electronic record of the consultation which would be held securely and centrally by the ambulance service. This is likely to save duplication of work and provide a system that is easier to review for research/audit purposes and also provide easy (but secure) access to records in the event of an adverse incident. However as with the current electronic patient records system there would have to be a paper backup in the event of printer or IT failures. There may also be benefit from developing a dual paper PRF/TARF to prevent duplication of work and reduce costs in printing and storage.

A weakness in the current system is twofold: firstly if an ambulance clinician uses a PRF there is no written instruction left with the patient to consult their GP, secondly when a TARF is used the patient may not take the form to their GP for follow up (Fitzpatrick and Duncan 2009). This could mean that following an exacerbation of their chronic condition, a patient may not receive the appropriate follow up which can include alterations to the patients prescribed medications (Walker et al 2006). Currently the ambulance service does not contact the GP about patient consultations which is a different practice to other unscheduled services (ED, OOH's primary care and NHS 24) which automatically (if they have details of the patient's GP) send details of consultations, directly to the patient's

own GP for review and filing. The possibility of the ambulance service forwarding details of patient's consultations to their own GP may enhance the safety of pre-hospital refusals, by ensuring the GP is alerted about their patient's contact with the ambulance service. The GP may be aware of safeguarding issues or vulnerabilities that may have been challenging to establish in the pre-hospital environment by the ambulance clinicians. For example, poor diabetic control, mental health issues or other co-morbidity.

The role of the community paramedic has also been developed to reduce hospital admissions. There are similar roles around the UK but no standard for education or qualification has been agreed, although many of the courses are at graduate and postgraduate levels (Cooper et al 2004). A few UK studies have now reported on the safety and effectiveness of community paramedics (Mason et al 2003, Cooper et al 2004, Mason et al 2006 and Mason et al 2007). These studies have endorsed the role and have shown that when traditionally trained ambulance clinicians are provided with the appropriate education and support, they are safe and effective when dealing with a range of minor injuries and illness. Currently in the study ambulance service one scheme remains operational in the NHS Lothian area, while others have experienced challenges with retaining and training staff.

4.6 Recommendations for future Research

This study has highlighted various challenges faced by ambulance clinicians when using treat and refer guidelines. Future practice may benefit from research in several areas. Firstly, a controlled study to evaluate if remote decision support improves the ambulance clinicians decision-making ability will inform if this

measure alone can improve use of the guidelines. Secondly, a review of patient outcomes with feedback to clinicians may boost clinician's confidence by providing feedback.

4.7 Critique of Methodology

The use of interviews was chosen to identify any subtle features of practice that may influence the use of the T&R guidelines (Crombie and Davies 1997). However, there may have been some limitations during the process of this study.

The sample was purposively selected (Ritchie and Lewis 2008) to include an equal number of technicians and paramedics, which represents the normal ambulance crew configuration. However, this was achieved through a random sample of those who had consented from Study One. By chance the sample contained a mix of Instructors and Pathfinder paramedics but there were a disproportionately high number of semi-rural participants (Table 4, page 60). This may have created a bias in the data, although during the interviews there was much ambivalence in the reported use of the guidelines amongst all the participants. A better approach would have been to add a further criterion or purposive sample within each group (technician and paramedic) to ensure an equal representation of participants by location and grade which may have increased the possibility of all views being reported (Ritchie and Lewis 2008).

The full data analysis and write up of this study was completed on a part-time basis over a period of five years with significant periods of inactivity due to

pressures of full time work. Initially a content analysis of the interviews was completed in 2008. In 2011 the interviews were reanalysed during an iterative process of listening to the recordings and identifying any missed information, any new and existing data was then entered into a framework analysis which provided a more structured approach to interpreting the data. This created a loss of momentum, however the time spent during the reanalysis allowed the author to re-familiarise himself with the content. New themes were defined; however there was not a significant amount of new raw data found during the reanalysis of the interviews, which suggests the initial analysis had been robust.

One interview was conducted with each participant, lasting on average about 23 minutes. Both researchers were novice in research interview techniques which may have been a limiting factor (Finlay and Ballinger 2006). Although each researcher was following a question guide (annexe J) there was an average difference of seven minutes in the length of interviews between the two researchers. This may suggest a difference in style or technique which may have created a bias in data collection (Polgar and Thomas 2008).

Due to the length of time taken to report the findings there may have been some benefit in conducting follow up interviews which may have provided the opportunity for participants to reflect on their comments and use of the guidelines as their personal experience of T&R had increased through time.

Participants selected the location for their interviews, the majority opting for their base ambulance station. The interviews were held in private but due to the

general high levels of activity in an operational ambulance station some of the interviews were on occasions interrupted by other people entering rooms or vehicles etc. However none of the interviews had to be stopped and participants appeared comfortable with the interview environments. It is not possible to state if the interview environments may have been a limiting (or facilitating) factor in the interviews. However there did not appear to be any obvious differences in the momentum of the interviews that were conducted at stations or over the telephone with home workers.

There are differences in the training of ambulance clinicians and the delivery of pre-hospital healthcare both within the UK and internationally, although the increasing demands for unscheduled healthcare and the rates of non-conveyance are very similar (Snooks et al 2002). Consideration to these differences should be given when reading the published literature. These differences and the lack of published T&R guidelines can make a like for like comparison of the use of non-transport guidelines difficult.

4.8 Conclusion

This study and the supporting literature have not identified sufficient evidence to support the use of T&R guidelines in their current format, by traditionally-trained ambulance clinicians. However this does not mean that ambulance clinicians are not capable of making safe non-transport decisions. Emerging evidence from other authors (Mason et al 2003, Cooper et al 2004, Mason et al 2006, Mason et al 2007) have demonstrated that when traditionally trained paramedics are provided

with higher education, support, and deliver care as part of a multi-disciplinary team they can safely identify and treat patients who do not need to attend the ED.

This study has identified some practices which are contrary to policy or not being followed as was intended, which can present risks to the patient, clinician and ambulance service. The conceptual support from policy makers and clinicians to reduce admissions to the ED, accompanied with the desire by ambulance clinicians for further education, may provide a good foundation to develop and improve the education and support process for ambulance clinicians. Education should focus on: examination skills, diagnosis, clinical decision making, risk management and the use of evidence-based guidelines. This should be combined with appropriate implementation/review strategies, clinician-led decision support, management support and the development of care pathways. This type of support structure can provide the ambulance clinician with the skills and confidence to assume the responsibility for non-conveyance of patients to the ED.

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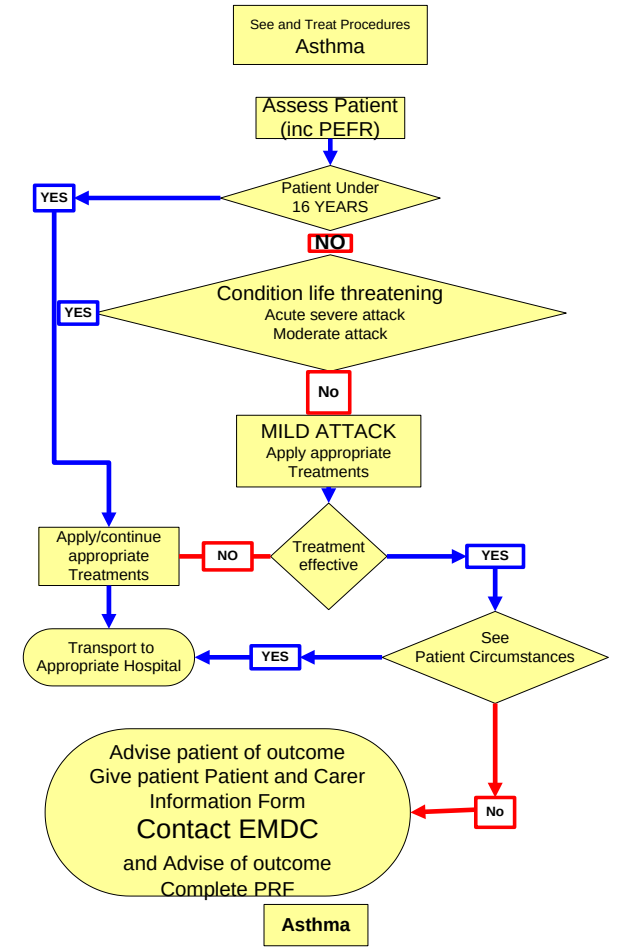
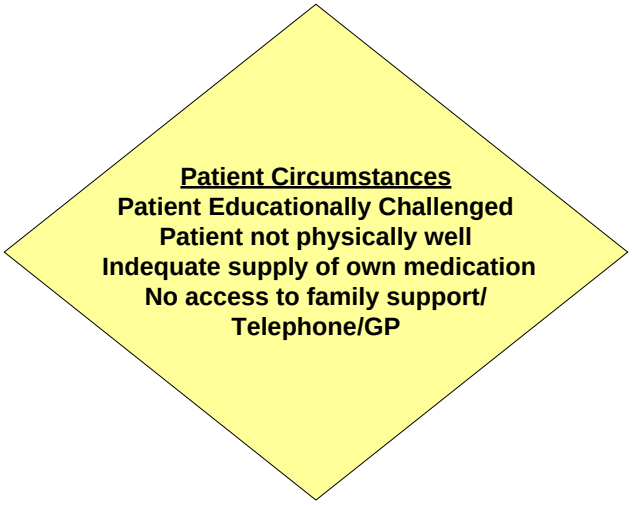
Appendices

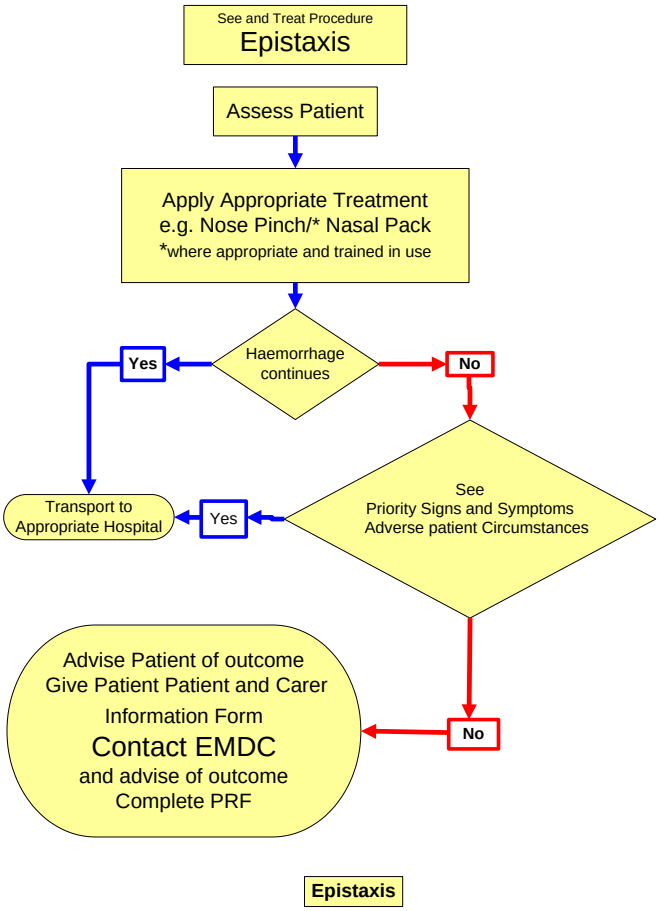

See and Treat Procedures
Asthma
Assess Patient
(inc PEFR)
Patient Under
16 YEARS
YES
NO
Condition life threatening
Acute severe attack
Moderate attack
YES
No
MILD ATTACK
Apply appropriate
Treatments
Apply/continue
appropriate
Treatments
NO
Treatment
effective
YES
See
Patient Circumstances
YES
Transport to
Appropriate Hospital
No
Advise patient of outcome
Give patient Patient and Carer
Information Form
Contact EMDC
and Advise of outcome
Complete PRF
Asthma


Patient Circumstances
Patient Educationally Challenged
Patient not physically well
Indequate supply of own medication
No access to family support/
Telephone/GP


If further Medical advice is needed
Contact NHS 24
0845 4 24 24 24

Treat and Refer Guideline: Epistaxis

Annexe B



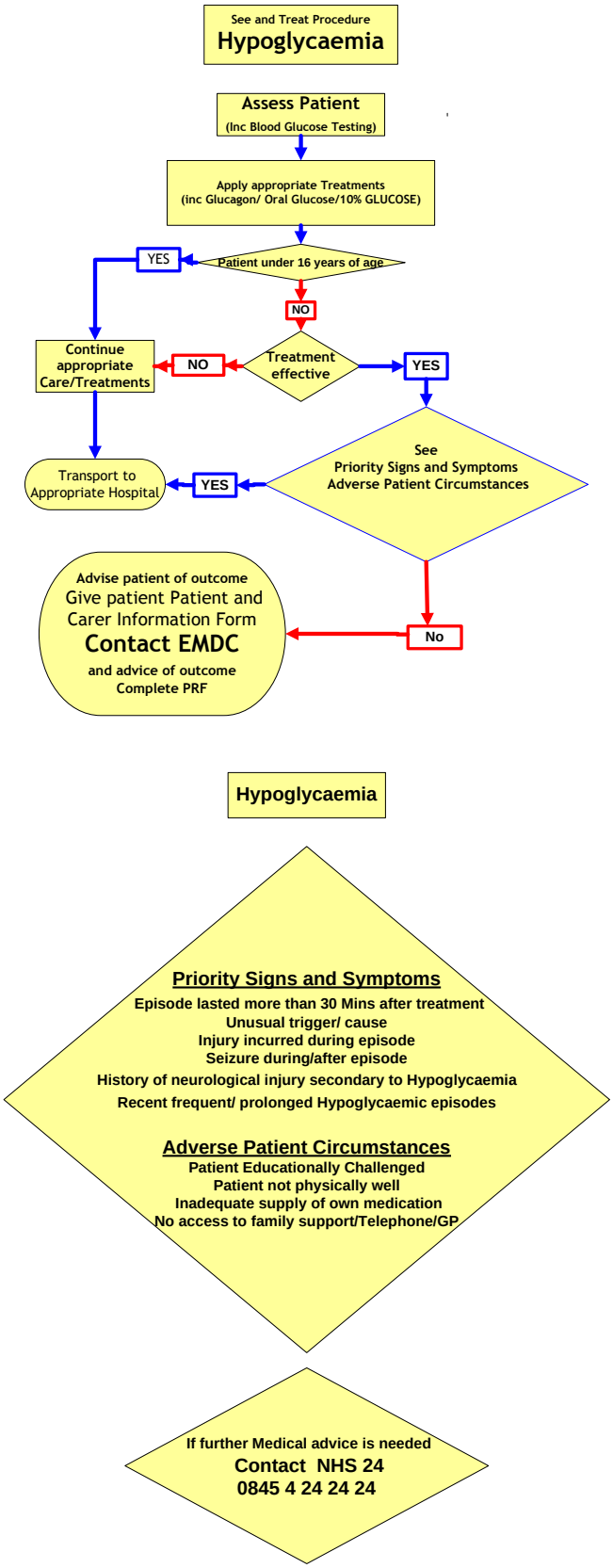
Priority Signs and Symptoms

ABCs compromised
Shock> class 1
Abnormal vital signs
Recent History of Epistaxis, Trauma, Surgery
Patient with bleeding tendancy or on Anti-Coagulant therapy
Underlying cardio vascular related medical condition

Adverse Patient Circumstances

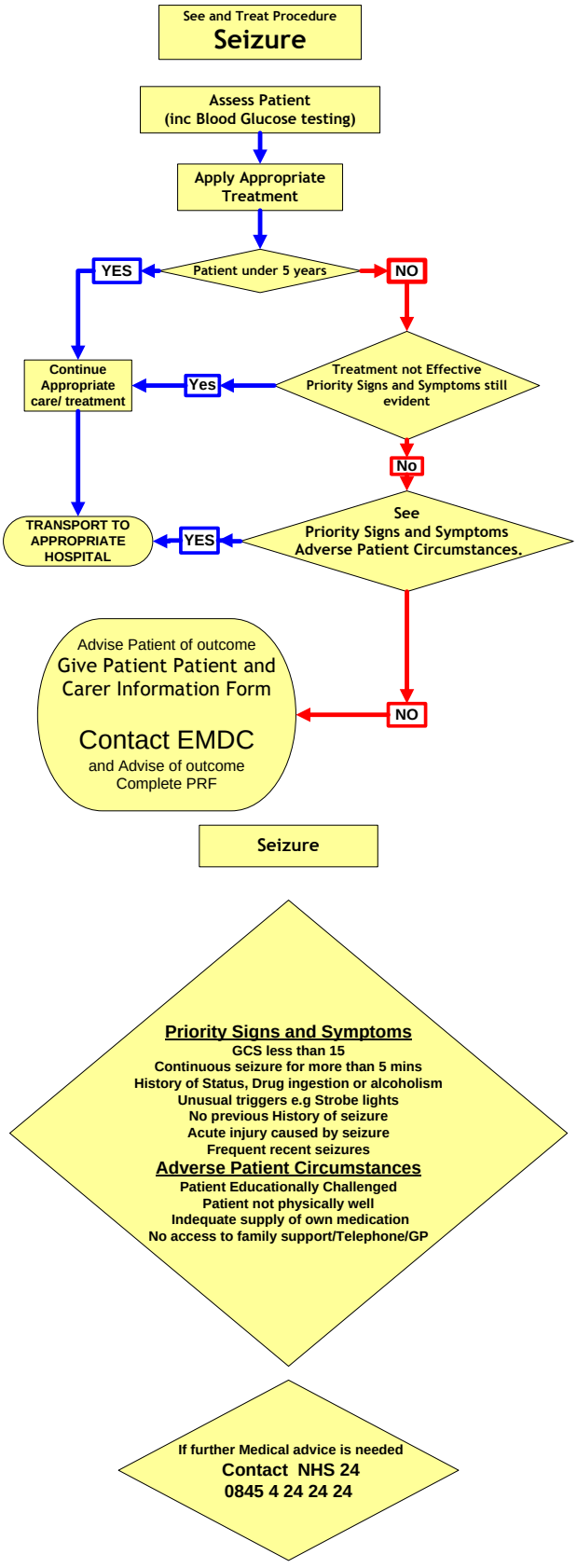
Patient Educationally Challenged
No Access to adequate family support/ telephone/GP

If further Medical advice is needed
Contact NHS 24
0845 4 24 24 24


See and Treat Procedure
Hypoglycaemia
Assess Patient
(Inc Blood Glucose Testing)
Apply appropriate Treatments
(inc Glucagon/ Oral Glucose/10% GLUCOSE)
Patient under 16 years of age
YES
NO
Treatment effective
NO
YES
Continue appropriate Care/Treatments
See
Priority Signs and Symptoms
Adverse Patient Circumstances
YES
Transport to Appropriate Hospital
No
Advise patient of outcome
Give patient Patient and Carer Information Form
Contact EMDC
and advice of outcome
Complete PRF
Hypoglycaemia
Priority Signs and Symptoms
Episode lasted more than 30 Mins after treatment
Unusual trigger/ cause
Injury incurred during episode
Seizure during/after episode
History of neurological injury secondary to Hypoglycaemia
Recent frequent/ prolonged Hypoglycaemic episodes
Adverse Patient Circumstances
Patient Educationally Challenged
Patient not physically well
Inadequate supply of own medication
No access to family support/Telephone/GP
If further Medical advice is needed
Contact NHS 24
0845 4 24 24 24

Treat and Refer Guideline: Seizure

Annexe D



SCOTTISH AMBULANCE SERVICE

CLINICAL NATIONAL BULLETIN NO 02/05

TREAT AND REFER

The first four Treat and Refer inserts for the Clinical Practice Guidelines pocket books have now been distributed and the Treat and Refer programme is now live across the Service with guidelines in place for:

- Asthma (mild)
- Hypoglycaemia (recovered)
- Seizures (recovered)
- Epistaxis (resolved or treated).

Upon following the algorithm staff should be able to identify patients whose condition is such that attendance at or admission to hospital is unnecessary. In these circumstances patients can be safely left at home, according to the guidelines, provided that:

- a patient advice leaflet is completed. This records observations made, treatment carried out and recommendations made and is an important clinical record. The record of observation is most important – for example a patient with asthma should not be left at home unless a peak (expiratory) flow reading has been made and this recorded on the leaflet.

- the patient fully understands what to do if there is any change in his/her condition e.g. redial 999 or NHS24

- the patient understands that he/she should pass the white copy of the Advice Form to a member of the primary care team (GP or District Nurse) when it will become part of the patient notes.

The yellow copy of the patient Advice Form should be attached to the PRF when it will be used for audit of the success and safety of the T&R procedures.

Further conditions will have T&R algorithms developed in due course and further Bulletins will be issued on this subject in the future.

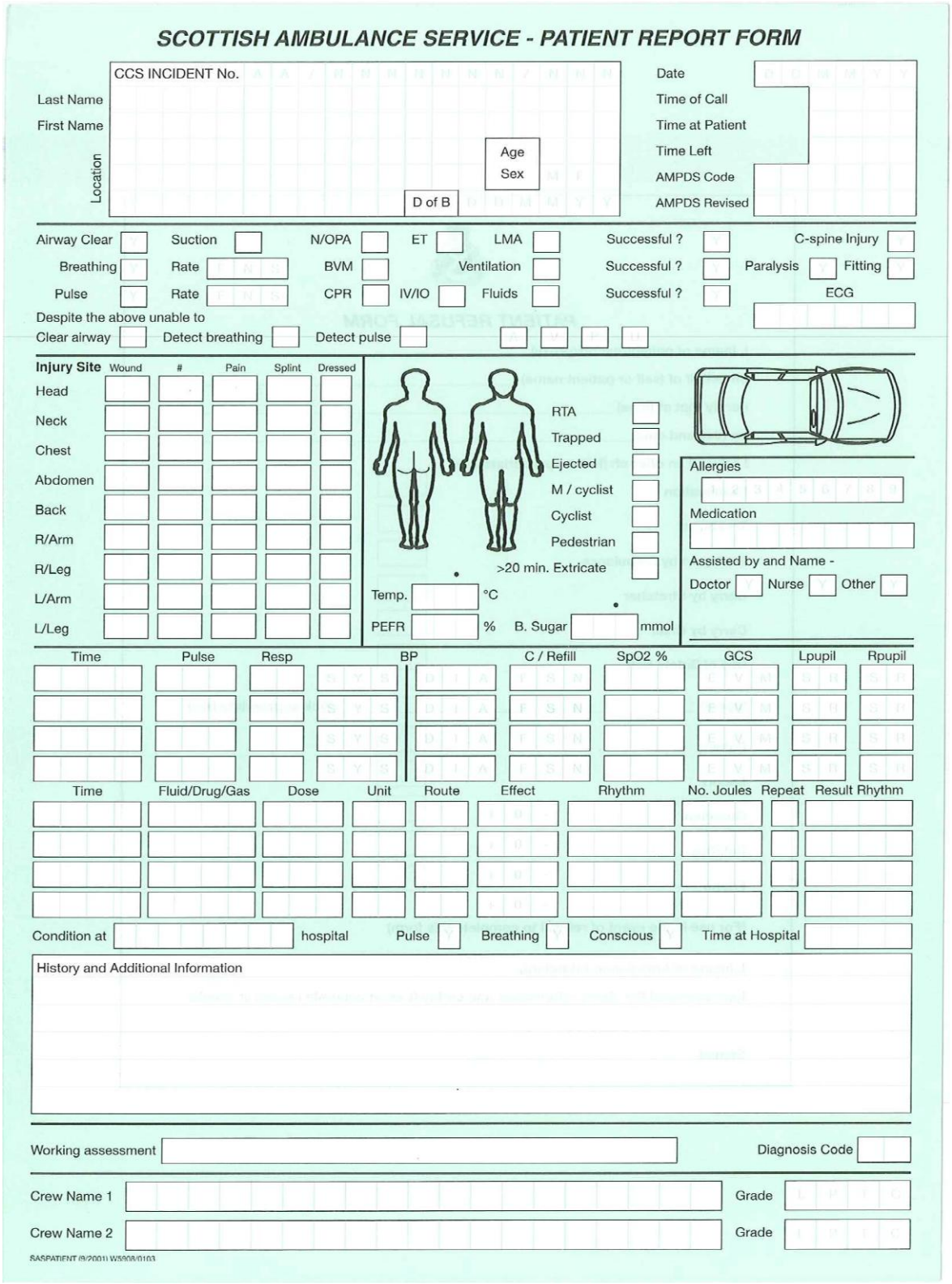
_____

MR A K MARSDEN

CONSULTANT MEDICAL DIRECTOR

10 March 2005

Posted on Notice Board_____



SCOTTISH AMBULANCE SERVICE - PATIENT REPORT FORM

CCS INCIDENT No.

Last Name
First Name
Location
Age
Sex
D of B

Date
Time of Call
Time at Patient
Time Left
AMPDS Code
AMPDS Revised

Airway Clear | Suction | N/OPA | ET | LMA | Successful ? | C-spine Injury
Breathing | Rate | BVM | Ventilation | Successful ? | Paralysis | Fitting
Pulse | Rate | CPR | IV/IO | Fluids | Successful ? | ECG

Despite the above unable to
Clear airway | Detect breathing | Detect pulse

Injury Site	Wound	#	Pain	Splint	Dressed
Head					
Neck					
Chest					
Abdomen					
Back					
R/Arm					
R/Leg					
L/Arm					
L/Leg					

RTA
Trapped
Ejected
M / cyclist
Cyclist
Pedestrian
>20 min. Extricate

Temp. °C
PEFR % B. Sugar mmol

Allergies
Medication
Assisted by and Name -
Doctor | Nurse | Other

Time	Pulse	Resp	BP	C / Refill	SpO2 %	GCS	Lpupil	Rpupil

Time	Fluid/Drug/Gas	Dose	Unit	Route	Effect	Rhythm	No. Joules	Repeat	Result Rhythm

Condition at hospital | Pulse | Breathing | Conscious | Time at Hospital

History and Additional Information

Working assessment | Diagnosis Code

Crew Name 1 | Grade
Crew Name 2 | Grade

SASPATIENT (9/2001) W5000/0103

ALLERGIES		
1	ANTIBIOTICS	
2	ANIMAL SERUM	
3	ANAESTHESIA	
4	ASPIRIN	
5	SHELLFISH	
6	PEANUTS	
7	DAIRY PRODUCE	
8	VENOM	
9	OTHER (Specify)	

Patient Refusal Form **Annexe G**

PATIENT REFUSAL FORM

I, (name of patient/escort/proxy)_____

on behalf of (self or patient name) _____

certify that at (time)_____

on (day and date)_____

I refused an offer of: (Initial appropriate box)

Examination	☐
Treatment	☐
Transport by Ambulance	☐
Carry by Stretcher	☐
Carry by Chair	☐
Use of Safety Belt	☐

Signed _____ (tick appropriate box)

Patient	☐
Escort	☐
Guardian	☐
Relative	☐
Friend	☐

(For use in the event of refusal to complete this form)

I, (name of Ambulance Attendant) _____

have provided the above information and certify it as an accurate record of events.

Signed_____

Treat and Refer Form — Annexe H

SCOTTISH AMBULANCE SERVICE – PATIENT ADVICE LEAFLET

Ambulance No:
CHI No:

(Mr,Mrs,Ms) **.....**(Name), on **.....**(Date) at .....Hrs, an Ambulance attended you because you experienced an episode of : .....

.....

Before treatment your vital signs were:

Temperature				Blood Pressure sys				Pupil size L/R		
Pulse Rate				Blood Pressure dia				Pupil reaction L/R		
Respiratory Rate				G Coma Scale	E	M	V	PEFR		

You received the following treatment(s):

After treatment your vital signs were:

Temperature				Blood Pressure sys				Pupil size L/R		
Pulse Rate				Blood Pressure dia				Pupil reaction L/R		
Respiratory Rate				G Coma Scale	E	M	V	PEFR		

Following a full assessment of your condition and, in accordance with Scottish Ambulance Service Treat and Refer procedures, it is the clinical judgement of the attending crew that you **do not** need to be transported to your Hospital Emergency Department on this occasion. Our advice is that you should**.....**

.....

<u>Please send or take this form to your Doctor to file with your Medical Records</u>

However if there is any change in your condition such as:

- **Another episode of your condition**
- **If you feel unwell in any way**
- **If anyone has any concerns about you**

You should immediately contact:
Your GP, or
NHS 24 on 0845 4 24 24 24 (out of hours), or
Call 999 immediately (quote the Ambulance reference number at the top of this form).

Participant Demographic Questions

Annexe I

1. What is your current grade?

Please tick appropriate box

- Technician ☐
- Paramedic ☐

2. What is your base location?

Please tick appropriate box

- Urban ☐
- Semi Rural ☐
- Rural ☐

3. During an average month how many calls would you normally attend? ☐ calls

4. Have you successfully completed any of the following?

Please tick all that apply

- SAS/Basics Pathfinder ☐
- Dip IMC RCS Ed ☐
- Minor Illness Course ☐
- Minor Injury Course ☐
- Any UK Resuscitation Council Course ☐

1. Have you ever used the 'Treat and Refer' Guidelines?

☐ YES ☐ N

Interview schedule

1. **What do you like and dislike about the idea of Treat and Refer?**

---

2. **How do you feel about each individual condition?**

---

3. **Training - appeared to be an issue for many staff and I wondered what your thoughts were on training in relation to treat and refer?**
   a) Was there enough – why?
   b) Type of training required
   c) What do you feel you need to practise safely

---

4. **Paperwork – do you have any comments about the paperwork required for T&R?**

   a) Was the paperwork available to you?
   b) Was it easy to use?
   c) Have you any ideas how it could be improved?

---

5. **Responsibility – How do you feel about the issues of responsibility of treat and refer?**

   a) Does this affect your judgement on making a decision when leaving a patient at home?
   b) Why is this the case?

---

6. **Litigation – If things went wrong do you feel the support mechanism are in place?**

a) Does this affect your judgement on making a decision when leaving a patient at home?
b) Why is this the case?

---

7. What are your feelings towards the future development of T&R Guidelines and can you suggest some conditions which could be introduced

---

8. Are there any issues that we haven't covered regarding T&R that you'd like to add?

Participant Information **Annexe K**

Nursing, Midwifery and Allied Health Professions Research Unit

R G Bomont Building
University of Stirling
Stirling FK9 4LA

Professor Catherine A Niven, Director

Tel: 01786 466 289
Fax: 01786 466 100

Treat & Refer Participant information

As you will know in April of this year we sent out 600 questionnaires to randomly selected vehicle crew staff in the Scottish Ambulance Service. The purpose of which was to investigate staff opinion on issues surrounding the four 'Treat and Refer' conditions. We were very grateful to you for completing and returning this questionnaire and giving us consent to contact you for this interview.

The first part of this study has been completed and a report is being compiled. The second part, where we are now, involves interviewing 20 people which we hope will give us a better understanding of the issues highlighted from the questionnaires.

The interview is semi-structured and with your permission will be recorded on tape. Any notes will be treated in confidence and access to this information will only be permitted to the researchers at the University of Stirling. Any data used in the study will be anonymised. The Scottish Ambulance Service will not be allowed to view or listen to any identifiable data from this interview.

The questions here have arisen from general themes collectively from our analysis of the initial data from the questionnaire forms.

Before we start have you any concerns or questions that you would like to ask before we start the interview?

GLASGOW CALEDONIAN UNIVERSITY

NMAHP Research Unit is funded by the Chief Scientist Office, Scottish Executive

UNIVERSITY OF STIRLING

CONT/

1. Introduction and outline reasons for study ☐

2. Note: Issue participant 'PARTICIPANT INFORMATION SHEET' prior to commencing interview. ☐

3. Emphasise to the participant they are not required to answer all questions and may withdraw from the interview or study at any time. ☐

4. Ensure 'Consent form' is signed. ☐