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Exploration of handover communication in military and NHS emergency care settings

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ABSTRACT

There is an emerging body of literature on handover communication in civilian emergency care settings between paramedics and hospital receiving staff. However, little is known about how handover is conducted in the UK military and how this might differ from the NHS. The aim of this study was to explore the handover experiences of paramedics who have worked in both organisations in order to learn more about handover communication. The key objectives were to gain further insights into how these experiences changed paramedics' expectations and knowledge of handover, and how they managed the transition between different emergency care settings.

The study was informed by a mixed methods approach. It used semi structured interviews with paramedics who have worked in the NHS and with the Medical Emergency Response Team (MERT). Data from interviews was recorded, transcribed, and organised using Computer Assisted Qualitative Data Analysis (CAQDA). The study was supplemented by reflexive diary entries of handover communication and includes contemporaneous notes, drawings and reflections on handover.

The study showed that there were differences between handover communication in the military and the NHS, and these were driven by organisational culture and mission, patient characteristics, training of health care professionals, and available resources. However, standardisation was a common feature in both emergency care settings. In the military, the ATMIST mnemonic was a key element of standardisation, whilst in the NHS this was driven by the Patient Report Form (PRF). It appeared that transition between different healthcare settings, especially from the military to the NHS, was challenging for paramedics. More research is needed into how paramedics manage these transitions and how they can be supported through this process.

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EXPLORATION OF HANDOVER COMMUNICATION IN MILITARY AND NHS EMERGENCY CARE SETTINGS

Rowena Slope

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No accompanying materials included.

Declaration of authorship

I, Rowena Slope .....

declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

Exploration of handover communication in military and NHS emergency care settings .....

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission.

Signed: Rowena Slope .....

Date: 1 May 2017 .....

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Definitions and Abbreviations

ACS – Acute Coronary Syndrome

ADF – Australian Defence Force

ANA – Afghan National Army

ANP – Afghan National Police

AFNS – Afghan National Security Forces

ALS – Advanced Life Support

AMBO – Allergies, Medication, Background, Other

AMPLE – Allergies, Medication, Past medical history, Last meal, Events leading up

AMU – Acute Medical Unit

ATMIST – Age, Time, Mechanism, Injury, Signs and Symptoms, Treatments

BFA – Battle Field Ambulance

BASICS - British Association for Immediate Care

CAM – Centre for Aviation Medicine

CCRN - Comprehensive Clinical Research Network

CINAHL - Cumulative Index of Nursing and Allied Health Literature

CGO – Clinical Guidelines for Operations

CPR – Cardio Pulmonary Resuscitation

CRBN -Chemical Radiological Biological and Nuclear

CRM – Crew Resource Management

ED – Emergency Department

ECG - Echocardiogram

EMSAC - Experimental Medicine Scientific Advisory Committee

ER –Emergency Room

ERGO – Ethics Research Governance Office (University of Southampton)

ETA - Estimated Time of Arrival

GCS – Glasgow Coma Scale

HIOW - Hampshire and Isle of Wight

ICCCO - Identification, Clinical history, Clinical status, Clinical plan, Outcomes

IDF – Israeli Defence Force

IED – Improvised Explosive Device

IMIST – Identification, Mechanism, Injury, Signs and Symptoms, Treatments

IRB - International Review Board

IRAS - Integrated Research Application System User Account

ISAF – International Security Assistance Force

JRAMC – Journal of Royal Army Medical Corps

JSP – Joint Service Publication

LAS – London Ambulance Service

MDHU – Military Defence Hospital Unit

MERT – Medical Emergency Response Team

MIST – Mechanism, Injury, Signs and Symptoms, Treatments

MoD – Ministry of Defence

MODREC – Ministry of Defence Research Ethics Committee

NATO – North Atlantic Treaty Organisation

NCEPOD - National Confidential Enquiry into Patient Outcomes and Deaths

NHS – National Health Service

NIHR – National Institute for Health Research

NOK – Next of Kin

PRF - Patient Report Forms

PTSD – Post Traumatic Stress Disorder

RAF – Royal Air Force

RAFCAM – Royal Air Force Centre for Aviation Medicine

RfPB – Research for Patient Benefit

RS - Resolute Support

RSI – Rapid Sequence Induction

SBAR – Situation Background Assessment Response

SCAS – South Central Ambulance Service NHS Foundation Trust

SSI – Site Specific Information form

SOAP - Subjective, Objective, Assessment, Plan

TARN – Trauma Audit Research Network

UHS – University Hospital Southampton NHS Foundation Trust

Chapter 1: Background

1.1 Introduction

The aim of this study was improve our understanding of handover communication as it is practised in the NHS and the military by interviewing paramedics about their experiences of working in these different environments. I was also interested in how paramedics manage the transitions between these two diverse emergency care settings. This study represents an extension of an earlier National Institute for Health Research (NIHR) Research for Patient Benefit (RfPB) funded ambulance handover study led by Professor Catherine Pope and Dr Robert Crouch, entitled Improving the Quality of Ambulance Crew Handovers. This study took place between 2009 and 2011 and involved observing communication between healthcare professionals, analysing patients' copied and anonymous records, and carrying out semi-structured interviews with crews, staff and patients in NHS settings.

The study *Improving the Quality of Ambulance Crew Handovers* identified a number of challenges to ambulance handovers. Information decay occurred when information passed between multiple people was either lost or changed and there was sometimes failure to see the relevance of some information; inaccurate information or limited communication made it harder for other healthcare professionals to plan and manage patient care effectively. Another study involving an audit of pre hospital and Emergency Department (ED) resuscitation room patient records identified concerns about the accuracy of information transfer (Murray et al, 2012). Of 100 records examined inconsistencies were identified in 26 records. Discrepancies covered timings of incident, patient allergy status, medication omissions and conflicting anatomical references. The authors of the study called for further research in the area of communication and information transfer to improve patient safety and delivery of care. The study by Murray et al (2012) demonstrated that communication plays an important role in handover between paramedics and hospital receiving personnel.

This PhD thesis extends the work of the NIHR study *Improving the Quality of Ambulance Crew Handovers* by looking at handover communication in more detail and in different contexts in order to facilitate comparison. I was inspired to explore the way handover is conducted in the military because of my background as a nurse working in Emergency Departments (ED) in the NHS and as a flight nurse in the RAF auxiliary reserves. During the recent conflict in Afghanistan, the UK military was responsible for operating the hospital at Camp Bastion and handover protocols were governed by the MoD's *Joint Service Publication* (JSP) on *Clinical Guidelines for Operations* (CGO) (2013).

Operation Herrick is the name given to the activities of British military forces in Afghanistan between 2002 and 2014. Many of the medical personnel who served there were drawn from regulars and reservists from the RAF, Army and Navy. The international composition of the military personnel and their roles varied, as did the service and squadrons from which those personnel were drawn. **I** decided to focus on the RAF because of my reservist commitment, their responsibility for supplying personnel including paramedics to the Medical Emergency Response Team (MERT), and their expertise in aviation medicine and medical evacuation. This research captures some of the experiences of paramedics who handed over patients at Camp Bastion, the British run military hospital in Afghanistan. The focus for the military aspects of my study was this setting.

I was interested in focusing on paramedics because I had the opportunity to train alongside them in the military and exchange ideas about handover communication. It was apparent from the literature review, that paramedics are an under represented occupational group within academic research. Many of the paramedics that were recruited for the study were regulars which means that they were full time serving members of the military, others were reservists who have full time civilian employers but maintain a part time commitment to the military and can be deployed to conflict zones and called up in times of national emergency.

1.2 Evolution of handover protocols in the NHS

In the course of the study I did not find a civilian equivalent of the MoD Clinical Guidelines for Operations (2013) which describes military handover protocols in emergency care settings. However, I was able to locate a number of publications relating to trauma care and handover communication. It was evident that in the 1980s and 1990s there was growing concern among emergency clinicians in the UK that more could be done to improve survival rates of trauma patients. These clinicians were inspired by the work of researchers and clinicians in North America and the development of new methodologies for calculating survival rates. In 1998 the Royal College of Surgeons stated that trauma management should include the following features:

- Enhancing pre-hospital care, ensuring appropriate medical intervention
- Rapid transfer to the best local facility
- Assessing the use of helicopters
- Adopting ALS (Advanced Life Support) principals
- Integrating trauma services within and between hospitals
- Investing in rehabilitation services

- Audits and Research injury and systems of care (TARN, 2015).

The most significant document relating to trauma care and the transfer of trauma patients from the pre-hospital environment to the hospital produced by the NHS was published in 2007. The report, entitled *Trauma: Who Cares?,* was the result of a National Confidential Enquiry into Patient Outcome and Death. The National Enquiry was conducted following concerns that outcomes for trauma patients in the UK was poor in comparison to other post-industrialised countries. The report does not go into the level of detail on trauma care produced by the MoD's Clinical Guidelines for Operations (2013) but it does recommend that hospitals should form trauma teams and that these should be led by a consultant from a relevant speciality during normal working hours (NCEPOD, 2007, p.61).

There is little information in the report *Trauma: Who Cares*? regarding what healthcare professionals should be included in the trauma team, what their roles or tasks should be, how they should be arranged or any guidance on how handover should take place between paramedics and hospital receiving staff. The report stresses the importance of pre-alerts, whereby ambulance crews inform hospitals in advance that they are bringing in a very unwell patient, between hospitals and ambulance trusts and the criteria for issuing such alerts (NCEPOD, 2007, p.61). It also discusses the importance of patient report forms and recommends that:

> *"Ambulance trusts should work together to standardise the content and layout of the Patient Report Form (PRF), and ensure that it is fit for purpose and facilitates comparative audit. Clinicians must ensure that a PRF is received for every patient and secured in the medical Record."* (NCEPOD, 2007, p.48).

The Patient Report Form (PRF) consists of an A3 size paper form (some ambulance trusts have adopted electronic forms) which consists of the following information: patient and crew details, call times, presenting complaint, primary and secondary surveys, drugs administered to the patient, cannulations, mental capacity and consent, past medical history (including medications and allergy status), treatment plan, non-conveyance options, and hospital details.

Enduring concern about care of trauma patients led to the formation of an intercollegiate group on trauma standards who were tasked to produce standards and guidelines for planners, commissioners and deliverers of trauma care. The Royal College of Surgeons published the group's findings in a report entitled *Regional Trauma Systems: Interim Guidance for Commissioners* in 2009. This report included

guidance on the requirements for becoming a trauma centre and outlines how a regional trauma system should be established. The report provides some guidance on the configuration of trauma teams, makes reference to the presence of a band 7 nurse (senior grade) at all times in the ED (2009, p.38) and sets out the criteria for the 'designated trauma resuscitation team".

The report outlines requirements for submission of data to the Trauma Audit and Research Network (TARN), clinical leadership, equipment to be held in the resuscitation room, and transfer protocols (2009, p.27-28). It does not provide the same level of guidance or detail on trauma team configuration as the *MoD Clinical Guidelines for Operations* (2013) publication or information on handover communication. TARN was established to monitor and improve trauma care in the UK through audits and research as trauma remains the most common cause of death in under 44s and leads to 10,000 deaths in England and Wales each year (TARN, 2015).

In 2010 the government announced a large scale reform program of the NHS which had implications for trauma care. The Department of Health published its Operating Framework for the NHS in England 2011/12 and this provided for the establishment of regional trauma networks:

> "*All regions should be moving trauma service provision into regional trauma network configurations in 2010/11. Tariff changes will be introduced from April 2011 that are designed to recompense for the complexity of multiple injury patients. Designated Major Trauma Centres should be planning the continuous provision of consultant led trauma teams, immediate CT scan opticians, and access to interventional radiology services for haemorrhage."* (2010, p.43)

There was no mention of handover communication between paramedics and hospital receiving staff or further guidance on what the trauma team should look like or how it should manage patients in the operating framework. The intention to set up regional trauma networks was confirmed by the Department of Health when it published the *Operating Framework for the NHS in England 2011/12*. The latest report from the Association of Ambulance Chief Executives entitled *Zero Tolerance. Making Ambulance delays a thing of the past* does focus on handover and helpfully defines 'clinical handover' and 'patient handover' (2012) (see Table 1) but its main focus is around preventing delays.

Table 1 Clinical and patient handover

Clinical handover	**Patient handover**
The time at which essential clinical information about the patient has been passed from the attending LAS* crew to a clinician within the ED to allow a decision about where ongoing treatment can safely be delivered. This should happen immediately upon LAS arrival in ED/receiving department.	The time when clinical handover has been completed and the patient has been physically transferred onto a hospital trolley bed, chair or waiting area, and the LAS equipment has been returned to crew enabling them to leave. Handover is captured at this point in the process.

*London Ambulance Service (LAS)

Source: NHS Confederation in conjunction with the Association of Ambulance Chief Executives, 2012, p.12.

The report defines the handover process and what should happen at each stage but appears to focus predominantly on timings. The target is 15 minutes maximum for the entire handover including physically handing over the patient and the crew discharging their duties (as well as retrieving and cleaning equipment, and preparing the ambulance) and making themselves available for the next job. The process is broken down minute by minute according to the following Table 2:

Table 2 the handover process

Minute	**Action**	**Clock**
1	Acute site receives notification of impending arrival	
2	Ambulance arrives	Acute clock starts
3	Patient taken from ambulance to ED or appropriate receiving	
4	Ambulance staff formally department acknowledged by ED staff	

5	Verbal discussion between ambulance staff and acute clinicians; patient assessed and streamed to appropriate destination. Clinical handover; time recorded	
6	Patient transfers physically to acute chair or cubicle, ambulance equipment returned and ambulance staff free to leave. Patient handover	Acute clock stops/ambulance clock starts
7	Ambulance staff now free to complete their paperwork and clean the vehicle	
8	Ambulance staff return to service, notifying the ambulance control centre	Ambulance clock stops

Source: NHS Confederation in association with the Association of Ambulance Chief Executives, 2012, p.13.

Regional trauma networks were established in 2012 to improve trauma care in the UK with the intention of saving 450 to 600 additional lives a year (NHS England Major Trauma Care, 2012). These emphasised the importance of identifying trauma patients as early as possible (ideally at site of injury) and transporting them by ambulance to the nearest regional trauma centre even if that meant by passing a hospital that was nearer (NHS England Major Trauma Care, 2012). Good trauma care was identified as follows:

- Prevention
- Initial contact
- Pre-hospital assessment
- Acute trauma care
- Acute or specialist trauma rehabilitation
- Community of general rehabilitation (NHS England, 2012).

This represents a complete trauma pathway and includes the prevention of accidents and specialist care from first alert to discharge in the community. NHS England has produced 12 month contracts designed for hospitals who have been designated regional trauma centres and covers paediatric and

adult trauma. The trauma contracts do not spell out the configuration of trauma teams but they offer guidance about the types of specialists who should be available. They spell out how patients who meet the trauma criteria should be identified in the pre hospital environment, the protocols for admission to major trauma centres including triage, configuration of trauma teams and specialists and detailed patient care pathway (NHS, 2014). The specifications for emergency care and surgery are as follows:

> *" – 24/7 consultant available on site to lead the trauma team*
> - *The trauma team should be appropriately trained and competent to deliver their role (…)*
> - *Trauma team present 24 hours a day for immediate reception of the patient*
> - *Ability to undertake resuscitative thoracotomy in the emergency department (ED)*
> - *A massive haemorrhage protocol in place for patients with severe blood loss which includes the administration of tranexamic acid within 3 hours of injury, and transfusion specialist advice should be available 24 hours a day*
> - *24/7 immediate availability of fully staffed operating theatres*
> - *All emergency operative interventions performed with the first 24 hours should have evidence of consultant involvement, and consultant presence in the operating room for life- or limb-threatening injuries. A consultant will be involved in surgical decision making; Emergency trauma surgery will be undertaken or directly supervised by consultants (…); There will be a network protocol in place and operational at the MTC for assessing the while spine in Major Trauma patients*
> - *Consultants available on site within 30 minutes when required; Neurosurgery; Spinal and spinal cord surgery; Vascular surgery; General surgery (adult or child); Trauma and Orthopaedic surgery; Cardiothoracic surgery; Plastic surgery; Maxillofacial surgery; Ear nose and throat surgery; Anaesthetics; Interventional radiology; Intensive care.*
> - *For Children's MTC, where the incidence of major trauma overnight is demonstrably low, a consultant should be immediately available on site to lead the trauma team between 8am to midnight. They should be available on site within 30 minutes of receiving an alert call at all other times*. (2013, p.6)

As can be seen, most emphasis is placed on the continued presence and availability of specialist consultants. Again, there is no further comment on handover communication in the ED in respect of paramedics and receiving teams apart from a general reference to effective communication on page 9. There is mention of crew resource management in the Appendix 6 relating to training but no references were included.

In 2012 the Royal College of Surgeons of Scotland commissioned and published a report entitled '*Trauma Care Scotland'* which recommended the introduction of a regional trauma system in Scotland whereby "*On arrival at the hospital, a structured handover should be given to the receiving team.*" (2012, p.10) but there was little further guidance on handover or trauma team configuration or roles. Today there is still little NHS guidance on the configuration of trauma teams, the roles and tasks of each member, the spatial arrangement during handover, or any guidance on how ambulance crews should handover patients to hospital receiving staff. Reports produced by the Trauma Audit and Research Network (TARN) would appear to indicate that survival rates are improving for trauma patients in the UK but this picture is not consistent across the country and the data is not complete.

1.3 Crew Resource Management

At this point it is useful to include an explanation of non-technical skills including Crew Resource Management (CRM) referred to in the handover literature and by the paramedics in the interviews conducted for my research. CRM is a way of thinking designed by the aviation industry in the USA to prevent accidents caused by human error. Helmreich et al have outlined how crew resource management evolved from the 1980s where it was primarily concerned with the non-technical skills within the cock pit to the development of error management strategies (2001, p.7).

By the mid-1990s interest in CRM had crossed to northern Europe (Flin and Maran, 2004).There has been increasing interest from healthcare professionals, academics and managers regarding the potential of crew resource management in healthcare particular in high acuity areas where errors can have more serious impact on patient outcomes. Flin and Maran (2004) explain how a training programme for anaesthetists had been established which included clinical scenario training, and examination of performance. This programme was developed to include working in the emergency department which was identified as a high risk area due to the time pressures, stress, patient acuity and presence of different professionals that needed to work together.

It used high fidelity simulation training and identified issues around leadership between professionals in the ED. Flin and Maran (2004) explain how these type of medical environments share characteristics with commercial cockpits where hierarchical teams must sometimes work with personnel they are not familiar with. The key messages that from this paper were as follows:

"When extrapolating from industrial or military settings to health care, the similarity of the task and team characteristics should be confirmed.

Flight deck teams provide a good analogy for certain types of teams in acute medicine.

Aviation CRM training can be adapted for health care.

Before designing CRM training, task analysis should be conducted to identify component non-technical (cognitive and social) skills.

Simulation provides an excellent method for training these skills.

Mixed discipline simulation training should be developed where appropriate." (Flin and Maran, 2004, p.i84)

1.4 Focusing on paramedics

Many of the studies carried out on ambulance handover so far have considered perspectives from separate occupational groups. These papers have reported that receiving staff at hospitals would like paramedics to provide more structured and consistent handovers, whilst paramedics would like receiving staff to listen better to their handovers (Thakore and Morrison, 2011; Yong et al, 2008). The work of the preceding ambulance handover project by NIHR project included interviews with, and observation of various healthcare professionals. However, extending the scope of this doctoral study to other healthcare professionals was not possible due to time and resource constraints.

Moreover, paramedics have a unique role in the patient journey and deliver the handover in the ED. The previous study carried out into handover primarily concentrated on paramedics who remain an under researched group in comparison to other healthcare professionals. A study that focuses primarily on the experiences of paramedics will provide insights into this profession which might otherwise be lost or watered down. For these reasons my doctoral study focused primarily on paramedics. Some supporting interviews were undertaken with other healthcare professionals to provide expert reflections on the issues but were not the focus of the analysis.

1.5 Aims and objectives

The aim of this study was to improve our understanding of paramedic handover communication by exploring the experiences of paramedics who have worked in military and NHS emergency care settings. The key objectives of this study were to gain further insights into how handover communication is practised in the NHS and the military, how working in these environments changes

paramedics' expectations and knowledge of handover, and how they manage the transition between performing handover in two diverse organisations.

The core research question was:

What are the differences between military and NHS handovers?

According to Hodgetts and Mahoney there are potential benefits of studying both systems whilst acknowledging their differences**:**

> "*There are significant differences between the civilian military pre-hospital trauma systems relating to patient load, injury severity and the nature of the environment. This is reflected in differing clinical paradigm and treatment protocols. There is opportunity, however, for the two systems to learn from each other, which is particularly relevant at the time the UK is actively engaging with defining the requirement for trauma centres and the re-configuration of civilian trauma systems"* (2009, p.8).

Both emergency care settings operate under pressure but these pressures come from different sources. Hospitals and ambulance trusts in the NHS are under pressure to meet targets set by the government. EDs have to meet performance management targets (95% of patients to be seen or discharged within 4 hours or the hospital is fined), ambulance services must meet 8 minute response times for category A calls, and paramedic handover must be completed within 15 minutes. This emphasis on timings is reflected in the NHS literature on handover which focuses primarily on time keeping. In the military, the pressures come from the nature of war time operations, environmental constraints, and supplies and logistics. Access to specialists such as anaesthetists, surgeons, radiographers, Acute Coronary Syndrome (ACS) practitioners, orthopaedic consultants, obstetricians and paediatricians, can be complicated in the NHS due to lack of 24/7 coverage, geographical location away from the ED and the existence of local protocols governing when and how to seek advice. EDs within the NHS were originally designed for fewer patient numbers, and space, noise and light can be significant issues. Camp Bastion had dedicated orthopaedic surgical specialists and trauma teams but not all specialist treatments were available and patients with eye and brain injuries had to be transferred to other hospitals in Afghanistan by aircraft.

Deployments are relatively short due to their physically and psychologically demanding nature and teams are constantly having to reform. This list of differences is by no means exhaustive and will be explored later to include patient type and presentation. Although the core focus of this study was comparative, I was interested in understanding the wider experience of transition because it was relevant to handover practise. This led to the formulation of additional questions:

How does military experience affect paramedics' expectations and practise of handover in the NHS?

How do paramedics' manage the transition between these two environments?

I was interested to see whether these experiences affected their handover practise, their expectations of handover communication and relationships with colleagues. From my time as a reservist I was aware that there were are many differences in organisational culture, hierarchies and rank structures, regulations and policies, inter professional team working, training and equipment, organisational purpose, communication systems, hazards and risks, and hospital and pre hospital environment between the NHS and the military setting at Camp Bastion. These differences might be significant in changing paramedics' expectations of handover communication and how they manage the transition between these environments. The literature review showed a growing interest in handover communication particularly with respect to the ED but very little awareness of handover communication in the UK military or the challenge of transition between emergency care settings, making this a timely piece of research.

1.6 Layout and contents of thesis

Chapter one provides an introduction to this study and explains how the interest in the subject matter arose and why it is important. The second chapter looks at the search strategy, the results of the literature research and provides a critical appraisal of the handover communication literature on military and civilian emergency care settings including NHS policies and guidance. The third chapter focuses on methodology, methods and ethics and how data collected was coded and analysed using NVIVO version 10. Chapter four explains the research context and provides an overview of the reflexive diaries whilst chapter five provides the results of the data analysis. Chapter six focuses on the issues around transition and chapter seven includes a discussion. The final chapter presents the conclusion and recommendations for practise.

Chapter 2: Literature search

2.1 Search strategy

The main focus of this study is handover communication in military and NHS emergency care settings between paramedics and hospital receiving staff, and this was the basis of the search strategy for the literature review. Librarian specialists advised carrying out two separate literature searches, the first looking at handover communication in the military and the second in civilian hospitals. Preliminary searching of Cumulative Index of Nursing and Allied Health Literature (CINAHL), google scholar and Medline databases suggested that few papers were published on handover or military handover before 2000 so the search focused after this date. This time period roughly coincided with the start of the conflict in Afghanistan which began in 2001; indeed there was no literature on handover communication in military based emergency care settings before 2004.

Key words were generated using suitable tools and these were tested in a number of major search data bases including google scholar, CINAHL, Medline, and relevant individual journals such as the Journal of Royal Army Medical Corps (which is now part of the British Medical Journal) and the Emergency Medicine Journal. Searches were made of individual journals that represented professional groups to ensure that nothing had been missed by using the meta search engines. The power of meta search engines has grown exponentially over the last few years, together with the volume of literature published, and this has made key word selection important. A key word search on 'handover' yielded 32,000,000 results in google and 320,000 in google scholar in July 2016 whilst 'handover communication' returned 588,000 and 164,000 papers respectively.

The literature on handover communication includes handover in a diverse range of clinical environments. Some of these articles were useful to this study because they examined human behaviour, crew resource management and different handover tools. However it would not be practical to include all of the papers on handover communication in the literature review because the vast majority of this work is not relevant to handover in the ED between paramedics and hospital receiving staff. I therefore restricted inclusion of literature to papers relevant to handover communication in the ED.

A third review of the literature was conducted to examine the concept of transition as the earlier searches on handover communication had not uncovered anything relevant to this subject area. This

involved a search of journals such as the Human Resource Management Journal, Emergency Medicine Journal, Journal of Royal Army Medicals Corps, Journal of Occupational and Organisational Psychology, Journal of Paramedic Practise and International Paramedic Practise. However this literature review did not uncover any references to the experiences of paramedics making the transition between military and civilian environments despite extensive searching.

2.2 Key word selection

The PICO and SPICE tools were used to refine the search terms for the literature on paramedic handover in civilian and military settings and the results can be seen in Table 3. This generated four key words: 'handover', 'paramedic', 'communication' and 'safety'. Glasper and Rees advocate the use of these tools to help formulate a research question because they help create a "precise and answerable question" and assist with the literature review (2013, p.86). These are helpful for organising thoughts, pinning down the question and identifying the most productive research terms. It was necessary to search for the North American term for handover 'handoff' in order to identify papers that might otherwise be missed. The use of all four key words 'handover + paramedic + communication + safety' proved too restrictive for the literature search so this was extended to 'handover + paramedic' for the smaller journals such as the Emergency Medicine Journal. The results of this can be found in Table 4 and 5:

Table 3 Results of PICO and SPICE tools

PICO/SPICE	**Key words**	**Additional words**
P (Population)	Paramedics, ambulance, patients, military	RAF, Army, Navy, MERT Pedro, IDF
I (Intervention)	Handover training, evaluation of tools, ATMIST	Teaching sessions
O (Outcome)	Clinical safety	
S (Setting)	Pre hospital, ED, resuscitation room, NHS	
P (Population)	Paramedics, ambulance, patients, military	RAF, Army, Navy, MERT, Pedro, IDF
I (Intervention	Handover communication, ATMIST	Hand over, Handoff, Hand off, Medevac

C (Comparison)	NHS, military	Operation Herrick
E (Evaluation)	Audit, semi-structured interviews	Governance

Search terms relating to handover communication were similar for military and civilian handover communication but differed when it came to transition and evolved from the key words identified by PICO and SPICE. It should be noted that the term 'NHS' was not used as a search term because some of the work on handover in the ED has been conducted outside of the UK (although very little of it on military handover and none on how healthcare workers make the transition between military and civilian emergency care settings).

Table 4 Key words for civilian handover

Key words	**Additional words**
Handover	Hand over, Handoff, Hand off
Paramedic	Ambulance
Communication	Verbal, Nonverbal, electronic, paper, ATMIST
Safety	Audit, governance

Table 5 Key words for military handover

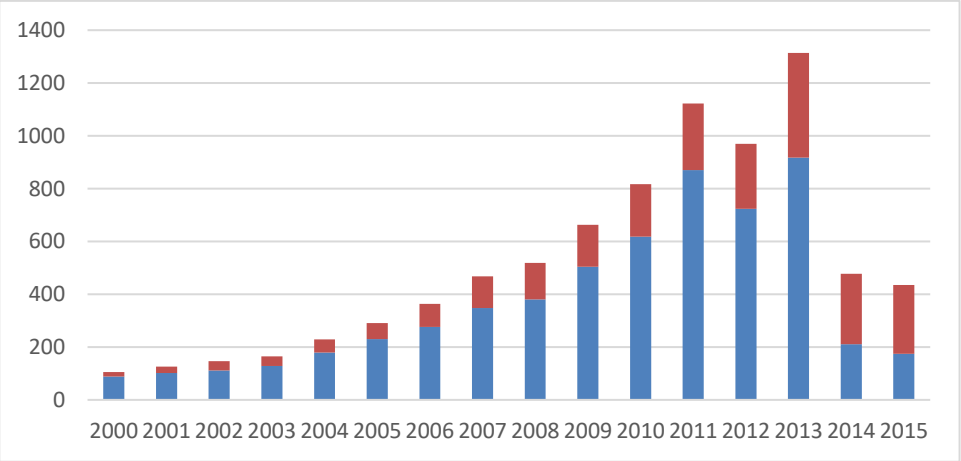
Key words	**Additional words**
Handover	Hand over, Handoff, Hand off
Paramedic	Ambulance, reservist
Military	RAF, Navy, Army, MERT, Pedro, Dust off, IDF, ATMIST
Afghanistan	Operation Herrick

2.3 Initial results of the literature search

Broad search categories were used to investigate the literature available and then narrowed down using further search terms. The types of study were split almost 50:50 between qualitative and quantitative studies and many of the results overlap and were picked up by different search engines and journals.

The Google scholar metasearch engine returned the greatest number of studies and a further search was undertaken to pick up trends over time. There was an expansion of interest in handover from 2000 onwards when there were 89 studies that Google scholar could locate for 'handover + paramedic + communication + safety' and as can be seen in Table 6 this had increased to 174 in 2015. The literature on military handover was much smaller than for ambulance handover. The highest number of results were returned by Google scholar and Wiley Online library. However, some of these references were comprised of opinion pieces and works of fiction, and contributed little of clinical value to understanding handover in the military. The Journal of the Royal Army Medical Corps (JRAMC) returned fewer results but scored highly for relevance; nevertheless many of these papers focused on clinical issues and the challenges of working in the conflict in Afghanistan. Several papers in the JRAMC provided information on the operational context of handover on the frontline in Afghanistan.

Table 6 Google scholar timeline



Blue: Handoff, Brown: Handover

2.4 Critical review of the literature using CASP

Before undertaking the critical appraisal of the literature I reviewed a number of tools including Bluff and Cluett (2006) flow chart for critiquing qualitative and quantitative literature. These tools inspired the critical appraisal and papers were also assessed using the Critical Appraisal Skills Programme (CASP) ten questions. CASP was established in 1993 *"in response to the need for developing skills in health care staff to meet the challenge of Evidence Based Medicine."* Only studies that met the CASP criteria were included in the paramedic handover critical appraisal. The ten questions are as follows:

CASP ten questions

1. **Was there a clear statement of the aims of the research?**
2. **Is a qualitative methodology appropriate?**
3. **Was the research design appropriate to address the aims of the research?**
4. **Was the recruitment strategy appropriate to the aims of the research?**
5. **Was the data collected in a way that addressed the research issue?**
6. **Has the relationship between researcher and participants been adequately considered?**
7. **Have ethical issues been taken into consideration?**
8. **Was the data sufficiently rigorous?**
9. **Is there a clear statement of findings?**
10. **How valuable is the research?** Source: CASP, 2013

It was possible to be strict with the inclusion criteria due to the plethora of studies available which related to handover communication in the civilian environment. Therefore studies were rejected if their subject matter did not involve handover communication in the emergency department and/or did not meet the CASP criteria. From an initial 117 studies identified by the search terms on handover communication in the civilian setting, 80 studies were rejected for these reasons. It quickly became apparent with the other literature reviews on handover communication in military settings and transition that there were few studies that would meet such strict criteria. Instead materials were rejected if they did not refer to emergency medical care in Afghanistan and this led to the inclusion of 16 sources. With regards to transition, studies were rejected if they did not refer to the military or healthcare setting or did not offer a contribution to the developed of transition theory.

A number of papers were reviewed but ultimately rejected from the critical appraisal on handover communication in the civilian setting despite offering valuable insights on interdisciplinary working (Elmqvist et al, 2010), safety cultures (Sujan and Felici, 2012) and handover communication (Siemsen et al (2012), Toccafondi et al (2012) Kerr (2002), McFetridge et al (2007), and Smith et al (2014). The study by Siemsen et al (2012) interviewed nurses, doctors, healthcare assistants, radiographers and orderlies and its findings were consistent with many of the paramedic handover studies which found that handovers were complicated situations and safety cultures immature. McCann et al (2013) produced a study using ethnography which found that professionalisation remained contested amongst paramedics. However, these papers were rejected because they did not refer to handover between paramedics and hospital receiving staff.

A number of studies looked promising initially because they examined some aspect of pre-hospital care or paramedic practice. Aftyka et al (2013) compared ambulance responses to incidents of Medical Emergency Teams led by nurses and paramedics but only considered interventions performed by paramedics and nurses and not handover communication. Bell et al (2005) looked at the feasibility of introducing physician led response units designed to augment pre-hospital emergency medical care. Studies by Harris et al (2012) and Jenkins et al (2014) looked at trauma systems but did not consider handover communication between paramedics and hospital receiving staff. A paper by Mellick and Adams (2009) discussed leadership and organisation of trauma teams but was not included in the critical appraisal because it was a discussion piece that did not add to an understanding of paramedic handover. Nevertheless, a visual representation of an ideal trauma system provided by Mellick and Adams (2009) was included for comparison with the Sarcevic (2007) and MoD (2013) representations.

Mort et al (2015) looked at a joint venture between the Scottish Ambulance Service and academia to develop software to help support Community First Responders manage their patients. Medical sensors and specialist software were used to automatically produce a handover report, and demonstrated another application of information communication technology in the pre-hospital environment. This paper demonstrated how academia might work with the ambulance service to develop technological solutions to improve communication between emergency personnel and hospital receiving staff. However this study concerned Community First Responders who are volunteers not trained paramedics but it showed how technological solutions might be used to facilitate handover communication in the future.

An article by Calkin (2012) looked at the controversy over penalties incurred by ambulance trusts for handovers that take too long. Clarey et al (2013) and Cronin et al (2005) examined initiatives aimed at reducing handover times by introducing a dedicated nurses and rapid assessment. A study by Vaught et al (2006) examined handover between paramedics and the ED but was focused entirely on electrocardiographic transmission and was only relevant to patients with acute myocardial infarction. Finally, Sexton et al (2000) looked at teamwork and stress in medicine and aviation but did not cover paramedics or handover communication.

2.4.1 ATMIST as an isolated search term

A focused search for "ATMIST" was undertaken because it was such a prominent feature of military handover in the ED, and had been referred to in the context of NHS handover, for the sake of thoroughness. The search returned 37 results in google scholar in October 2015 and after further analysis these papers were reduced down to 17 according to the CASP criteria. A further scrutiny of these papers demonstrated that 11 studies were focused primarily on medical management rather than handover communication. These were a surgeons guide (Thomas and Sapsford, 2014), guidance on preparing trauma rooms (Horne and Smith, 2015 and Horne and Smith, 2011) management of children's brain injuries (Hyde, Eddie and Langford, 2014), recognising blunt trauma (McGrath and Whiting, 2015), open eye injuries (Ritson and Welch, 2013), post-operative cognitive function (Adapa, 2014), poly trauma and military retrievals (Keene and Bartells, (2015), the use of tranexamic acid in trauma patients (Paudyal et al, 2015), psychology of injury (Lane, 2015), and managing patients with head injuries (Abelson-Mitchel, 2013).

A further three studies appeared relevant to handover communication but on closer scrutiny were rejected. These included a study on the activation of a two tiered trauma system (Jenkins et al, 2014), a study on the effectiveness of frontline casualty care in Afghanistan which found that whilst trauma care was good there were a number of issues around documentation, fluid protocols and pain management (Batham et al, 2012), and an evaluation of the shock index as secondary triage tool in the military environment (Vassallo et al, 2014). The other three papers were identified in the literature reviews on handover communication.

2.4.2 Reviews of handover communication in civilian settings

A total of 37 papers were identified of which 4 used semi structured interviews informed by a variety of methodological approaches including ethnography and grounded theory (Bruce and Suserud, 2005), (Evans et al, 2010), (Owen et al, 2009) and (Wells et al, 2015). Bruce and Suserud (2005)

conducted interviews with only six nurses (although this is consistent with the method of phenomenology) so the results are less likely to be generalisable. This review did not include paramedics and was not particularly insightful on handover communication.

The review by Owen et al (2009) conveyed very well that different professionals speak in their own language and have different communication strategies. It hints at wider differences between how paramedics are socialised and trained and it would have been useful to explore this further in the discussion. This was an informative paper and convincingly argued for multi-disciplinary training. Wells et al (2015) gave an overview of what initiatives are currently being used to reduce delays and helped explain why paramedics are met with such a diversity of handover requirements. Wells et al (2015) commented on standardisation in their paper entitled "*Snapshot of initiatives to support timely patient handover from ambulances to the emergency department*". These authors carried out a telephone survey of 11 NHS trusts to find out what initiatives NHS trusts were using to make handover more efficient. Although the focus of this was identifying time saving initiatives such as alternative care pathways and hospital ambulance liaison officers it claimed that:

> *"Challenges to implementing and evaluating change included the lack of standardised approaches to handover across multiple hospital trusts within an ambulance service area; many of the reported initiatives took place only in a small part of the ambulance service's operational area" (Wells et al, 2015).*

Whilst the study included semi structured interviews with research and development leads this did not give convincing evidence of how these initiatives are being implemented by ambulance crews and hospitals especially at busy times. Basing the findings purely on telephone conversations make these results not generalisable.

Eight literature reviews were undertaken (Bigham, 2012), (Bost et al, 2009), (Dawson et al, 2013), (Jensen et al, 2013), (Manser, 2011), (Shar et al, 2016), (Shields and Flin, 2012), and (Woods et al, 2014). The literature review carried out by Bigham (2012) just scoped what was available, but did not provide any analysis or add to what is known about handover. The Bost et al (2009) literature review was only able to identify 8 papers that met its inclusion criteria which appears a very small number of studies and the results are unlikely to be generalisable whereas the paper by Jensen et al (2013) identified 18 papers but gave a comprehensive overview of the main themes. The Dawson et al (2013)

review looked at very similar literature to the Jensen review and recommended the introduction of the ISBAR mnemonic based on a review of 17 papers.

The Manser study (2011) quotes a BMA definition of handover (2005) and included an analysis of the literature rather than just the results of the review. The Manser and Foster (2011) review examined the literature on patient handover and located the issue within the patient safety debate. This review concluded that whilst there is an ever growing abundance of literature on handover communication in relation to patient safety, there is a need for a more systematic and rigorous approach to the field. The study included paramedics and observed 121 handovers but it did not say how many ED's were involved and does not split the results. Meanwhile the ratings tool itself also limits the richness of the data and leads to possible incorrect conclusions (Manser and Foster, 2011).

Shar et al (2016) describes itself as a literature review but it does not set out how this was conducted, what the inclusion/exclusion criteria was or how many papers were located, and this was quite a poor example. In contrast Shields and Flin (2012) explained the stated research terms, identified a search strategy informed by Cochrane method, search method and inclusion criteria. The literature review conducted by Wood et al (2014) looked at clinical handover between 2000 and 2013 and identified 21 studies that met their inclusion category. This review also commented on the issue of standardisation within the NHS:

> "*We need to understand the complexity of handover better to grasp the challenges of context and interprofessional relationships before we reach for tools and techniques to standardise part of the handover process."* (Wood et al, 2014).

It found a number of problems with handover communication between paramedics and hospital receiving staff and warned against too much standardisation. It found evidence of poor listening skills and mistrust during the handover but did not explain why this came about. Nevertheless, the authors explained clearly how the literature review was approached and the exclusion and inclusion criteria, and the thematic approach was used effectively to unpack the literature results.

A further eight papers used a variety of mixed methods such as interviews, surveys and recordings (Bost et al, 2012), (Knutsen and Fredriksen 2013), (Lawrence et al, 2008), (Sarcevic, 2007), (Sujan et al, 2013), (Sujan et al, 2014), (Sujan et al, 2015) and (Yong et al, 2008). A study on handover across professional boundaries Sujan et al (2013) concluded that handover consisted of "*descriptive talk*

aimed at information transfer and collaborative talk aimed at joint decision-making". This paper aimed to find out about handovers that took place between departments and organisations including the ED and involved audio recordings of handovers and data analysis of 203 transcripts. This was a large scale review which used appropriate methods. It represented a comprehensive study because it looked at handover in different areas of the ED (Majors and Resuscitation) and the Acute Medical Unit (Sujan et al, 2013). It recommended that *"standardisation of handover needs to accommodate collaborative aspects and should incorporate communication of information relevant to the patient's social and psychological needs*". The study was one of the most robust, relevant and important studies found during the literature review and was followed by another paper by Sujan et al in 2014. This paper represented a novel approach because it approached handover from a different industry perspective (engineering) and used focus groups to analyse the different stages of handover to identify risks and hazards. It under took a systematic risk analysis of handover in the ED and acute medical unit in the UK was undertaken by Sujan et al (2014) and discovered that:

- Handovers served different goals and functions
- Many handover failures modes were linked casually to capacity and resource issues
- Similar vulnerabilities were identified across the three sites (Sujan et al, 2014)

The review did not explore the reasons for mistrust or poor listening skills. Instead it suggested that a lack of standardisation may be a problem when it comes to handover in the ED and recommended further research before attempts are made to standardise handover using tools such as ATMIST. This is important given the challenges facing EDs with increasing demands on the service and the challenging context in which handover takes place. The authors suggest that qualitative observational research on social and organisational phenomena including technological solutions and high fidelity simulation would improve understanding of handover.

An Australian study undertaken by Bost et al (2012) used ethnographic observation and found similar results to the Crouch et al (2011) ambulance handover study conducted in the UK regarding the structure of handover. The paper advocated the use of the MIST (Mechanism, Injury, Signs and Symptoms, and Treatments) handover mnemonic and shared training programmes to overcome organisation cultural differences (Bost et al, 2012). This was a useful paper because it provided evidence of why and how the quality of handover varies and identified communication, workload and failure to listen as contributing factors (Bost et al, 2012). This study effectively used ethnography to

investigate handover communication and used appropriate methods such as interviews, questionnaires, participant observation, interventions, and reflexive video and audio recordings.

Sarcevic (2007) analyses the role of communication and technology between the ED and the pre hospital environment and claims that the exploitation of technology offers the best way forward for improving handover communication and meeting the needs of hospital receiving staff although the technology was not costed. However, this was a very small review and the results are unlikely to be generalisable. It only observed five trauma resuscitations and two of these were simulated. This was one of the few reviews which explicitly mentioned ethical considerations and stated that all video had to be deleted after 96 hours. The focus groups consisted of 9 people, none of whom were paramedics (Sarcevic, 2007). Lawrence et al (2008) undertook a review of only one hospital setting but did acknowledge the ethical issues involved in the research and sent letters to patients. The findings included a map of themes and categories, and the paper provided an explicit account of methodology and methods. The authors suggest that a technological solution could be helpful for maintaining test results and observations. However it did not refer to paramedics.

A study by Freshwater and Crouch (2015) evaluated the use of smart phone applications for ambulance crews to triage potential trauma patients compared with paper versions of the same tool. This study was not relevant to this research question but shows how technology is being used in the pre hospital environment and how it compares to paper based alternatives. The Sarcevic (2007), Murad et al (2014) and Freshwater and Crouch (2015) papers indicate a growing interest in technological communication solutions. These systems could benefit patients by reducing errors in handover and providing more up to date information, but it might change the roles of paramedics and other healthcare professionals in unforeseen ways. Technology offers huge opportunities for improving the transfer of handover communication, and patient care, but its introduction would need careful planning and testing. Human beings would be needed to interpret the medical data and contextualise it. Costs, resources and change management are significant factors that need to be addressed before testing and implementation can begin.

The paper by Yong et al (2008) reported on a large scale study using effective methods which included a carefully documented handover process and survey. However the survey limited respondents' choices and yielded less valuable data that might have been the case had the questions been more open. The authors found that handover was inaccurate but did not discuss the reasons for this.

Knutsen and Fredriksen (2013) produced an important paper on how information errors can occur in the ED but this study did not include paramedics in their study.

Ten intervention studies were carried out which involved assessing handover communication before and after the intervention was introduced (Apker et al, 2009), (Bergrath et al, 2013), (Booth and Bloch, 2013), (Dojimi et al 2014), (Drachslet et al, 2012), (Iedema et al, 2012), (Manser et al, 2010), (Murad et al, 2014), (Scott et al, 2003) and (Talbot and Bleetman, 2007). Murad et al (2014) go further in their analysis of the information needs and use of technology and advocate the integration of information across platforms and the creation of an integrated health information system. This paper champions the merits of integrated platforms and telecommunication solutions that provide a link between the pre-hospital and hospital environment including real time live link up to the scene of incident, more comprehensive communication on route, and hospital and ambulance computer systems.

Iedema et al (2012) carried out a comprehensive and impressive study which corroborated findings in surveys using video reflexivity and this made the results more convincing. However, not all of the paramedics involved in the study received training on DeMIST-AMBO and this may have compromised with the results. The Apker et al study (2009) used appropriate methodology and methods but did not include paramedics. The Bergrath et al (2013) study did not focus strictly on handover communication but rather looked at telecommunication aids for paramedics to provide diagnostic help and advice. This may form part of the handover process in the future. The Booth and Bloch study (2013) used an appropriate and robust methodology (video reflexology informed by an ethnographic approach) to examine the use of a handover mnemonic which incorporated elements of the ATMIST handover. Although the study found in favour of the mnemonic, it did not convince that standardisation in this area is appropriate and did not provide sufficient justification for this. Not all patients would fit the pre alert criteria suggested and it devalued the clinical decision making process. The Dojimi et al study (2014) was an Italian study which saw the intervention through from development, to assessment, implantation and training which gave it more credibility. The study used lectures to assist staff and this may explain why this study, rather than other ones found that the intervention was more effective.

Drachsler et al (2012) explored the use of IT for a handover tool but found that not many healthcare professionals were comfortable using this. Furthermore trainers had different views about the use of technology than the practitioners. In a similar study, Murad study et al (2014) showed that it was still early days for advanced technology and more testing is required. The methods used were appropriate

in the Scott et al study (2003) which carried out an intervention to improve physician recall. This study found that 36% of the paramedic verbal handover were recalled by physicians but this only increased minimally (33% vs. 38% p = 0.16) following the use of the handover intervention. Talbot and Bleetman (2007) did not control for staff familiar and unfamiliar with the intervention and the intervention only took place in two EDs in the UK, making the evidence somewhat limited in terms of generalisability. The study failed to prove its hypotheses and whilst appropriate methods were used there were too few cases to consider. However the authors referred to the origins of MIST and credited Prof Hodgetts with its development and explained how it was refined in South African trauma centres.

One audit was carried out which compared patients' ED notes and ambulance sheets (Murray et al, 2012). This was a very useful study with clear aims which observed inconsistencies between the two sets of patients' notes. Three studies used observational approaches such as recording and analysing handover communication (Behara et al, 2005), (Carter el al, 2009) and (Smith et al, 2013). Another study using an ethnographic approach was carried out by Behara et al, 2005 entitled *A Conceptual framework for studying the safety of transitions in emergency care*. This study observed handover communication in five hospital emergency departments in the USA and Canada and made audio recordings of handover which were transcribed and analysed using grounded theory and reviewed by domain experts and behavioural scientists. This study focused mainly on shift changes in the ED but included care transitions between paramedics and hospital receiving staff; these are not separated out in the results so it is more difficult to draw firm conclusions about handovers in the ED. This was a large study and took place in five EDs in the USA and Canada using ethnographic methodology. The study looked at shift changes and pre hospital to receiving staff but did not separate out the results and consequently they are difficult to interpret. What is relevant about the work is that it identified unique factors to the ED which made all types of handover more challenging including the need for 24 hour care, handover between different types of healthcare professionals, dynamic nature of the environment and complexity of health needs (Behara, 2005). The Smith study (2013) was also small, and so unlikely to be generalisable, but it created a 'Staged world' role play to embed learning about handover. Also the two groups represented very small sample sizes (four and six paramedics apiece). Carter et al (2009) used appropriate methods including video tapes and adequate sample size. This study demonstrated information loss but did not explore reasons for this in handover communication.

Finally three papers used survey methods to seek the views of different healthcare professionals on handover communication (Bledsoe et al, 2013), (Budd et al, 2007) and (Thakore and Morrison, 2001). The survey by Bledsoe et al (2013) had a very narrow objective and sought the opinions of doctors on

prehospital patient care reports (PCRs) and wanted to find out whether these reports were available during decision-making. It did not include paramedics or nurses which limited its usefulness for my study. The study by Budd et al (2007) was a useful snap shot of what is happening in different departments across the UK with regards to trauma protocols and the use of standardised mnemonics. The authors sent out 100 survey questionnaires to ambulance trusts and 16 were returned. Over half of responders stated that trauma alert information was sent through ambulance control, 48% stated that alert messages were standardised primarily using ASCHICE (Age, Sex, History, Injuries, Condition and ETA) and around 18% believed that ambulance crews used trauma severity scoring. A.survey by Thakore and Morrison (2001) focused on quality, competency and confidence of paramedic handover but not how handover was received. It did not examine the handover behaviours of medical staff or how effectively they received information. This represented a reasonable sample size but the survey results were based on the perception of staff rather than objective data. Table 7 summarises the literature review and provides a brief description of the findings.

Table 7 Literature review – handover communication (civilian)

	Studies	Date	Methodology	Focus	Findings
1	Behara et al	2005	Observational	A conceptual framework for studying the safety of transitions in emergency care	Found that handovers were not data dumps but interactive.
2	Carter et al	2009	Observational	Information loss in emergency medical services handover of trauma patients	In 96 patient handovers, a total of 473 elements were transmitted, of which 329 were received (69.6%).
3	Smith et al	2013	Observational	Performance of experienced versus less experienced paramedics in managing challenging scenarios	The more experienced paramedics made more assessments, explored a wider variety of presumptive diagnoses, and identified the pulmonary embolism earlier.

4	Bost et al	2012	Observation/ Interviews	Clinical handover of patients arriving by ambulance	This study found that there were in fact two handovers conducted in the ED one for patients that were considered critically ill and a different handover for patients that were not. It found communication problems due to different healthcare professionals.
5	Knutsen and Fredriksen	2013	Survey, audit and interventions	Usage of documented pre-hospital observations in secondary care: a questionnaire study and retrospective comparison of records	This found that registrars favoured verbal handovers to written reports and often did not consult these. It found that some of the information contained in the written reports did not make it to the ED notes.
6	Lawrence et al	2008	Observational and Survey and Interviews	Conceptualising handover strategies at change of shift in the emergency department	This study identified 21 strategies employed in handover communication of which 8 were consistently used, 9 sometimes and four rarely and the data was analysed using grounded theory.
7	Sarcevic	2007	Observation and interviews	Information needs and use in the emergency room.	This study describes the information needs of doctors and nurses and what sources of information they used.
8	Sujan et al	2013	Observation	Emergency Care Handover (ECHO study) across care boundaries	This study involved analysis of 203 handover conversations and found that most were descriptive but referrals used more collaborative types of conversation. It found also that only 1.5 to 5% of handover conversation referred to the

					patient's social and psychological needs.
9	Sujan et al	2014	Interviews plus analysis of handover	Clinical handover within the emergency care pathway and the potential risks of clinical handover failure (ECHO)	This study found that handover serves different roles and purposes. It found handover failures were due to capacity and resource limitations and this finding was consistent across three different sites.
10	Sujan et al	2015	Observation	Clinical handover across organizational boundaries	This study found that performance management targets were creating conflicting priorities for healthcare managers.
11	Yong et al	2008	Observation	Handover from paramedics	This study found that handovers were only 91% accurate and there was scope for doctor paramedic handover improvements.
12	Apker et al	2009	Handoff Communication Assessment Tool and discourse analysis	Exploring Emergency Physician–Hospitalist Handoff Interactions	It found that emergency physician-to-hospitalist handoffs primarily consist of information giving and are not directed toward question-and-answer events.
13	Bergrath et al	2013	Assessment of technology aids	Implementation of a multicentre prehospital telemedicine system to support paramedics	Teleconsultations were used during 35 (11.8%) of 296 emergency missions with a mean duration of 24.9 min (SD 12.5) and involved offering diagnostic support in 34 (97%) cases.
14	Booth and Bloch	2013	Observation	An evaluation of a new hospital pre-alert guidance tool	Of 104 patients sampled brought to resus, a total of 90 were judged to have needed a pre-alert. Of these

					90% of alerts were deemed appropriate but 10% were over alerts. Pre-alert tools showed a 95% result but one patient was under alerted.
15	Dojimi et al	2014	Observation / Assessment of standardisatio n tool	Communication during handover in the pre-hospital/hospital interface in Italy	This study "found an absence of standardization of the handover communication process, marked variability in information communicated, and a lack of formal transfer of responsibility of patient care".
16	Drachsler et al	2012	Observation	The Handover Toolbox: a knowledge exchange and training platform for improving patient care	The study found that practicing professionals had different ideas about the ideal format for handover training compared to educators.
17	Iedema et al	2012	Video reflexivity and pre and post-handover surveys	Design and trial of a new ambulance-to-emergency department handover protocol	Information was more accurately handed over when the mnemonic was used, fewer questions were asked by ED staff and this led to shorter handovers. The intervention added De to MIST representing Details of patient (age, sex, and name).
18	Manser et al	2010	Intervention – ratings tool	Patient handoffs at care transitions	The authors developed a ratings tool to assess handover based on information transfer, shared understanding and working atmosphere.
19	Murad et al	2014	Assessment of technology aid	Patient Information Handoff from Pre-	This study was used to field test a mobile and web based EMS

			using mixed methods.	hospital Transport Providers to Hospital Emergency Departments	software solution designed to provide textual and multimedia information for emergency responses. The study found that the intervention was appropriate to rural setting.
20	Scott et al	2003	Intervention	Paramedic verbal reports to Physicians in the Emergency Department Trauma Room	This study found that physicians remembered 36% of the paramedic verbal handover and this only increased minimally (33% vs. 38% p = 0.16) following the use of the handover intervention.
21	Talbot and Bleetman	2007	Intervention	Retention of information by emergency department staff at ambulance handover	This study found that post intervention retention was actually less despite using a handover mnemonic inspired by MIST. It found that retention of information was 56.6% before using the mnemonic and 49.2% after using MIST.
22	Bigham	2012	Literature review	Patient Safety in Emergency Medical Services	This literature review identified nearly 6,000 titles identified nearly 6,000 articles which were then narrowed down to 88 which met the inclusion criteria. Seven themes were identified: adverse events and medication errors, clinical judgment, communication, ground vehicle safety, aircraft safety, interfacility transport, and intubation.

23	Bost et al	2009	Literature review	Clinical handover of patients arriving by ambulance	This study identified 252 documents initially but this was narrowed down to 8 which met the inclusion criteria of clinical handover and ambulance to ED patient transfer. The authors identified three themes: (1) crucial information can be missed in the handover; (2) structured handovers comprising of written and verbal parts may improve handover; (3) multidisciplinary education about the clinical handover might be beneficial.
24	Dawson et al	2013	Literature review	Hospital clinical handover between paramedics and emergency department staff in the deteriorating patient	A total of 17 papers were identified in the literature review and the main issues were as follows: the need for more comprehensive and concise handovers, development of respect and better communication, and the need to identify staff in the ED more clearly.
25	Jensen et al	2013	Literature review	Handover of patients: A topical review of ambulance crew to emergency department handover	This study identified 18 studies which met the inclusion criteria. Identified issues regarding transfer of information, cultural, organisation, transference of responsibility (of patient), and undervaluation of handover.
26	Manser	2011	Literature review	Moving handover research forward	Most studies are descriptive and don't consider dynamic nature of handover, definition of handover is too narrow and just considers

					transfer of information one way and 'source of medical error', and interventions 'focus on standardisation of handover.' Finds that handover achieves more than just transfer of information but also other purposes such as confirmation of clinical concerns, avoidance of medical errors and training. Points out that procedural rules are not always helpful.
27	Shar et al	2016	Literature review	Clinical handover between paramedics and emergency department staff	Compared SBAR and IMIST-AMBO and found SBAR provided more general. It found that SBAR was rarely used in ED, MIST-AMBO being rolled out in Qatar.
28	Shields and Flin	2012	Literature review	Paramedics' non-technical skills	This literature review identified 7 papers which looked at paramedics non-technical skills (cognitive and social). Three looked at all five aspects of non-technical skills, two looked at situational awareness, and two looked at paramedic decision making and communication.
29	Wood et al	2014	Literature review	Clinical handovers between prehospital and hospital staff	This literature review identified 401 studies and of these 21 met the inclusion criteria. The themes identified were communication, information transfer, environment and interprofessional relationships. If found problems with communication due to failure to

					listen, mistrust, and misunderstanding between staff.
30	Bledsoe et al	2013	Survey	Electronic prehospital records	This survey was sent to 1,932 emergency physicians of whom 228 replied. The survey found that doctors preferred electronic reports.
31	Budd et al	2007	Survey	A survey of trauma alert criteria and handover practice in England and Wales.	100 survey questionnaires were sent out of which 16 were returned by ambulance trusts. Over half of responders stated that trauma alert information was sent through ambulance control, 48% stated that alert messages were standardised primarily using ASCHICE (Age, Sex, History, Injuries, Condition and ETA) and around 18% believed that ambulance crews used trauma severity scoring.
32	Thakore and Morrison	2001	Survey	Patient handover by ambulance staff in the resuscitation room	A total of 30 medical staff and 67 ambulance staff from two EDS in Scotland responded to the survey, The majority of ambulance staff believed that there was a training need whilst medical staff thought that handovers were variable. The authors argued for more training for ambulance staff and a structured handover recognisable to medical staff. It found that ambulance staff felt handovers weren't listened too.

33	Bruce and Suserud	2005	Interviews	The experiences of emergency nurses	This study undertook descriptive interviews with six emergency department nurses inspired by phenomenology and found that there were three elements to handover: a verbal report, paperwork, and physical handover of patient from ambulance to hospital stretcher.
34	Evans et al	2010	Interviews	Clinical handover in the trauma setting	This study interviewed ten paramedics and 17 trauma team members. The participants felt that the best handovers were those that were succinct and structured, and included the most pertinent information. The study found in favour of data transfer ahead of the arrival of the pre-hospital team because this appeared to overcome problems such as infection control, workflow and time limitations.
35	Owen et al	2009	Interviews. Grounded theory	Maximizing handover effectiveness between paramedics and receiving staff	Interviewed 19 paramedics, 15 nurses and 16 doctors from ambulance services and ED's in Australia using grounded theory. This found evidence of three themes: "difficulties in creating a shared cognitive picture, tensions between 'doing' and 'listening' and fragmenting communication." The study argued in favour of a

					standardised approach to handover.
36	Wells et al	2015	Interviews	Snapshot of initiatives to support timely patient handover from ambulances to the emergency department	Semi structured interviews were conducted with 11 ambulance trusts to identify their initiatives to cut delays. These focused on the prehospital, the ED; and whole system initiatives. Prehospital initiatives included clinical decision support tools, alternative pathways, hospital capacity monitoring, and automated data transfer. Initiatives at ED included handover screens, rapid access models, hospital ambulance liaison officers, and corridor care. Whole system approaches included new models of collaborative working and service reviews.
37	Murray et al	2012	Audit	A comparison of Pre-Hospital and Emergency Department notes	Of 100 records considered, 26 had at least one instance where information recorded by the ambulance crew was either omitted or altered during transfer. These included past medical history, timings, frequency of the event, allergies and medications.

2.4.3 Themes emerging from the literature

There were a number of themes that emerged from the literature but none of studies examined how paramedics make the transition between different emergency care settings, most of the literature

focused on standardisation whether it was mnemonics, technology or spatial positioning. Many of the papers commented that little was known about handover communication in the ED, that handover tools needed further evaluation and that safety culture could be improved. There was little acknowledgement of how the UK military uses the ATMIST mnemonic or other handover communication practises used at Camp Bastion. Indeed there was little on the every day practise of handover in the civilian environment and most of the evidence base was small scale and weak. The themes within the literature appear to have changed over time. Almost all studies recommended that handover communication should be standardised (Shar et al (2016), Payne et al (2012), Owen et al (2009), Lawrence et al (2008), Jenkin et al (2007), Dawson et al (2013), Budd et al (2007), Behara et al (2005), Thakore and Thakore (2011), Iedema et al (2012), Farhan et al (2012), Evans et al (2010),and Bost et al (2012) but this debate has shifted over the last couple of years and become more nuanced. Sujan et al (2013), and Sujan et al (2015) urge caution over attempts to standardise handover too far and Shar et al (2016) recommended further evidence based research into handover mnemonics and training for healthcare professionals. The more critical papers on standardisation pointed out that handover is a complex process in the NHS and attempts to standardise handover particularly through the use of mnemonics such as ATMIST could result in communication failures.

More recently, studies are suggesting that pressure from patient numbers and target cultures is negatively impacting handover communication (Wood et al, 2014; Sujan et al, 2015, Wells et al, 2015). The Sujan et al study (2005) was the first study to suggest that targets were having a negative impact on handover communication. A number of different handover tools are mentioned including the mnemonics MIST (Iedema et al, 2012), SBAR (Ilan et al, 2012 and Shah et al, 2016), SOAP (Ilan et al, 2012), AMBO (Iedema et al, 2012), IMIST-AMBO (Shah et al, 2016) and ICCCO (Johnson et al, 2012). These mnemonics are memory aids that attempt to ensure that relevant and succinct information is delivered in a logical and digestible format but validation of these tools is lacking within the literature. Table 8 outlines the different mnemonics.

Table 8 Examples of handover mnemonics

Algorithm	
ASHICE	Age, Sex, History, Injuries/Illness, Condition, Estimated Time of Arrival (ETA)
SBAR	Situation, Background, Assessment, Recommendations
MIST	Mechanism, Injury, Signs and Symptoms, Treatment
ATMIST	Age, Time, Mechanism, Injuries, Signs and Symptoms, Treatment
IMIST	Identification, Mechanism, Injuries, Signs and Symptoms, Treatment

AMBO	Allergies, Medication, Background, Other
AMPLE	Allergies, Medication, Past medical history, Last Meal, Events leading up
SOAP	Subjective, Objective, Assessment, Plan
ICCCO	Identification, Clinical history, Clinical status, Clinical plan, Outcomes

The ATMIST mnemonic (previously abbreviated to MIST in the military) is used by paramedics in the UK military. It stands for Age (of patient), Time (of injury/onset of illness), Mechanism (cause of injury or illness), Injury (physiological or mental deficits), Signs and Symptoms (basic observations such as respiration, pulse, blood pressure, Glasgow Coma Scale (GCS) score, and treatments (interventions attempted so far such as administration of medications. There is a limited evidence base for any of the mnemonics referenced in the literature review including ATMIST. Only the Talbot and Bleetman (2007) paper on handover communication explained how the mnemonics evolved, where they came from or point to an evidence base underpinning their use. The literature around communication and safety in the general hospital setting offers further lessons that can inform the paramedic handover at the ED interface. This reinforces the messages from the previous Crouch et al (2011) and Wood et al (2014) papers that procedures for effective handover communication need to be evaluated.

2.4.4 Studies of handover communication in military settings

It was clear during the initial literature search that there was a lack of information on handover communication in military settings and therefore a narrative review was conducted of 16 studies. Further information of these references can be found in the following Table 9 and this includes the type of studies (if applicable) and outcomes:

Table 9 Literature review on handover communication (military)

	Studies	Date	Focus	Outcomes
	Military narrative review			
	Interviews			

1	Arul et al	2015	Human factors in decision making in major trauma in Camp Bastion	Identified four key decision making points during damage control resuscitation and damage control surgery. 115 members of staff responded to the study which sought to gain their attitudes towards communication and decision making involving 22 cases. The study demonstrated that staff were happy with communication.
2	Batham et al	2013	Factors Affecting Front Line Casualty Care in Afghanistan	17 semi structured interviews with healthcare clinicians post incident at Role 1 medical facility, Camp Bastion. The study found problems with triage which did not react appropriately to clinical priorities. Concluded that pre deployment courses (BATLS) should be amended.
3	Rond	2012	Interviews and observations of trauma surgeons in Afghanistan	Looks at surgical trauma in Camp Bastion from four perspectives: solider, surgeon, photographer and ethnographer. This was based on a six week stay at Camp Bastion which was preceded by pre deployment training with the military.
	Clinically focused studies			
4	Vassallo et al	2014	Usefulness of the shock index as a secondary triage tool	Data on clinical interventions were prospectively collected for 482 adult trauma patients presenting to Camp Bastion, Afghanistan, over a 6-month period. This found that the military method of triaging patients was more accurate for identifying patients who needed lifesaving interventions.
5	Mabry et al	2012	Impact of critical care-trained flight paramedics on casualty survival during helicopter	This study identified 469 patients who were conveyed by standard MEDEVAC helicopter evacuation and 202 patients who were transported on a helicopter with critical care trained flight paramedics and looked at their trauma scores and clinical outcomes. It used logistical regression and

			evacuation in Afghanistan	discovered that there was a 66% lower estimated risk of mortality if conveyed by critical care paramedics.
6	Cordel et al	2008	Effectiveness of command and control arrangements for medical evacuation of seriously ill or injured casualties	This audit looked at timings for 762 casualties evacuated in Afghanistan in 2007. The study found that 75% met the evacuation mission target (90 minutes for time call received to helicopter landing at designated hospital). Furthermore, there were no adverse outcomes for patients who missed this target.
7	McLeod et al	2007	Evaluating the pre hospital timelines in a military trauma system	This study was concerned by media reports that evacuation timings were excessive and an audit was carried out of 528 patients and found that the median timings for the most seriously injured patients (T1) was 99 minutes.
8	Stannard et al	2008	Review of trauma indicators	A workshop took place aimed at reviewing key performance indicators for looking out healthcare outcomes, in view of the needs of military trauma causalities. The workshop developed 60 KPI for military trauma.
	Clinical reviews and discussion			
9	Midwinter et al	2011	Making difficult decisions in major military trauma: a crew resource management perspective.	This paper looked at examples of team management and leadership in aviation, healthcare, ice hockey tournaments and business. It concluded that more effective and safer teams represented trade-offs of technical versus social skills, that team size affected productivity, all members should feel safe enough to raise concerns or make suggestions, manage team tensions and competitiveness, and team harmony is more likely the result of good performance that than its cause.

10	Horne and Smith	2011	Preparation of the resuscitation room and patient reception	Provides a thorough and comprehensive description of the preparation and reception of trauma patients at Camp Bastion which is consistent with the MoD guidelines.
11	Bricknell and Johnson	2011	Forward medical evacuation	This paper looked at the medical evacuation of military patients especially MEDEVAC and covers planning, aircraft type, medical escort, and destination.
12	Tai and Russell	2011	Right Turn Resuscitation: Frequently Asked Questions	This paper explains what right turn resuscitation is, the circumstances in which it is used and why it is important.
13	Hodgetts and Mahoney	2009	Military pre-hospital care: Why is it different?	This paper explains the main differences between military and civilian pre trauma systems and links these to the differences in clinical protocols. It suggests that the two can learn from each and lessons learned in the military environment can be transposed to the civilian world.
14	Thomas	2014	MERT	This paper provides a factual overview of MERT and its role.
15	Macdonald	2010	Doctors on the frontline	This is short editorial piece discussing some of the ethical dilemmas of doctors working in military environments and locates the discussion in Afghanistan.
	Clinical guidelines			
16	MOD	2013	Clinical Guidelines for Operations	This is a policy document which outlines best medical practice. It is designed as a guide and aid memoire for clinicians in field and deployed operations.

The literature review identified only one study that referred to pre-hospital and/or emergency medicine in the military context and met the CASP criteria. Arul et al (2015) published a paper entitled Human factors in decision making in major trauma in Camp Bastion, Afghanistan in the *Annals of the Royal College of Surgeons*. This study conducted interviews with 115 staff regarding 22 patients who arrived in Camp Bastion in September 2012 and were transferred to theatre. This study found that the majority of healthcare professionals thought that information regarding patients was communicated well. It describes the patient journey from pre-hospital to theatre including the ATMIST handover which it partly credited for the positive outcome of the study. This was a well presented study which included a good description of the patient journey and the handover methods (not just the ATMIST handover) which provides some evidence that the MERT handover had a positive effect on communication between healthcare personnel. Arul et al (2015) provide a good justification of why the study was conducted and describes the process of improving treatment of severely injured personnel at Afghanistan. This study did not look at handover communication prehospital to hospital which is a key communication and decision making point in the patient journey.

The study by Evans et al (2010) was a relatively small study, and the results focused on trauma team members rather than paramedics. The Evans et al (2010) paper made reference to handovers in military settings (although it was an NHS based study) and asked paramedics and trauma team members about their knowledge of the MIST handover mnemonic. This considered the appropriateness of transferring a handover protocol used by the military into the civilian setting with the intention of improving communication. In fact, Evans et al (2010) produced the only handover study to acknowledge the military context within which ATMIST had evolved despite the ramifications of attempting to standardise NHS handover using military protocols. The Evans study (2010) concluded that MIST was a useful handover mnemonic because it improved retention of information and gave a format to the paramedic handover, and complimented the findings of the Bost et al (2012) study. This in turn addressed concerns by trauma team members that paramedic handovers "*rambled on*" (Evans et al, 2010). The study recommended that:

> *"Multiple strategies are needed to improve handover. Paramedics should be taught how to provide a succinct handover focusing on critical elements; trauma team members should learn effective listening."* (Evans et al, 2010).

However, the study did not address any of the other differences in handover between paramedics and hospital receiving staff in military and civilian settings which take place in the context of the MIST

handover. This would include strategies for ensuring that the receiving team give their full attention to the paramedic handover such as the 'hands off' the patient approach. This study of transferring a military medical tool into the civilian hospital was limited because of its small sample of 27 people.

Two studies by Batham et al (2013) and Rond (2012) used interviews. Batham et al (2012) conducted 17 semi structured interviews with military hospital staff. These interviews were analysed using content analysis and informed by grounded theory. This was a robust study that found that trauma care was good but there were a number of issues with triage, pain management, fluid replacement, and documentation and that staff were affected by stress (Batham et al, 2012). Batham et al (2013) used appropriate method and methodology but did not add to our understanding of handover communication in the military.

Rond's paper entitled "*Soldier, surgeon, photographer, fly: Fieldwork beyond the comfort zone*" examined surgical trauma in Camp Bastion in 2011 from four perspectives: solider, surgeon, photographer and ethnographer. This was based on a six week stay at Camp Bastion which was preceded by pre deployment training with the military. This paper reads more like travel piece than an ethnographic study and reveals little insight into the specialist roles or the challenges of transitioning between NHS and military environments. Rond does not question the culture of working practises or reflect on key features of team relationships such as the importance of hierarchy of rank or medical specialty, nor does he address the ethical challenges faced by healthcare professionals in the military. He reports that he has bonded well with team members but this comes across as over identification and he does not reflect on the ethnographic challenges of needing his subjects' permission to access the military environment. Here, he demonstrates this over identification:

> "*The key to ethnography is trying to expose yourself to aspects of the challenges people face – both the kind of environments in which they operate but also the self-induced quasi-narcotic states in which they get, because a lot of stories come out during those times, when they tell you about very surreal – even funny – experiences, but also very dark experiences that they don't find easy to talk about. It is in intimacy I've come to value a great deal*." (Rond, 2012).

Rond (2012) does not reflect on the ethnographic challenges of needing his subjects' permission to access the military environment and was a missed opportunity to address issues such as dual loyalty (where medical staff find themselves conflicted by the demands of the organisation and their ethical

codes), or the ethics of saving severely injured personnel, or the provision of medical services in developing countries.

2.4.4.1 Clinically focused studies

Studies by Vassallo et al (2014), Mabry et al (2012), Cordel et al (2008), McLeod et al (2007),and Stannard et al (2008) had a more clinical focus. A study carried out by Vassallo et al (2014) using prospective observational methods looked at different secondary triage tools, Triage Sort (TSO) versus Shock Index (SI), to identify the most seriously unwell patients in NHS hospitals and Camp Bastion. It found that the system used at Camp Bastion (dividing heart rate by systolic blood pressure) was more accurate at identifying seriously unwell patients compared to the NHS system (combining GCS, systolic blood pressure and respiratory rate) but this was more relevant to clinical management than handover communication. This was a good sample size, appropriate methodology and methods but not directly relevant to handover communication.

A retrospective study by Mabry et al (2012) found that the use of critical care-trained flight paramedics during helicopter evacuation in the conflict in Afghanistan had a positive effect on casualty rates. The Mabry et al study (2012) had a good sample size and used appropriate methods and methodology. It also demonstrated how permissions were obtained. However the study samples were not evenly divided and this may make the results invalid. An audit carried out by Cordel et al (2008) looked at timings for evacuating military personnel in Afghanistan. The study by Cordel at al (2008) produced a straight forward audit with adequate sample size and the methodology. However, this was not directly linked to handover communication. McLeod et al (2007) evaluated pre hospital timelines and trauma systems (but not handover) and found that they were not overly long; this was a straight forward audit with adequate sample size and the methodology. However, this was not directly linked to handover communication. These latter studies were prompted by concerns in the British media that timings had been excessively long but the studies showed that this was not the case.

Stannard et al (2008) reported back from a review of military trauma indicators that took place during a workshop. Delegates reviewed key performance indicators on healthcare outcomes, in view of the needs of military trauma causalities and developed 60 Key Performance Indicators (KPI) for military trauma. Although this was an appropriate initiative to start developing military trauma KPI, further evidence based research is required to justify these indicators.

2.4.4.2 Opinion pieces

Much of the literature on handover communication in military settings can be described as opinion pieces. This includes discussion pieces and editorials and papers that argue for new practices or training. The following paragraphs examine seven papers on clinical reviews and discussions identified in the literature review on handover communication in military settings including Midwinter et al (2013), Horne and Smith, (2011), Bricknell and Johnson (2011), Tai and Russell (2011), Hodgetts and Mahoney (2009), Thomas (2014), and Macdonald (2010).

Midwinter et al (2011) produced a typical discussion piece entitled *Making difficult decisions in major military trauma: a crew resource management perspective* which did not meet the CASP criteria and did not analyse handover communication. It provided a discussion piece on how teams work in safety critical environments and looked at crew resource management, aviation and military medicine. It found that some of the tensions in such high pressured teams could be useful and identified a trade-off between technical and social competence although it did not directly relate to handover communication between hospital receiving staff and paramedics (Midwinter et al, 2011). The paper by Midwinter et al (2011) took examples from a diverse range of environments to show how team performance is affected by social and leadership factors. As a discussion piece it did not meet the CASP criteria and did not mention handover communication

A further study by Horne and Smith (2011) described handover at Camp Bastion which was consistent with the reflective diaries entries and interview data collected for this PhD study:

> *"Handover from the pre-hospital crew takes place in the bay, while the patient is still outside being unloaded from the BFA. The ATMIST report is given by the attending medic, to a silent receiving bay. This obviates the need for multiple repetitions as those who were not listening or present at the time realise that they have missed information. Concurrent activity is only allowed if CPR is in progress or the patient has been "right turned". (Horne and Smith, 2011, S271)*

(Please note that BFA stands for Battlefield Ambulance and that the word medic refers to a paramedic or doctor from the MERT (Medical Emergency Response Team)).

The review by Horne and Smith (2011) did not meet the CASP criteria but provided a concise summary of the imperatives driving the medical service at Camp Bastion. Although it mentions the delivery of ATMIST this is covered relatively briefly. The following statement by Horne and Smith (2011) describes the demands on medical services at Camp Bastion:

> *"Operations in Afghanistan have generated very severely injured casualties, who are often transferred to the hospital rapidly. These conditions have forced the emergency department to develop systems maximising preparedness whilst conserving staff and resources where ever possible. Within this context the systems have been refined and function well. Many of these lessons may be relevant to future deployments.2 (S272*)

This statement indicates that the military are considering how deployments might differ in the future and how medical services might meet these challenges but no further exploration of these issues was found in the literature.

The Bricknell and Johnson (2011) paper describes "*the principals of medical evacuation planning and execution*". Again, it provides detailed information on technical and military logistics of medical evacuation but offers little insight on handover communication. Although this paper by Bricknell and Johnson (2011) looked at the medical evacuation of military patients especially MEDEVAC and covers planning, aircraft type, medical escort, and destination, it did not meet the CASP criteria and did not refer to handover communication. Cordell et al (2008) published an audit of evacuation timelines designed to ascertain the effectiveness of medical evacuation in Southern Afghanistan. This paper advocates the use of audits "*to ensure an optimal casualty care pathway from point of wounding to hospital.*" (Cordell et al, 2008). It makes the link between effective command and control of medical evacuation and refers to the MIST handover tool but adds little to military handover communication. The paper by Tai and Russell (2011) explains what right turn resuscitation is, the circumstances in which it is used and why it is important but the paper did not meet the CASP criteria and did not refer to handover communication.

Thomas (2014) provided a comprehensive and detailed overview of the MERT role. This paper in the Journal of Paramedic Practice outlines MERT's contribution to improving survival rates in the conflict in Afghanistan and influence on resuscitation and trauma protocols in the NHS. It provides an overview of the formation of MERT, the training and selection of its personnel and their roles within the team. It refers to the Patient Report Forms submitted by the MERT team and how they are externally

validated with a view to patient journey, patient outcomes and the security situation (Thomas, 2014, p.301). Unfortunately it does not cover the MERT handover specifically although provides useful background to MERTs formation, responsibilities and contribution to NHS and military medical knowledge. Thomas suggests that transference of the MERT concept to NHS civilian systems might not be appropriate due to helicopter size, mechanism of injuries and high cost (Thomas, 2014, p301).

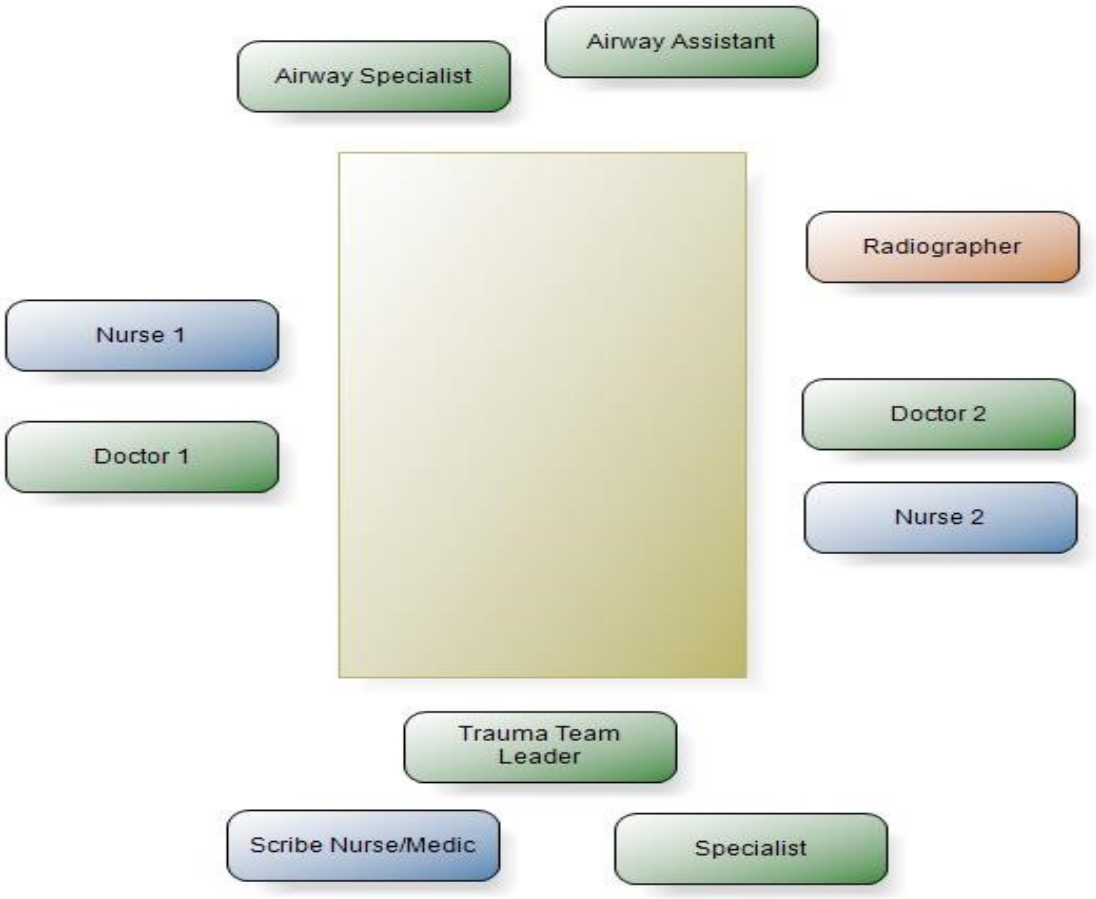
The Macdonald's (2010) article entitled *Doctors on the Frontline* represented a description of the patient pathway from incident scene back to the UK. It provides useful background information and quotes from practitioners in the field but information on handover or indeed the role of paramedics is limited (Macdonald, 2010). The short editorial piece by Macdonald (2010) discusses some of the ethical dilemmas of doctors working in military environments and locates the discussion in Afghanistan. This paper does not meet the CASP criteria or cover handover communication.

The most clinically significant document located in the literature search was the JSP: MoD Clinical Guidelines for Operations (2013). Although the CASP questions were useful for critically reviewing papers they did not help with appraising documents such as this. The 244 page document provides *Guidance on best medical practise for military and civilian clinicians deployed on operations* (MOD, 2015) and sets out how handover in the ED should take place in the UK military. It contains detailed plans for how the ED should prepare for the handover of patients and is divided into four areas: 1) action to be taken before deploying to the scene of incident 2) activation criteria for calling out the trauma team 3) Notification of trauma team and 4) the structure of the trauma tea (p.2, 2013). The tasks, as well as positions, of each team member are described in detail (MoD, 2013, p.9) and can be seen in the Figure 1. According to the document the ideal trauma team consists of an airway specialist and assistant, a radiographer, two emergency nurses, two doctors, a scribe, a team leader and specialist.

The MoD Clinical Guidelines for Operations (2013) is a joint services policy document designed to cover medical treatment in the military from "*point of wounding or illness, to either resolution or definitive treatment, with guidelines given as a range of interventions for a given condition at each echelon of care.*" (MoD, 2013, p11). The document is well laid out, comprehensive and accessible with further updates available and it is easy to navigate between the sections. This is the major document to which all serving military personnel must comply with and as such sets out standardisation of care. The MoD guidelines cover trauma care, team configuration, handover mnemonics, and handover communication but it did not reference the practise of leaving the patient outside the ED during the

handover and it is not clear how this practise evolved. Please see Figure 1 for the trauma team configuration according to the *MoD Clinical Guidelines for Operations* (2013).

Figure 1 Trauma team configuration (MoD)

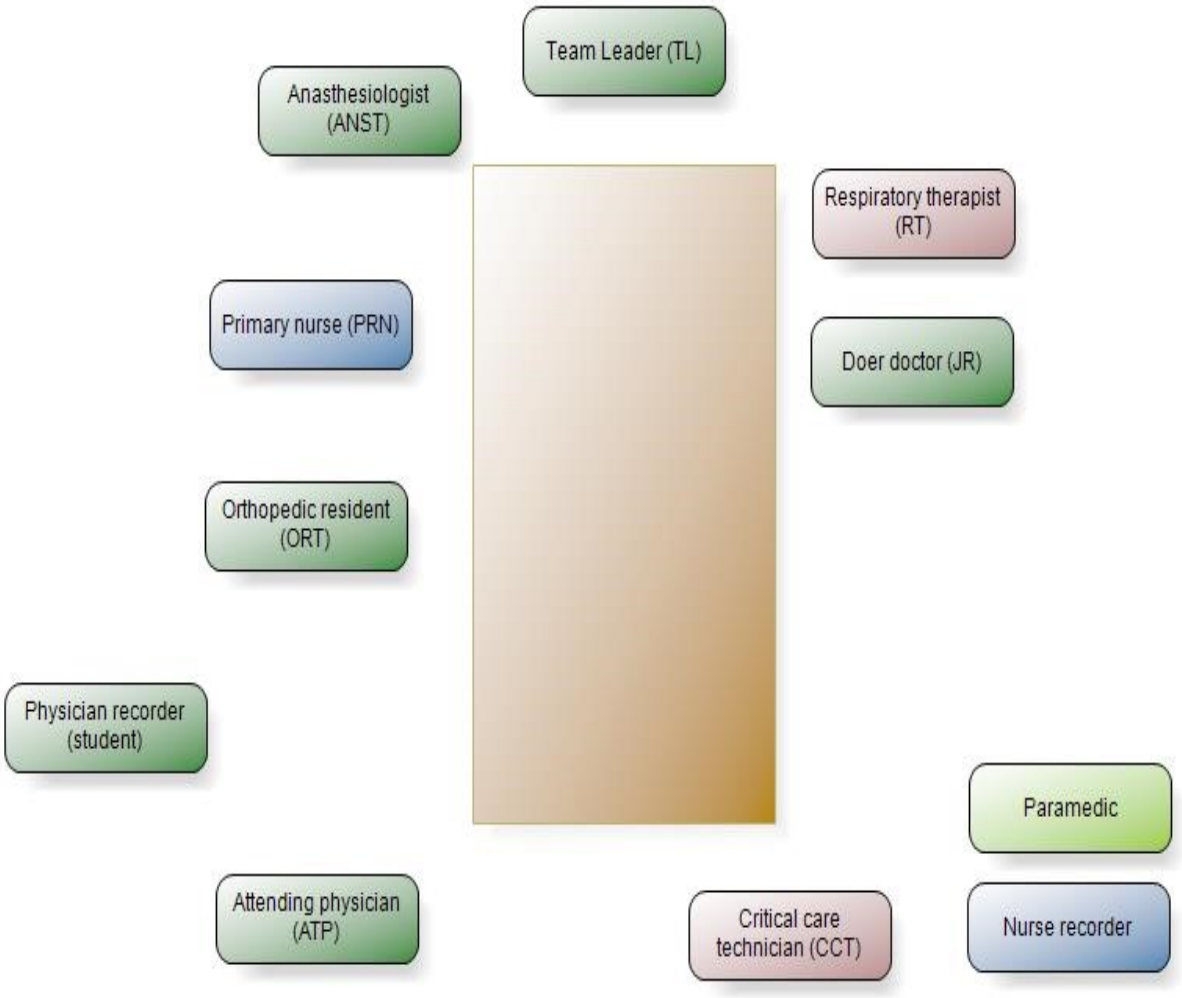


Source: Ministry of Defence (2013) Clinical Guidelines for Operations (p.8)

Other visual representations of handover in the ED, aside from the MoD Clinical Guidelines for Operations, were represented by Sarcevic (2007) and Mellick and Adams (2009), who showed trauma team positions. Sarcevic studied trauma centres and collected data from interviews, focus groups and videotaped trauma resuscitations. Figure 2 is a simplified version of Sarcevic's pictorial representation of a trauma resuscitation in process, showing the position of the paramedic who is confirming handover details with a scribe. This representation features a variety of specialists and roles that are not necessarily available in an NHS hospital. The team leader is at the head, rather than the foot, of the patient in contrast to the MoD diagram but it depicts a similar post-handover role for the paramedic. The original diagram includes the position of technological aids. The diagram by Mellick

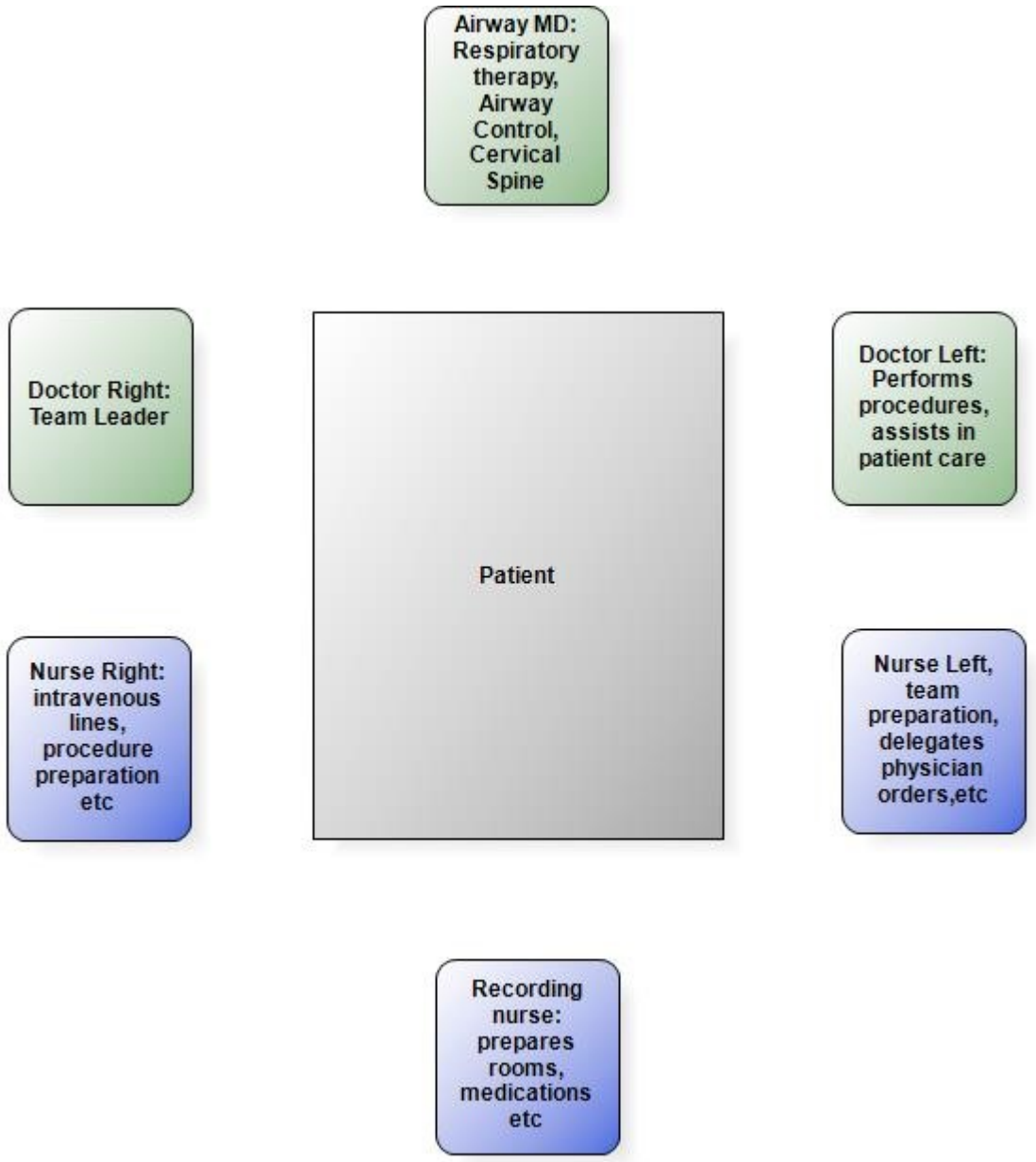
and Adams in Figure 3 shows six trauma team members with the doctors at the head of the patient and the nurses positioned towards the feet. Mellick and Adams (2009) are specific in ascribing roles and positions with the team leader at the upper right hand side of the patient in contrast to the MoD (2013) and Sarcevic (2007) who position the leader at the patient's head.

Figure 2 Sarcevic trauma configuration



Source: Sarcevic 2007, p.3

Figure 3 Mellick and Adams trauma configuration



Source: Mellick and Adams (2009)

The MoD document provides guidance on handover communication between paramedics and hospital receiving staff including the use of the ATMIST handover mnemonic which evolved from MIST. The military has evolved handover protocols in response to the extreme circumstances of the war zone environment and the ATMIST handover tool appears as MIST in the JSP whereby 'M' represents Mechanism, 'I' as Injury, 'S' as Signs and Symptoms and 'T' as treatment.

The MoD state that the MIST handover tool should be given at "*each successive level of care"* (2010, p.41) and the timeframe involved. The MIST handover is described as follows:

> "*The MIST handover takes no more than 20-30 seconds. All members of the receiving team are to listen. If CPR is in progress, there is catastrophic external bleeding or the airway is obstructed allow the clinical care at the next role to start first."* (MoD 2013, p.41)

2.4.5 Critical Review: Transition

A narrative review was also conducted on the literature on transition because of an absence of papers on transition relevant to paramedics in the military. This included a review of theories on transition. The literature review on transition came latter because following the interviews and my initial analysis of the data it became clear that transitions was an important theme. For these reasons a third literature review was conducted to explore literature that would help me think about this them in more detail. The following Table 10 contains information on the results of the literature review on transition and includes theoretical works which contributed to an understanding of transition theory:

Table 10 Results of the literature review on transition

	Author	Year	Methodology	Focus	Findings
	Transition – narrative review				
1	Coleman	2011	Semi structured interviews	Health care workers in transition	20 semi structured interviews were conducted with Emergency Care Practitioners and data was thematically analysed according to framework analysis for applied policy research. The study found that ECPs

					had difficulty transitioning between different care teams due to team, organisation and personnel dynamics.
2	Tregunno et al	2009	Semi structured interviews	Health care workers in transition	30 semi structured where interviewed with migrant nurses in Canada between 2003 and 2005. Identifies five themes: 1) expectation of practise 2) nurse-client relationship 3) resource utilization 4) Language and 5) Being an outsider
3	Koenig et al	2014	Semi structured interviews	American service personnel	Semi structured interviews were conducted with 31 veterans from Iraq and Afghanistan and analysed using Grounded Practical Theory. This study found that veterans had problems making the transition to civilian life and describes this as 'reverse culture shock' affecting intra and interpersonal and professional and educational realms. The study found this was due to tensions between civilian and military identities.
4	Peterson	2011	Interviews informed by phenomenological	American service personnel	Phenomenological interviews conducted with 9 National Guards members who were returning to their civilian roles after a military deployment for a dissertation. This found nine themes relating to expectations, time taken to adjust, lack of transitional support from the military, preference for military type roles, military experiences were beneficial in the civilian world and

					actions taken to ease the transition to the civilian world.
5	Schaefer et al	2013	Longitudinal interviews	American service personnel	This was a longitudinal study with US Army reservists (7 waves over a 12 month period) looking at how they managed the return to a civilian workplace after a military deployment.
6	Vest	2013	Interviews	American service personnel	This study interviewed US Army National Guard personnel before and after deployments using an ethnographic approach. It found that before deployments the participants had separate military and civilian identities but after deployment these identities became entwined.
7	Macmanus et al	2014	Literature review	Mental health of British service personnel	Identified 34 studies which met the inclusion criteria. Found that reservists have a greater risk of mental health problems following return from deployments. These included reintegration, home coming experiences, lack of support from the military, and problems with social functioning,
8	Dunt	2009	Review	Australian military mental health services	Six month review of mental health services in the ADF including provision for those discharged due to mental health problems. Suggests that reservists are more vulnerable to mental health problems because they enter as individuals rather than units,

					lack of military support, misunderstanding of friends and family.
9	Brereton	2015	Survey	Australian military mental health services	Found that reservists had generally positive experiences of deployment and reintegration but this was different for different types of deployment.
10	Harvey et al	2011	Survey	British service personnel	This study found that maintaining social networks was important for military personnel and had a protective factor against alcohol misuse, and common
11	Dandeker et al	2011	Survey	British service personnel	Questionnaires were received from regular serving personnel (n=6511) and regular services leavers (n=1753) and analysed using STATA version 11 software. The surgery found that service leavers and serving military personnel have different levels of social integration, and this was related to mental health. It appeared that this social contact had a positive effect on mental health, and service leavers who socialised less were more likely to have common mental health disorders (although not PTSD symptoms). However, levels of increased socialization were also linked to alcohol misuse in both groups.
12	Lornsky-Feder et al	2008	Theory	Israeli military reservists	Lornsky-Feder et al (2008) found that it was useful to borrow the concept of

					"transmigrant" from social anthropology to describe the experience of reservists and how they make the transition between different worlds.
13	Schlossberg	1981	Theory	Transition theory	Develops transition theory forward from traditional view that development stops at adult hood.
14	Nicholson and West	1988	Theory	Transition theory	Developed a simplified transition model designed to account for all type of transitions that adults go through.
15	Schiller	1992	Theory	Transmigrant theory	Developed a concept of transition that accounts for the experiences of people who make transitions between different countries.
16	Williams	2008	Theory	Change Management	Provides an overview of transition theories.
17	Anderson et al	2012	Theory	Transition theory	Develops a theoretical concept of transition developed from occupational therapy.
18	Friedman and Stone	2008	Guidebook	Advice for American service personnel	A guidebook intended as a resource for American service personnel.

2.4.5.1 Interviews and surveys

A total of six interview and survey based were included in this narrative review including Coleman (2011), Tregunno et al (2009), Koenig et al (2014), Peterson (2011) Schaefer et al (2013) and Vest (2013). Coleman et al (2011) conducted 20 semi structured interviews with emergency care practitioners as they attempted to integrate into health care teams in the UK. Coleman (2011) used an appropriate method and methodology to show that transition is multilevel and includes the individual, team and organisation. They discovered some of the difficulties associated with

introducing a new clinical role and how teams and individuals managed this integration which could partly be overcome by personal factors, explanations of role, and supportive management structures. These challenges were described as:

> *"The requirement of the ECP role to work across traditional organisational and professional boundaries raised significant challenges for integration into existing health care teams. Tensions operated at an 'individual' and 'collective' level. These were attributed to lack of understanding about what ECPs are and what they can do, inter-professional jealousies, protecting self-interest, fear of losing resources, perceived differences in pay, education, qualifications, and in clinical competence. The strategies used by ECPs to smooth their integration can be conceptualised as a combination of military ('numbers of ECPs on the ground'), ('behind the lines') and diplomatic ('winning hearts and minds'; 'building relationships', 'foreign aid') actions. However, the experience of reshaping existing teams were also associated with weakening the traditional employer employee links, and straining relationships between ECPs and those who they had previously regarded as colleagues working for the same organisation ('feelings of being in no-man's land')."* (Coleman et al, 2011).

Tregunno et al (2009) looked at the experiences of international nurses migrating to Canada and the challenges they encountered and found that they had problems with work expectations, roles of patient family and friends, and cognitive fatigue from working in a foreign language. The Tregunno et al (2009) study comprehensively explains the recruitment, selection and ethics processes. Uses Benner's Novice to Expert theory (1984) to account for how migrant nurses manage workplace transition but this does not convincingly account for transition. The two studies by Coleman (2011) and Tregunno et al (2009) identified different challenges for healthcare professionals making transitions including team integration and role expectations but these were not issues reported by paramedics in the interviews for this study.

Another interview based study by Koenig et al (2014) interviewed 17 male and 14 female reservists and found that:

> "*Veterans described disorientation when returning to civilian life after deployment. Veterans' experiences resulted from an underlying tension between military and civilian identities consistent with reverse culture shock. Participants described challenges and strategies for*

managing readjustment stress across three domains: intrapersonal, professional/educational, and interpersonal." (Koenig et al, 2014).

This study used appropriate methods and methodology and had an adequate sample size. It recommended a role for healthcare workers in supporting veterans with transition to civilian life (Koenig et al, 2014).

Peterson (2011) looked at how National Guard soldier's made the return to work after deploying in a phenomenological based study and found that service personnel were surprised when they encountered challenges returning to their civilian work and that the military had not prepared them for this. They also found that their deployment experiences had a positive effect on their civilian careers but they preferred roles that had similar values to the military. The Peterson study (2011) used a relatively small sample size which is compatible with phenomenology but makes the results of the study less transferable.

Two studies carried out interviews with American service personnel and covered the issue of transition. Schaefer et al (2012) carried out a longitudinal study entitled "*Work adjustment after combat deployment: reservist repatriation*" involving interviews with American service personnel and developed a theoretical model for the reintegration process which consisted of four parts "*Return Home, Return to Work, Activation, and Settling In*." The study by Schaefer et al (2013) used appropriate methodology and methods. The authors present a process model made up of four phases: Return Home, Return to Work, Activation, and Settling In.

Vest (2013) carried out semi structured interviews with reservists in the US National Guard informed by an ethnographic methodology. This study found that before deploying reservists held two separate and distinct identities as service personnel and civilians but after deployment these became entwined. However this study focuses on issues of identity rather than transition between the two environments. Aside from interviews it was not clear how this study by Vest (2013) was an ethnographic study. Friedman and Stone (2008) produced a handbook for American service personnel and their families which offered practical advice for re-entering the workplace but was not a formal study or paper. Friedman and Stone (2008) wrote a guidebook intended as a resource for American service personnel. It covers a range of advice for American service personnel but does not contribute to transition theory.

A paper by MacManus et al (2014) published in the *Journal of Royal Army Medical Corps* focused on mental health in the armed services as a whole and identified a quality of "resilience" which protected troops from mental health problems but also found an over reliance on alcohol misuse. The literature review carried out by Macmanus et al (2014) adequately describes how the literature review was conducted. Reports findings of literature on reasons for higher rates of mental health problems in reservists but does not contribute to theory. It is difficult to draw conclusions from studies of mental health in the military. This is because service personnel are drawn from diverse backgrounds and undertake different types of roles which may involve desk jobs or soldiering in active operations whilst the number and intensity of deployments can vary also.

2.4.5.2 Surveys and reviews

A total of four sources were identified which referred to surveys or reviews and these were Dunt (2009), Brereton (2015), Dandeker et al (2011) and Harvey et al (2011). These represented large scale surveys of the mental health of military personnel commissioned by the respective governments of the UK and Australia. Dunt (2009) produced a review of Australian Defence Force mental health services and recommended that service personnel should have pre deployment briefings as well as post deployment briefings to support their mental health and ease the transition through discharge. Dunt (2009) produced a comprehensive government review and included difficulties of transition for reservists. This study showed the importance of mental health services in supporting military personnel through such transitions.

Brereton's review (2015) carried out a post deployment survey of Australian reservists' mental health at six month and two year intervals which showed that reservists had few mental health or alcohol problems but identified a quality of "hardiness" which correlated with positive perceptions of their deployment experiences – this may be similar to the 'resilience' described by MacManus et al (2014). Brereton (2015) suggests ways of helping reservists readjust back to civilian life after a deployment in order to recognise their contribution and status. It was not clear how many respondents were involved in the study and the data is presented as percentages. Whilst contributing information on mental health and service personnel the aforementioned studies contributed little to understanding about the challenges of transition or how this impacts on mental health or clinical practise.

Dandeker et al (2011) carried out a study of nearly 5,000 reservists from the British military and found that they need more support from the military and had an increased risk of Post-Traumatic Stress

Disorder (PTSD) and alcoholic misuse as well as problems with social functioning which represented a large scale study. The Dandeker et al (2011) paper acknowledges that the circumstances of leaving the military were not considered by the study and this might be significant for the outcomes and also for transition theory. Also the number of service leavers was considerably smaller than the numbers of serving personnel. The study by Harvey et al (2011) found that maintaining social networks was important for military personnel and had a protective factor against alcohol misuse. Both these studies focused primarily on mental health and alcohol misuse rather than issues connected with transition.

It is clear from this work that military personnel experience problems with transition and the literature suggests that the military has a role in preparing them for this. Such briefings could forewarn paramedics about the type of difficulties they might expect such as frustration with certain types of patient presentation or concerns about the behaviours of NHS hospital receiving staff. It also found that some of this difficulty was due to issues around identity.

2.4.5.3 Transition theory

Schlossberg (1981) produced a theoretical framework for how adults manage transition and develops transition theory forward from its traditional view that development stops at adult hood. Nicholson and West (1988) developed a simplified transition model designed to account for all type of transitions that adults go through. The transition model is intended as one of "perpetual motion", "interdependence" and "discontinuity". Schiller (1992) developed a concept of transition that accounts for the experiences of people who make transitions between different countries and describes transmigrants as people who 'develop and maintain multiple relations- familial, economic, social, organizational, religious, and political – that span borders." (1992, p.ix). Williams provided web based overview of transition theories and change management but does not develop these transition theories or models. Anderson et al (2012) develops a theoretical concept of transition developed from occupational therapy which describes a transition as 'any event or non-event that results in changed relationships, routines, assumptions, and roles' (2012, p.39)

The most relevant paper identified in the narrative review was by Lornsky-Feder et al (2008) who were inspired by a term from social anthropology to describe reservists in the Israeli army as "transmigrants" (p.597) because they move between civilian and military environments and take on these identities. Lornsky-Feder et al (2008) successfully developed a transition model derived from transition theories to explain how military reservists move between civilian and military

environments. Lornsky-Feder et al thought it was worth studying reservists because they *"…constantly move between dimensions of space and time and mediate social contexts of involvement and knowledge."* (2008, p.599). This study commented on the lack of studies on reservists (2008, p.598) and ascribed this to an academic bias inherited from regulars who see themselves as the "*true professionals*" who "*dominate military culture*". They found that reservists bring a number of advantages to their military practice including civilian expertise and experience, and found that they were more suited to peace keeping roles because they were older and less aggressive (2008, p.599).

Reservists could bridge the gap between the two worlds and acted as "*cultural carriers*" (2008, p.600) because "*What is peculiar to reservists then again is their dual rootedness in two worlds: they are the only players with a firmly planted foot in both the civilian and military realms*." (2008, p.601). Moreover, reservists have the potential for critical thinking as they leave and re-enter the military (2008, p.601) and this means that in countries such as the UK and Israel which have relatively large reservist forces, politicians needed a stronger consensus for armed intervention if reserve forces are to be deployed (2008, p.602). They also found some hostility from regulars towards reservists because of their transmigratory status and suspicions that they were less skilled and lacked commitment:

> *"Just as transmigrants coming back to one of their homes, so reservists sometimes understand that they are strangers to what was their home in the past and may perceive themselves as not being fully part of this local world. The "locals," in our case members of the regular force, thus may look on the transmigrants with ambivalence or suspicion."* (2008, p.603)

Lornsky-Feder et al found that there was a different psychological contract between reservists and the military who had in many cases formed lobby groups that were critical of the military and government policy (2008, p.604). Moreover they discovered that there were often circumstances were older, more experienced reservists were being managed by higher ranking regulars who were much younger and less experienced (2008, p.606).

2.4.5.4 Conclusion

The literature review looked at handover communication in civilian context and military emergency care settings. It found that there was a dearth of information on handover in civilian emergency care settings and very little understanding of handover communication in the military. Most of the papers on handover communication focused on aspects of standardisation and there was little

acknowledgement of how the ATMIST mnemonic was developed in military care settings. Consequently there was a lack of debate about the appropriateness of transferring handover practises developed by the military into the civilian setting. The literature review demonstrated an absence of studies published on handover communication before 2000 but growing interest in handover communication since then. The literature on handover communication has shifted over the years from recommending further standardisation to warning against too much standardisation and more lately concerns have been raised about the impact of performance management targets.

The lack of papers that met the CASP criteria on handover communication in military emergency care settings and transition meant that narrative reviews were conducted of the available resources. The literature on handover in the military demonstrated a gap in knowledge on how handover communication is practised. Furthermore, little is known about how paramedics make the transition between military and civilian emergency care settings or how this affects their mental health or clinical practise. It was necessary to look at transition theory drawn from occupational health and psychology to understand how paramedics might make sure transitions. This suggested that transition was not a linear process and that reservists who moved between civilian and military settings could be viewed as transmigrants.

Chapter 3: Design, Methods, and Ethical Issues

3.1 Introduction

This study explored handover communication by conducting semi structured interviews with paramedics to capture their experiences. It sought to uncover how working in the military affects paramedics' expectations and practise of handover in the NHS and how they manage the transition between these two different environments. A variety of methodological approaches have been employed to study handover communication by other researchers including grounded theory, and phenomenology. The qualitative studies on handover communication have mainly used interviews and video data whilst the few quantitative studies have employed audits of patient notes (Cooper et al, 2009). This study was informed by a mixed methods approach, and used semi structured interviews augmented with reflexive diary entries from my own work in the NHS and military settings.

3.2 Ontology and epistemology

The ontological approach (how we know what we know) underpinning this study asserts that reality is subjectively constructed and can be understood through epistemology approaches and this is consistent with a qualitative study approach which uses semi structured interviews and reflexive diary entries. The semi structured interviews seek to uncover the experiences of paramedics and what they think about handover. This study also involves self-reflection in the form of an interview diary and reflexive diary entries to add further depth and context to the data gathered in the interviews.

I chose to use semi-interviews and reflective diaries because these gave me access to the world of the paramedics. This provided a way to understand their subjective experience and thinking. It was also a pragmatic approach given the time constraints and opportunities afforded me as a post graduate. Semi structured interviews allow the participant to express the uniqueness of their experiences and personal views, which are informed by their clinical practise and military training, but also allow them to be guided.

My experiences as an Emergency Nurse in NHS EDs, and as a flight nurse deployed to Camp Bastion, provided important information about the environment in which paramedics give handover and insight into how shared collective professional identities are expressed in this context. My background

enabled me to understand medical terminology, differences in handover style, the challenges of inter professional working and transitioning between military and NHS settings.

Health care environments are places where onlookers are often present; these might be uninformed onlookers such as relatives and friends of patients, or informed onlookers such as colleagues, students or supervisors. It is possible that this experience of being watched changes the behaviour of the healthcare professionals, otherwise known as the Hawthorne Effect (McCarney et al, 2007), but in the course of observing handover I was accepted as just another team member. Vuga and Juvan (2014) used reflexive diary entries in their study of the Slovenian Armed Forces. According to Deschaux-Beaume interviews are a useful way of researching the military for two main reasons:

> *"Getting first-hand information to the extent that most of the time the researcher does not have an extensive access to the grey literature or internal documents in a research context where the secret and very specific military language constitutes an issue for the analyst."* (Deschaux-Beaume, 2014, p133).

3.2.1 Consideration of other methodologies

In the course of my studies I considered a range of possible approaches including Critical Discourse Analysis (CDA) which would have aided with understanding elements of the handover experience because it seeks to critique social norms and values, and challenge power structures. However, CDA crucially requires a very different and more detailed kind of data that would not have been possible for me to collect. Phenomenology offers a methodology for understanding subjective experience, and the paper by Elmqvest et al and published in the Scandinavian Journal of Caring Sciences offers a clear example of this (2010), but it lacks a prescribed method for gathering, processing, synthesising and analysing data (O'Leary, 2009, p.122) and I want to include my own reflexive accounts. Moreover, phenomenology does not explicitly seek to uncover power structures which may be internalised or embedded within the mind and expressed through language and behaviour. Grounded theory is especially useful for areas where less is known and where the aim is to develop a theory but this was not the task of this PhD.

Ethnography can shed light on how patients experience disease and ill health, and the perception of health and illness affect outcomes. According to Savage:

> "*Through the nature and range of methods it can adopt, ethnography can provide a nuanced understanding of an organisation and allow comparison between what people say and what they do. It can, for instance, help to identify the ways that an organisation's formal structure (its rules and decision making hierarchies) are influenced by an informal system created by individuals or groups with the organization or indicate how professional knowledge is locally produced in particular settings*." (2000, p.1402).

However, there are some drawbacks to using ethnography in health research and Savage identifies the two most obvious ones that make funders nervous: the lack of generalisable findings and the labour intensive nature of the work which impacts on costs and time (2000, p.1402). Whilst I was inspired by ethnography I recognised that time constraints limited my ability to do this justice but I borrowed some techniques for diarising and reflexive notes.

The main objectives of this study were to gain insights into how handover communication is conducted by paramedics in two different organisations, how this affects their expectations and clinical practise, and how they manage the transition between emergency care settings. The approach to the methodology and methods was pragmatic and informed by previous literature.

3.3 Research design

This was a small scale qualitative research study using semi structured interviews. The study used a mixed method approach and intended to inform the debate on handover communication by exploring the experiences of paramedics, who have given handover in NHS and military environments, and was supplemented by reflexive diary entries. The diary entries are not statistically generalisable and are based on the experiences, insights, and recollections of one person at a particular time and place. It may be that the nature of the fighting subsequently changed, after the summer of 2012, leading to different patient injuries, and requiring adaptations in clinical care including handover communication. Deployments are fluid and affected by events, international and local politics, resources, personalities and managerial initiatives. Therefore the reflections, recollections, illustrations and writings are subjective representations from a specific time and place – Camp Bastion ED, spring/summer 2012 – and cannot be generalised.

This study does not aim to evaluate the effectiveness of handover practises. Instead it provides evidence of, and insight into, the experience of paramedics conducting handover in military and civilian settings. It seeks to provide a greater understanding of the differences on handover from the

perspective of a particular group of professionals which may provide the basis for further evaluation of handover tools.

3.3.1 Recruitment and conduct of the interviews

The following describes the recruitment process for the Ministry of Defence, South Central Ambulance Service NHS Foundation Trust and the Emergency Department, University Hospital Southampton NHS Foundation Trust (UHS). The process was similar in all three organisations. A key informant was identified who agreed to publicise the study (using a circular email), interested parties were invited to contact the researcher directly for more information, participants were sent further information and consent forms, interviews were arranged and took place, and participants were offered further information at the end of the interview on support services available. Please see the Table 11 below for the recruitment process:

Table 11 Recruitment process

Interview stage	**Process**
Key informant	Advertises and circulates study details to potential participants. Potential participants asked to contact researcher for more information.
First contact	Researcher sends potential participants an email with an information sheet, topics for conversation and consent form. Potential participants are asked to contact researcher to arrange interview date, time and location for interview if they wish to take part in study.
Pre interview	Researcher sends participants letter confirming date, time and location of interview plus text or email the day before the meeting
At the interview	Researcher collects consent forms (and take spares), one for the file/one for the participant. Participants reminded that they can stop the interview at any time.

	Participants asked how they wish the researcher to act if they were to become upset during the interview.
Post interview	Participants offered information of organisations that offer mental health support.

The RAF approved the study on the condition that the research protocol was approved by the Ministry of Defence (MOD) Ethics Committee and this came through in March 2014. A key informant was identified who assisted with publicising the study and recruiting paramedics. An email was composed which the key informant circulated to a list of paramedics and this is contained in Appendix A. This email invited those who wanted to find out more about the study and potentially take part, to contact myself. This ensured that no coercion was involved as the key informant did not know who had expressed an interest. The recruitment criteria specified paramedics between the ages of 18 and 55 who had experience of giving handover in the NHS and in Afghanistan.

Participants including the interviewee who volunteered for the pilot interview were asked to sign a consent form before the interviews took place and these were collected at the interviews (Appendix B). Further information about the study (Appendix C) and details of mental health support services were provided to participants (Appendix D). They were reassured that participation was voluntary, that they could withdraw from the study up to seven days after the interview (none did so) and that their identity would remain confidential. Participants were reminded at the start of each interview that recalling the subject matter might be distressing and I asked them beforehand how I should act if they did become upset during the interview.

The first interview served as the pilot interview and interviews lasted between 45 and 90 minutes to ensure sufficient data was gathered without tiring the participant. It was necessary to gain approval from the University of Southampton's Ethics Research Governance Office (ERGO) as well as the military before the study could go ahead. For more information about these permissions and processes please see the next section on ethics.

It was my intention to conduct one to one semi structured interviews with between 12 and 30 paramedics lasting between 45 and 90 minutes about their experiences of handover communication in military and NHS settings. I was able to recruit 13 paramedics to the study as well as an additional informant interview with a senior emergency doctor from the military and a pilot interview with a reservist emergency nurse. I used semi structured interviews because they offered sufficient structure

to guide the interview but enough flexibility to allow the interviewee to express opinions and the opportunity to offer insights. Interviews are a way of producing "*researcher-provoked data*" (Silverman, p.471, 2011) and were effective at producing data for this study.

An interview field diary was kept alongside the transcripts which contained notes and impressions from interviews and anonymised information on participant characteristics. The interview field diary consisted of learning points from the interviews as they progressed, general notes about handover, and reflexive notes regarding ideas and themes. For example themes emerged on differences in the way that reservist paramedics, regular paramedics and doctors handover, the appropriateness of adopting ATMIST to a medical model, differences in handover communication (both paramedic and hospital receiving staff) across the country, and the use of aide-memories to facilitate handover.

The diary assisted with the reflective process and was a useful tool for avoiding over identification. It occurred to me that affirmations might leak out through unconscious cues such as nodding, smiling, eye contact, and murmurs regarding subject matter that I was particularly interested in, so I remained aware at all times of what I was doing with my body language. The most difficult interview took place with a paramedic who was not particularly communicative in contrast to the vast majority of interviewees. I wrote in my field diary about how I resisted conveying this frustration through my body language and allowed the interview to find a natural rhythm. The field diary was invaluable for aiding reflection during the data gathering process.

For example, I had the habit of looking down at the interview schedule to see what the next question was but the paramedics sometimes took that as cue to finish what they were saying to the previous question. I therefore made a conscious effort not to do this but to have in my mind what the next question was and to leave a long enough gap after the interviewee had finished speaking before checking the interview schedule or asking the next question. However if the gap in time was too long, it looked instead like I didn't know what was coming next, so a balance had to be maintained. I found the interviewing skills I had developed in my clinical roles extremely helpful whilst conducting the interviews. It was important to appear comfortable with silences when they naturally occurred, rather than rushing the interviewee, and remain emotionally connected through out so that appropriate social cues were given if confirmation or understanding was sought without seeming to 'hang on to every word' and make the participant feel uncomfortable.

Data was kept anonymised and secure in accordance with the Data Protection Act 1998; and patient confidentiality respected in accordance with the Nursing and Midwifery Council (NMC) Code of Conduct. However participants were informed that confidentiality might be broken if a disclosure was made which constituted a breach of military or clinical code, and fortunately this was not necessary. If such an incident had taken place then then I would have sought advice from my supervisors as to how to proceed. Participants were provided with an information sheet containing details of the appropriate complaints procedure in case they wished to make a complaint and resources to further support. No complaints were received regarding this study.

These processes were maintained regarding the recruitment of the key informant (senior military doctor) and the pilot interview (a reservist nurse). However, the key informant did not wish to be recorded or directly quoted and only hand written notes could be taken in the actual interview. Nevertheless this interview was helpful in terms of thinking about the interview schedule and provided insights into how some of the medical military practises had evolved.

3.3.2 Reflexive diaries data collection process

Baker and Edwards (2012) addressed the issue of *How Many Qualitative Interviews is Enough*? in a paper for the National Centre for Research Methods. They interviewed 14 eminent social scientists and came up with the answer *'it depends'* - on practical, epistemological, and philosophical considerations (p.42). Adler and Adler who were interviewed for the publication considered that 30 is a reasonable number of participants for a medium sized qualitative study. They wrote:

> "*We often suggest aiming for a sample of loosely around 30. This medium size subject pool offers the advantage of penetrating beyond a very small number of people without imposing the hardship of endless data gathering, especially when researchers are faced with time constraints. This is a good round number, particularly if interviews are supplemented with participant-observation*." (2012, p.9)

It was not known at the earlier stages of this study what proportion of paramedics invited to take part in the study would express an interest in doing so. If more than 30 had responded then I had planned to turn some away based on geographical proximity. If less than 12 had responded then a deeper analysis of the interview data would need to have been undertaken. I explored the possibility of recruiting additional paramedics and other healthcare professionals from South Central Ambulance Service NHS Trust (SCAST) and the Emergency Department (ED) at Southampton University Hospital NHS Trust (SUHT) in case sufficient numbers could not be recruited through the military but this was

not required. A total of 13 interviews were conducted in addition to one pilot interview and one key informant interview.

The previous study on handover communication used an ethnography approach and methods consistent with such as field work observation, videotaping and interviews. This PhD study focused on the paramedic experience but makes use of data collected through reflexive diary entries drawn from reflective field notes and supplemented by drawings. These notes explore handover communication between paramedics and hospital receiving staff in diverse handover settings and were based on experiences of working in the ED at Camp Bastion and in the NHS. This is a method that has been used by other researchers studying paramedics. McCann et al used reflexive diary entries and semi structured interviews with paramedics to explore the extent to which the role has been professionalised in a paper entitled "*Still blue-collar after all these years? An ethnography of the professionalization of emergency ambulance work*" published in 2013. This paper stated:

> "*Field observations and in-depth interviews were the methods deployed to explore the experiences and interpretations of front-line and managerial staff, as well as to gather contextual data on changes to NHS ambulance provision."* (2013, p.757).

The diary used to write up my observations was a simple handwritten affair using nothing more than regular notebook purchased from a store. It included written notes, drawings, reflections and observations. The results of reflexive diary entries on the handover process can be seen in the findings section. Reflexive diary entries can be defined as:

> "*A method in which a researcher takes part in the daily activities, rituals, interactions, and events of a group of people as one of the means of learning the explicit and tacit aspects of their life routines and their culture.*" (DeWalt and DeWalt, 2010, p.1).

One of the benefits of adopting reflexive diary entries for this study is that it avoided the problem that many researchers encounter gaining access to a group, being accepted as part of the culture, or understanding the culture. Vuga and Juvan (2014) report how participant observation can overcome some of the difficulties in gaining access to military organisations and trust. They write:

> "*Even after a researcher enters the military, they are confronted with yet another obstacle, namely, gaining the trust of the servicemen/servicewomen. The researcher's presence itself presents another problem. It is almost impossible to ensure the 'normal' functioning of the*

military when there is an 'intruder' in its midst. This can be partially overcome if the researcher is a member of the military organization." (Vuga and Juvan, 2014, p.116)

Because I was already a qualified nurse and serving in the UK military I was able to overcome the difficulties that an outsider would normally encounter. I have worked and trained alongside other healthcare professionals in both military and non-military settings and can relate to the difficulties of transition, hierarchy and role when working between different environments and organisations. I was serving as a flight nurse when deployed to Camp Bastion in the Spring/Summer of 2012, and this involved observing handover communication in the ED at Camp Bastion hospital for the purposes of compiling flight reports for patients. These reports were compiled for UK service personnel and other nationals who had been injured or were sick and needed to be returned to the home nations or moved to different hospitals with Afghanistan.

Reflexive diary entries can provide insight into aspects of culture or clinical practise and render them meaningful in the context within which they are taking place and this is why it was useful for this study. The data collected from the reflexive diary entries helped to inform the interview schedule. For example, as mentioned in the literature review, the MoD Clinical Guidelines for Operations (2013) outlines how handover communication should be conducted but additional clinical practises have evolved around this and I was able to observe these first hand**.** This is largely undocumented although some aspects have been described by Hodgetts and Mahoney (2009).

To some extent the practises that have evolved around handover are due to the preferences of the team on the ground notably the lead consultant who remains in command. I only observed one tour and what I observed was only relevant to that specific time and place – other practises may have developed with different personnel in charge and in response to the evolving nature of the conflict, seasonal change and patterns of injuries. The practise of leaving the patient outside the ED whilst the handover is given is not documented in MoD Clinical Guidelines for Operations (2013) and only by observing this practise first hand did I understand the rationale behind it. The practise was unrelated to clinical considerations and driven by security considerations; it may have impacted handover but this was coincidental. This observation and understanding was significant to the findings of this study.

In total I observed seven handovers at Camp Bastion hospital. Three of these involved UK nationals, two concerned US service personnel and a further two were members of the Afghan national security services. It was the perfect role to observe handover and reflect on the literature review, which had

been undertaken previously, as it did not interfere with my clinical role. The value of reflexive diary entries in this study is demonstrated by the fact that a simple reliance on the literature or just interviews would not have uncovered many aspects of handover communication which are not described in the literature or Clinical Guidelines for Operations (MoD, 2013).

This setting lent itself to reflexive diary entries because it met features identified by Jorgensen:

> *"-the research problem is concerned with human meanings and interactions viewed from the insiders' perspective;*
> *-the phenomenon of investigation is observable within an everyday life situation or setting;*
> *-the researcher is able to gain access to an appropriate setting;*
> *-the phenomena is sufficiently limited in size and location to be studied as a case;*
> *-study questions are appropriate for case study; and*
> *-the research problem can be addressed by qualitative data gathered by direct observation and other means pertinent to the field setting."* (Jorgensen, 1989 p.13).

Like any method there are drawbacks to reflexive diary entries. These included over identification with the subject and taking for granted certain practices that an outsider might question. Being a nurse and a member of the armed forces made these issues more pertinent and required careful reflection. Nevertheless, these roles helped avoid some of the pitfalls of field workers recording reflexive diary entries in unfamiliar cultural settings. I did not have to worry about being accepted as one of the team, a problem highlighted by Vuga and Juvan (2014) or the effects of culture shock which can affect field workers who immerse themselves in non-familiar communities. I was less concerned about making faux pas and potentially alienating the subjects being studied and was already familiar with many of the rules of working in a military and clinical emergency care settings.

It is important that researchers can move easily between thinking critically about their experiences and switching back to being involved. According to Jorgensen:

> "*In short, then, becoming the phenomena is a participant observational strategy for penetrating to and gaining direct experience of a form of human life. It is an objective approach insofar as it results in the accurate, detailed description of the insiders' experience of life. In carrying out this strategy, it is important that the researcher be able to switch back and forth between the*

insiders' perspectives and an analytical framework. This may be facilitated by talking over field experiences with colleagues." (1989, p.65).

The research context chapter includes a series of vignettes taken from the diary I kept whilst deployed to Camp Bastion. I made daily entries about the environment, work, relationships and thoughts of home and this provided a useful background for the more detailed accounts of handover in the Emergency Department.

There is some discussion in the literature regarding when to begin the writing up. DeWalt and DeWalt state the following:

"*Some researchers do feel that it is hard, in fact almost impossible, to start writing in the field (…). They feel too close to the material, too enmeshed in the scene to step back and take a more objective stance is one of the reasons to begin writing."* (2011, p.209).

Writing several days after the events was too long and there was a risk of losing key details. I was most comfortable writing up several hours after the shift and could relax without being disturbed. Writing immediately after a shift was too soon. I needed time to relax and process what I had witnessed and experienced whilst remembering as much detail as possible. It was my decision to write as much as I could in the field in order to capture the authenticity of the experience and accurately record what was happening. However, it was not possible to write as I worked because of my clinical role and I was careful to ensure that this did not affect my responsibilities as a nurse. Therefore, I wrote up the bulk of my experiences as soon as the shifts had ended, whilst the analysis and write up has been ongoing since the end of the deployment.

There is a great benefit to the analysis and writing up process, and DeWalt and DeWalt explain how this process adds value to the data:

"…the analysis of field notes is an iterative process. We find ourselves constantly reading and rereading our field notes. Each time we do so, we find new themes, new questions, and we are reminded of events, places, and perspectives." (2011, p.209)

Indeed, each reading of the diary and notes made brings forth different themes, and this was particularly important after conducting interviews with paramedics and informed experts.

3.4 Methods of data analysis

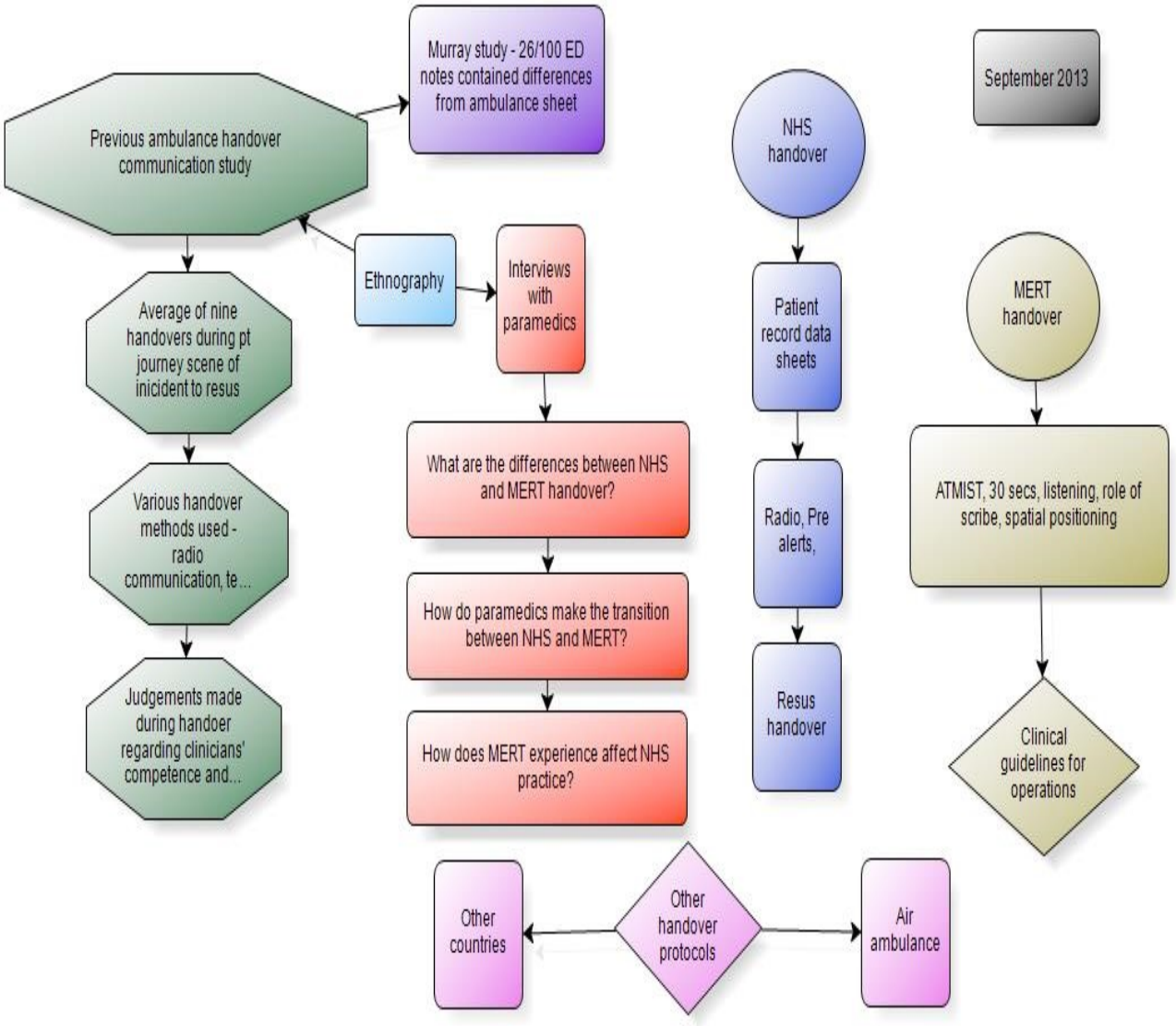
Data generated by the semi structured interviews was collected on digital recording equipment and then transcribed. The data was coded and analysed using Computer Aided Qualitative Data Analysis Software (CAQDAS). These software programmes can facilitate a more effective and deeper analysis of the data over manual coding methods. Hammersley and Atkinson advocate the use of such programmes over traditional methods because they can handle the complexity of qualitative data:

> *"It has been the great strength of CAQDAS not only that data can be coded in complex ways, but also that the data can be searched and retrieved in ways that respect complexity."* (2007, p.155).

The CAQDAS used for this study was NVIVO version 10. NVIVO is useful as a project management tool and can store and assist with the interrogation of the literature review as well as the collation of other resources such as images, web sources, and relevant articles. Please see Figure 4 to see how the project has been mapped using the NVIVO 10 modelling function. This was a useful exercise which enabled me to 'view' my project, the different elements of it, and how the key components related to each other. The data was analysed using an inductive and deductive approach which aided understanding of subjective experiences, behaviours and social constructs. Thomas (2003) details the three main purposes of the inductive approach:

> *(1) to condense extensive and varied raw text data into a brief, summary format*
> *(2) to establish clear links between the research objectives and the summary findings derived from the raw data*
> *(3) to develop of model or theory about the underlying structure of experiences or processes which are evident in the raw data.* (2003, p.1)

Figure 4 Project modelling in NVIVO 10



3.4.1 Addressing rigour

The data was analysed until the saturation point was met. This meant that I repeated the coding of the data until no new codes were identified. I used Microsoft excel spreadsheets to systematically monitor and review my coding, and as a way of checking the validity and reliability. The excel spreadsheet exercise replicated the traditional cut and paste methods of analysing coded data used before computer software programmes became available. This exercise identified themes which were consistent with the NVIVO software and gave me confidence that the NVIVO results were valid and reliable. According to Fusch and Ness in their paper entitled 'Data Saturation in Qualitative Research'

"*Data saturation is reached when there is enough information to replicate the study when the ability to obtain additional new information has been attained, and when further coding is no longer feasible*." (Fusch and Ness (2015)

3.4.2 Defining codes

The approach to coding has been informed by Saldana (2012) who explains what is meant by 'coding', 'code', 'group', 'theme' and 'label' with appropriate examples and an indication of the how they are hierarchically ordered. Some of these terms are used interchangeably and this can lead to confusion. Further misunderstanding arises because NVIVO uses 'nodes' and defines different nodes according to their position in the hierarchy of the data; so instead of themes used in this study NVIVO referred to parent nodes, child nodes and grandchild nodes. The approach to coding has been informed by Saldana (2012) who describes coding as a cyclical process using both inductive and deductive analysis and involves revisiting codes and redefining them (2013, p.10). Coding is defined by Saldana as:

> *"Coding is thus a method that enables you to organize and group similarly coded data into categories or "families" because they share some characteristic – the beginning of a pattern"* (2013, p.9)

And a code as:

> *"A code in qualitative inquiry is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data."* (2013, p.3)

I explored different approaches to coding in order to find one that I was comfortable using but was sufficiently robust for analysing interview data. I experimented with different ways of coding the data including using NVIVO (which I eventually settled upon), old fashioned cut and paste using paper, and Microsoft Excel spreadsheets. I wanted to experience alternate methods of coding to get a better feel of the data but also to see whether similar themes and codes emerged. The results from the paper exercise and excel spreadsheets were consistent with NIVIVO. These exercises were useful because good coding requires practise according to Saldana:

> *"Rarely will anyone get coding right the first time. Qualitative inquiry demands meticulous attention to language and deep reflection on the emergent patterns and meanings of human*

experience. Recoding can occur with a more attuned perspective using First Cycle methods again, while Second Cycle (and third and possibly fourth…) review of data" (2012, p.10).

I was reluctant to write up a provisional list of codes before the start of the study in case this introduced bias, consciously or sub consciously, and forced codes from the data which were not truly reflective of the interviews. However, approaching the coding with some idea of a systematic approach was helpful in providing a consistent idea of what was happening to the data. It was not possible due to time and resource constraints to sit down with a second researcher to check whether the coding was replicable, systematic and reliable. Instead, Saldana suggests an approach for "Coding Compatibility" which includes the following:

"-Carefully consider which coding method(s) may generate the types of answers you need, based on the forms of research questions you pose.

-Insure that the particular data forms (e.g. interview transcripts, participant observation field notes) lend themes to the chose coding methods.

- Depending on the nature and goals of your study and forms of data, you may find that one coding method alone will suffice, or that two or more are needed to capture the complex processes or phenomena in your data.

-Be cautious of mixing incompatible methods; choose each one purposefully.

- Depending on the qualitative coding method(s) you employ, the choice may have numeric conversion and transformation possibilities for basic descriptive statistics or mixed methods studies.

-Coding methods choices may happen not just before but even during and after an initial review of the data corpus, based on emergent or new conceptual frameworks and methodological needs of the study.

-Explore variations of coding based on hunch-driven queries, triggered by nothing more than researcher curiosity to explore "what if…?"

- Data are not coded – they're recoded. Be willing to change your method(s) if your initial choice(s) is not working. (2013, p.65)

Perhaps the key messages here are: choose a coding method which is compatible with the type of data, methodology and research questions; and be prepared to review and change the coding method (s) chosen if the one selected does not appear to work. Following this approach I used a mixture of sub coding, attribute coding and simultaneous coding.

Sub coding is useful for adding analytical depth because it involves attaching codes and additional sub codes to qualitative data. It can be used for many different types of qualitative data including data collected during ethnographic and multi participant studies (Saldana, 2012, p.76). Sub coding also facilitates recoding and categorisation of data because the nuances of the text is carried through. It is facilitated by NVIVO which can create and present coding hierarchies and their review and rearrangement, and allows multiple lower level codes to be created as required together with the ability to explore relationships between codes and sub-codes. This use of sub-coding can be daunting for first time coders warns Saldana (2012, p. 78) but once grasped it can offer a more nuanced analysis of the data. Table 12 demonstrates this approach and shows the sub codes attached to the higher order code of handover communication.

Table 12 Example of sub coding

It depends on the job, sometimes it is written on my glove, other times we have little ATMIST cards so handover cards, and if we can we always try and fill them out for the paperwork trail. You know there is nothing worse than giving them a dirty glove with what you've written on, but we'll come off the helicopter and we've got a couple of minutes in the ambulance because to be honest you don't get time on the helicopter to write anything in the ambulance, you've got another medic so as long as you do a little handover to them, you can relax with your patient a little bit and have that few minutes just to gather your thoughts and write anything down and just get it in your head, what and when you are going to present to them in the hospital when you get through those doors.	Handover communication (1) –military (2) – aide-mémoire (3) - glove (4) Handover communication (1) – military (2) – aide-mémoire (3) – ATMIST card (4) Handover communication (1) – military (2) – paperwork (3) Handover communication (1) – military (2) – aide-mémoire (3) – glove (4) Handover communication (1) – military (2) – time pressures (3) Handover communication (1) – military (2) – other professionals (3) – medics (4) Handover communication (1) – military (2) – patient interaction (3) Handover communication (1) – military (2) – preparing for handover (3) – gather your thoughts (4) Handover communication (1) – military (2) – preparing for handover (3) – write anything down (4) Handover communication (1) – military (2) – preparing for handover (3) – get it in your head (4) Handover communication (1) – military (2) – preparing for handover (3) – presenting to the hospital (4)

Simultaneous coding is useful if there are multiple areas of interest because it ensures that the understanding of interrelationships is not lost (Saldana, 2012, p.82). It is also compatible with NVIVO. A piece of text is selected and codes can be assigned to it as required including different hierarchical codes. The following example used in Table 13 shows a quote from a paramedic who is explaining how he used to be received when handing over an unwell patient in the NHS. This piece of text relates to NHS handover as well as past NHS handover. It refers to how the NHS has changed over time and how behaviours have changed. Previously, the receiving team would miss portions of the handover but now they wait unless a lifesaving intervention is being performed. Thus this one piece of text was given five different codes.

Table 13 Example of simultaneous coding

Selected piece of text: "that's gone away from what's tended to happen in the past when they dive onto the patient they'd start putting on monitoring, somebody would put a stethoscope into their ears and you know they can't hear anything, listen to the chest and then afterwards they would say that they didn't know what's going on because they've missed it all. So there's this move now to make people wait and that's only varied if there's CPR going on and they've got some sort of immediate need for an intervention."
"that's gone away from what's tended to happen in the past when they dive onto the patient they'd start putting on monitoring, somebody would put a stethoscope into their ears and you know they can't hear anything, listen to the chest and then afterwards they would say that they didn't know what's going on because they've missed it all." **NHS Handover**
"that's gone away from what's tended to happen in the past when they dive onto the patient they'd start putting on monitoring, somebody would put a stethoscope into their ears and you know they can't hear anything, listen to the chest and then afterwards they would say that they didn't know what's going on because they've missed it all." **NHS Handover(1) – Past(2)**
"that's gone away from what's tended to happen in the past when they dive onto the patient they'd start putting on monitoring, somebody would put a stethoscope into their ears and you know they can't hear anything, listen to the chest and then afterwards they would say that they didn't know what's going on because they've missed it all." **NHS Handover(1) – Receiving staff missing the handover(2)**
So there's this move now to make people wait and that's only varied if there's CPR going on and they've got some sort of immediate need for an intervention."

NHS Handover(1) – **Changes over time**
So there's this move now to make people wait and that's only varied if there's CPR going on and they've got some sort of immediate need for an intervention**." NHS Handover(1) – Making handover team wait**

This strategy of using subcoding, attribute coding and simultaneous coding forced multiple regarding readings of the data and allowed me to identify the relationship between the codes. I choose a mixture of attribute coding (in order to reflect the characteristics of the participants), and sub-coding (which involves hierarchical organisation of coding) and simultaneous coding (to provide more information about interrelationships of codes). This was compatible with NVIVO and Excel software programmes. I decided to undertake the coding process after I had transcribed all the interviews from a digital tape using dragon speech recognition software, and had read through the transcripts. It is not possible to transcribe interviews using NVIVO but they can be uploaded into the software and coded from there.

According to Lichtman it is important to know when to stop coding as well as when to start (2013, p.247). I was happy to stop after all the interviews had been coded and the codes edited, refined and reordered in NVIVO. This involved correcting spelling mistakes, renaming unclear codes, and gathering related codes under similar headings. This grouping of codes was a vital part of the process because of the excessive number of codes and the same process was followed for the other nodes.

The node 'what's important in handover' had 62 child nodes which needed to be merged in order to make sense of them and aid the analysis. These were copied and pasted into a word document, and colour coded according to their relationship with other nodes. In some cases where there was duplication, this required using the cutting and merging functions but where a hierarchical relationship was involved then the cutting and pasting function of NVIVO was used. The 62 child nodes were grouped into six nodes around the following headings: patient driven factors, communication, human resource factors, preparing for handover, features of handover, and paramedic driven factors. 'Patient driven factors' grouped together nodes which were patient dependent, and indicated that the healthcare personnel was prepared to adapt the handover to meet the needs of the patient. This included social and medical needs.

The 'communication' node contained those nodes that were related to communication between paramedics and hospital receiving staff, and were relevant to descriptions of handover communication and were the responsibilities of staff. 'Human resource factors' centred on issues

around staff resources, working relationships and training. This node featured elements of handover that could be moderated or changed by initiatives such as increasing staff numbers and improving training. The two nodes entitled 'preparing for handover' and 'features of handover' related more specifically to how paramedics got ready for the handover and the elements of handover itself.

Finally, the node on 'paramedic factors' contained factors that were within the control of the paramedics and involved an element of self-reflection and insight into their own practise and profession. The most frequent element in this node was 'communicating what the paramedic had seen.' Here paramedics mentioned what was relevant to the clinical presentation of the patient, the most appropriate treatment pathway and the social context. The ATMIST mnemonic includes 'mechanism' which provides for an opportunity in the handover for paramedics to convey what caused the patient's injury.

> "*…because the ambulance crew that bring the patient in (like we talked about a few minutes ago) are the only people that have seen that person in their home or at the road side or in their own environment or the environment where the event happened."* (Interview 4)

Another repeated comment was that there should be a consistent structure to handover, even a national system especially for trauma patients, which would manage the expectations of receiving and handing over personnel and ensure that the most important information was conveyed in a succinct manner. According to one of the participants this would ensure that:

> "*There is no loss, there is no confusion, there is no bits missing, and that's only going to benefit the patient."* (Interview 5)

These kinds of reflective comment were assigned to the paramedic focused node and parent node 'transition' accounted for 21 child nodes, six grandchild nodes under 'NHS to military' and a further nine under 'military to NHS'. These were refined using the colour coded technique and arranged into five child nodes: 'transition between the NHS to the military'; 'transition between the military to the NHS'; 'respect for NHS colleagues'; 'features of NHS organisation' and 'features of military organisation'. There were more codes under 'military to NHS' compared with 'NHS to military'; indeed it appeared that paramedics had more difficulty making the transition from the military to the NHS rather than the other way round and these were grouped together under 'coping strategies'. Once the codes for all the interviews have been refined and ordered in NVIVO and I was satisfied that saturation had been reached I stopped coding the data.

3.4.3 Coding the data

The strategy of using subcoding, attribute coding and simultaneous coding forced multiple readings of the data and allowed me identify the relationship between the codes (Please see Appendix F for a sample of a coded transcript with coding manual. When approaching the initial coding in NVIVO I kept the coding previously carried out for the pilot interview separate. This meant creating a new file within NVIVO and generating a separate list of codes from the paramedic interviews. The literature review and reflexive diary entries was used to assist with deductively code the data (from the general to the specific). I felt it important to allow the codes to be generated from the interview data in the first instance but the codes and categorisations were constantly refined during the coding process and this impacted the themes that evolved. A theme is defined by Saldana as:

> *"…an outcome of coding, categorization, and analytic reflection, not something that is, in itself, coded….overall a theme is an extended phrase or sentence that identifies what a unit of data is about and/or what it means.* (2012, p.175).

After coding two interviews in NVIVO, I deductively identified 14 separate groups by looking at relationships between codes (paramedic roles in the NHS, difference between working as a paramedic in the NHS and MERT, handover in the NHS, other healthcare professionals, different hospitals, military experience, handover in the military, transition, HEMS handover, what's important in handover, medical version of ATMIST, benefit of working with others, being a paramedic, personalising handover) which was fairly consistent with the interview schedule. These themes where reduced into nine principal themes by studying the relationships between the codes and then down to six themes and finally the following three themes:

- Standardisation
- What's important in handover
- Transitioning

I then proceeded to inductively code the interview data. With codes I looked for actions, beliefs, practises or salient features such as listening to handover, or relationships with other healthcare professionals. This was an evolving process using NVIVO whereby I continually revised and refined codes, sub-categories, categories and themes. A second review of the coding, categories and themes saw most of the data divided into two parts 'Handover in the NHS' and 'Handover in the Military' which was necessary for the comparative process. This decision had a positive impact on the analysis

because it was easier to unpick the meanings from the themes. The third part of the coding process involved editing the codes and refining the coding hierarchies.

When coding the data I was mindful to question myself about my reasons for selecting this or that piece of text, and assigning or creating codes, sub-categories, categories and themes. Barbour is concerned that codes that are "*derived from participants' words and concepts*" do in fact "*bear all the hallmarks of having originated in the researcher's a priori categorisations*." (Barbour, 2008, p.197). It is therefore important to employ a consistent approach to coding, which could be consistently replicated by another coder.

For example, I identified 'standardised handover' as a theme in the military data set and this linked a number of categories relating to handover practises including the practise of 'leaving the patient outside the resuscitation room' which is a feature of handover at Camp Bastion. I then looked for it in the NHS in order to compare what was happening in each emergency care setting. It turned out that this was not a practise reported in NHS practise in the interview data or the literature review. It does not appear in the MoD Clinical Guidelines for Operations (2013) but appeared to be a consistent practise according to the interview data and my own reflexive diary entries.

The category of 'leaving the patient outside the resuscitation room' was broken down into sub-categories according to how the paramedics expressed their views on this practise and their understanding of it. They talked about the necessity of leaving patients outside the resuscitation room, including the need to remove their clothing, in order to ensure that the patient was not carrying any ordinance about their person and they spoke about how this could pose a direct hazard inside the hospital. They talked about how they felt about leaving their patient with strangers during the handover and the timings involved. They expressed similar understanding and concerns about this practise but differed in the practicality of introducing it into the NHS. This resulted in the following sub categories: 'leaving the patients with strangers', 'the need to leave the patient outside', 'the patient being stripped naked', 'not seeing the patient during handover', 'time taken to search the patient', and 'transference to the NHS'.

During this initial analysis I developed matrices or charts inspired by techniques suggested by Miles, Huberman and Saldana (2014, p.173) which allow an early comparison of the features of NHS and military handover communication. Table 14 offers some initial examples of how handover appears to differ between the military and the NHS. What is clear from this early analysis is that the NHS is delivering care in a very different context from the military and operates under different constraints. Differences include: patient type, medical presentation, medical history, known cause of presenting

complaint, access to equipment, environmental conditions (light, space, noise, and temperature), staff resources, access to senior staff, training, team factors, paperwork, communication devices, protocols, and standardised handover.

Table 14 Initial results of comparative analysis of handover communication

	NHS	**Military**
Mnemonics	May be used	ATMIST consistently used
Protocols	Various and varied	MOD Clinical Guidelines for Operations 2013
Training	Informal ad hoc training, apprentice type	Team training in high fidelity settings
Paperwork	PRF consistently used	Rarely used
Pre alerts	Radio, telephone, email	Nine liner
Scribe	Depends on staff resources	Dedicated, pre designed role
Patient position	Pat slide between trolleys whilst in the room	Searched outside by non-clinical staff
Receiving staff	Carry on with tasks, carry on with talking, will interrupt handover, not always ready	Remain still (except during CPR), remain silent, ask questions at end of handover, ready and waiting
Team allocation	Ambiguous, fluid	Previously determined
Team identification	Roles may be displayed (tabards, coloured scrubs)	Military rank slides
Patient features	Any age, any gender, significant past medical history, unknown cause, unlikely to be fit and well	Typically 18-30, typically male, little significant medical history, usually trauma related, likely to be fit and well before incident
Risk factors	Minimal risk of weapons	Significant risk of weapons
Environment	Confined space, good lighting, noisy environment, constant temperature	Larger space available, good lighting, quiet, very hot during summer months
Resources - staff	Shortage at times, senior grades not always available	Higher patient/staff ratio, senior grades available at all times

Resources - equipment	Access during peak and off peak can be difficult, maybe on different floors	Dedicated access, on same level
Personal factors	Unknown team members	Team train and live together
External pressure	Targets	Wartime operations

3.4.4 Reflections on social characteristics

Researchers who have conducted studies of the military either as military personnel or civilians must reflect upon their own social characteristics, preconceptions of military organisation, and personal values according to Ben-Ari, an officer who conducted ethnographic research in the Israeli army and interviewed 30 interviews with soldiers (2014, p.29-39). Ratelle also emphasises the importance of reflexivity in his study of insecurity practises in conflict zones. He wrote:

> "*the researcher has to take into account his impact on the field and his research results. In the case of my research, my "Caucasian" physical features played an important role in the results I obtained. Other researchers using a similar research design might obtain drastically different results or interpret their fieldwork experiences in a different way. Therefore, a self-reflexive stance is crucial to interpret our impact on the field, how our experiences relate to ordinary people and how we report and describe them*." (Ratelle, 2013, p.78).

My social status within the military was confusing. I was of a relatively junior rank for someone of my age but was often addressed as Ma'am by other military personnel despite the obvious indication of rank on my uniform. Whilst undertaking reflexive diary entries in the ED at Camp Bastion I was not aware of my rank, or perception of my social class, affecting the phenomena of what I was witnessing. I was accepted there to do a job and it appeared that others were similarly focused on conducting their own clinical and nursing roles. Did my social class have an impact during the interviews with paramedics? I believe that not being an officer was beneficial in this regard, although the original recruitment email was sent by a senior officer which gave the study legitimacy. I suspect, but cannot confirm, that being a woman, of relatively low rank, and a nurse with both military and emergency nursing experience, aided the data collection and helped paramedics reflect and confide. Ben-Ari, an officer who conducted interviews with junior ranking soldiers, wrote:

> "*And because the armed forces are an extremely hierarchical organization, the level at which researchers enter could limit the willingness of the researched to cooperate since researchers*

may be identified as a means for organizational control or as stooges of commanders." (Ben-Ari, 2014, p.32)

Not only is the military a hierarchical organisation, it is also a highly gendered organisation. Males, and higher social class males dominate the upper ranks with in the RAF. Medical, paramedic and nursing roles are also highly gendered. Within the RAF these gendered roles and hierarchy are reproduced through the rank system. Paramedics and nursing staff hold lower ranks. Doctors are recruited as officers, nurses are not (although they are in the army) and paramedics who commission must relinquish their clinical duties in the RAF. The majority of surgeons, emergency doctors and anaesthetists were male (but not all), as were the paramedics, and more nurses were female.

One of the greatest challenges and dilemmas of this study in the early stages was how to obtain a contact of sufficient rank to champion the study and send out a recruitment email. This was achieved through personal contacts with a senior officer in the RAF rather than a formal channel. This experience is not unique to the British military. Navarro reported that some of his contacts in the Argentinian military were made through his existing research networks (2014, p89) and Castro made use of family contacts in the Brazilian military (2014, p12). Other military researchers have talked of the benefit of being a young woman researcher interviewing predominantly male personnel in a gendered environment such as the military because it facilitates asking naïve questions (Deschaux-Beaume, 2014, p.143). As a reservist nurse I was able to understand the terminology used so this was not a benefit I was conscious of exploiting.

Interviews with reservist paramedics tended to yield far more data than their regular counterparts and I reflected on why this might be. Although they were of relatively low rank in comparison to their age, they had decades of clinical and real world experience and had worked in civilian roles where they encountered trauma casualties. It would have been useful to ask questions of both female and male paramedics regarding gender and rank but this was not the focus of the research. Indeed, the female paramedics did not raise the issue of gender. A couple of the reservist paramedics I knew already from my training, and I thought very highly of them (having deployed with at least one of them), and I found these were the most enjoyable interviews but also the most difficult in terms of maintaining objectivity. It is impossible to know whether a male researcher would have gathered different data from these same interviews. Although gender and class obviously impact on the data gathering process, I suspect that personality, deportment and interview skills are just as vital.

3.5 Ethical considerations of doing research in the military

There is an emerging body of literature on the ethical considerations of conducting research in the military but it remains limited. Traditionally, academic studies have been focused on historical research, international relations, and the recording of veterans' experiences. There are few studies that have been conducted on the daily work of military personnel or the experiences of medical professionals working in the military including how they make the transition between the civilian and military environment. Neither are there many studies about the challenges of conducting research in military organisations. One of the few books on conducting research in the military, edited by Soeters et al, explain some of these difficulties:

> *"…studying the military is probably more complex because, more than other organizations, the military is a world on its own, an island within society-at-large on which its inhabitants work and live together. Getting access, particularly if one is not a regular inhabitant of that island, usually is no easy game to play. On the other hand, if one is a regular inhabitant of that island, it may not be easy to do research either, because the organizations wants some control over the diffusion of information about itself. Therefore military organizations often manage the timing of the release of the research, and occasionally, when a study is unflattering (but not a threat to security), inhibit or delay publication."* (Soeters et al, 2014, p.3)

When I embarked on this study I was a serving member of the military and this facilitated access in terms of seeking ethics approvals, support for recruitment of participants and data collection. The field diary is based on observations I made whilst deployed. I left the military in October 2014 but the study remains subject to military permissions and approvals.

3.5.1 The ethical process (approvals)

This study involved recruiting paramedics and other healthcare professionals who were employed by different organisations and necessitated the seeking of ethical approval from more than one organisation. The military and the University of Southampton are both hierarchical organisations and gaining ethical permissions involved following chains of command in both organisations. There are similarities between these organisations with regard to working through the respective hierarchies; lower ranking personnel must first appeal to their immediate superiors, if they wish to contact personnel of higher ranking, who can then initiate the correct protocol and make senior rank to senior rank representation.

It is possible that personal contacts made outside of the institution can bridge these gaps and this was the case with this study. Military researchers in other countries have described how they gained access in hierarchical institutions. Leirner (2014) conducted ethnographic research in the Brazilian military and described how this process worked for an outsider approaching the military via his university:

> *"In a first contact, the initial step is to have an official letter from the ethnographer's institution, which passes through the hands of supervisor, head, department and university. But this may not be enough. Requests are made so that the ethnographer's immediate superiors – supervisor, departmental or unit head – somehow indicate that they are involved in the process themselves. This is the first sign of the hierarchy's commitment to the ethnographer, that the "university's chain of command" (in the sense of how they understand the university's hierarchical structure, as if it has a chain of command) can be called upon if something goes wrong."* (Leirner, 2014, p.73).

The University of Southampton's ethics approval involves applying to the Ethics Research Governance Office (ERGO). ERGO approval was granted in July 2013 without requiring any amendments but was conditional upon additional ethical approvals from the Ministry of Defence Research Ethics Committee (MoDREC) – this was achieved in March 2014. The committee has its own code of conduct contained in JSP536: Ethical Conduct and Scrutiny in MOD Research Involving Human Participant. The study also required permission from the RAF as all of the participants were recruited from the RAF. This involved applying to the Centre for Aviation Medicine (CAM) ethics committee at RAF Henlow before submission to MODREC. The University of Southampton required assurances that in any discussions of handover and operations, patients were not identified so as to protect patient confidentiality. None of the paramedics broke patient confidentiality during the interviews. The ethics approval was a lengthy process but useful advice was obtained from the various committee members at each stage of the project and this added value to the study.

Please see below for more information about how this process worked and the timelines of what was achieved and by when:

3.5.2 Permission pathway

Military permissions:

- Experimental Medicine Scientific Advisory Committee (EMSAC) (formal presentation given at RAF Henlow, Centre of Aviation Medicine; required amendments which were submitted October 2013 and formally accepted January 2014)
- Ministry of Defence Research Ethics Committee (MoDREC) (meeting held on 4 February, amendments requested and submitted and approved March 2014)

South Central Ambulance Service NHS Foundation Trust:

- Ethics Research Governance Officer (ERGO)), University of Southampton (approved January 2014)
- Research and Development Form, Integrated Research Application System User Account (submitted March 2014)
- Site Specific Information Form, Integrated Research Application System User Account (submitted March 2014)
- Research Passport, Research and Development Office, Southampton University Hospital NHS Foundation Trust (not submitted as decision made not to proceed with NHS recruitment)
- Hampshire and Isle of Wight (HIOW) Comprehensive Local Research Network (CLRN) (meeting in December 2013 and further assistance offered)

University Hospital Southampton NHS Foundation Trust (UHS)

- Ethics Research Governance Officer (ERGO), University of Southampton (amendment submitted and approved January 2014)
- Research and Development Form, Integrated Research Application System User Account (not submitted as decision made not to proceed with NHS recruitment)
- Site Specific Information Form, Integrated Research Application System User Account (not submitted as decision made not to proceed with NHS recruitment)
- Research Passport, Research and Development Office, Southampton University Hospital NHS Foundation Trust (not submitted as decision made not to proceed with NHS recruitment)
- Good Clinical Practise (GCP) training, National Institute of Health Research (NIHR) (certificate of training gained September 2014)

In case insufficient numbers of paramedics were recruited from the military, it was thought prudent to apply for ethical approval to recruit paramedics from the NHS. This would have involved approaching each ambulance trust independently for permissions. However, sufficient numbers of paramedics were recruited from the military and this process was not completed.

3.5.3 The ethics of interviews

Many qualitative studies use some form of interviews to collect data and this is an accepted research method for a study informed by ethnography. The military is a hierarchical organisation and the rank of the researcher in relation to the participants must be considered when recruiting participants and conducting interviews in order to protect them from coercion. The researcher was of a relatively low ranking junior non-commissioned officer and I did not interview participants from a lower rank. The key informant, who was a high ranking officer, did not know who responded to the call for participants. This negated the danger of coercion through rank. It was important that participant's confidentiality was protected to protect them from any potential repercussions especially in a military organisation and this was maintained.

Participants were provided with information sufficient to enable them to make an informed decision about whether to take part in the study. Participants were reminded that their participation was voluntary and that they could withdraw from the study at any time up until data analysis had begun. It would not have been possible due to practical reasons for the data to be removed after the analysis had started, and this is one of the tensions with using interview data.

This study recruited from adult professional healthcare workers who may have constituted a vulnerable group due to their exposure to war time operations so it was important to signpost interviewees to support services in case discussion of operational matters caused distress. The Defence Medical Services introduced a Reserves Mental Health Programme in 2007 designed for reservists suffering mental health problems after they had been deployed and this was one of the organisations contained in the additional information provided to participants. Reservists play an important role in deployments and many of them are paramedics and they can experience mental health problems as a result of their deployments and/or NHS experiences.

3.5.4 The ethics of reflexive diaries

There is some controversy regarding the ethics of reflexive diary entries. This is because deception is often involved in these types of study particularly where the research interest focuses on illegal or subversive activities. The benefit of this deception is the possibility of observing authentic behaviour. However, the deceit is compounded by the fact that subjects do not consent to being studied. DeWalt and DeWalt make it quite clear that people have the right to be informed and consented before included in any research project (2011, p.215).

The benefits of such diary material were that I observed naturalistic behaviour. However the subjects were not able to consent. DeWalt and DeWalt (2011) argue that all research subjects should provide informed consent. However I was in the setting in my clinical role and did not deceive the participants about this.

Moreover, whilst I was observing others I was primarily interested in a certain phenomenon, handover communication, rather than studying people in their own right although this is still a socially constructed process that takes place between people. In the course of conducting reflexive diary entries in various EDs I was not deceiving anybody about my status or right to be in that environment but they were not informed that I was writing up my experiences.

I would have ethical concerns about getting involved in a study that involved deceiving members of a community (in this case healthcare professionals and the military) about my membership of that community but this was not the case. Nor was I deceiving them about my primary purpose which was to carry out a clinical role. Perhaps there are environments where it would be ethical for researchers to deceive members about their membership status such as in criminal communities but this would have to be weighed up carefully with the value of the research to society and would involve consideration of a whole of other area of ethics such as the risk to the researcher and others. Jorgensen points out that studies of such communities would not be possible if the researcher had to announce their true status and purpose (1989, p.29).

I was careful to ensure that the observing part did not interfere with clinical duties and I carried out the writing up in my own time. It is true that the subjects that I studied, my fellow healthcare professionals and patients, did not consent to being observed, but I was careful to ensure in the writings did not include any personal details or clinical information that could identify either patient or healthcare professional. I do not make reference to actual dates, just year and month. The diary that I wrote whilst in Camp Bastion, and the other write ups I have produced are kept under lock and key to a cabinet that only I have access to.

One of the benefits of reflexive diary entries is living and working alongside the subjects but independence and neutrality must be maintained during write up and data analysis. My insider status as a nurse and member of the military meant that I did not have be concerned about 'leaving the field' but it did require careful reflection and analysis because I did not enter the field as a naive observer. The difficulty of being an inside observer is taking for granted phenomena that the naïve observer

might spot. Zhao and Ji (2014) consider some of the ethical difficulties of interacting with people who had not consented to being observed (such as shop assistants) whilst conducting research in the community on attitudes to health in Chinese born immigrant communities in the USA. They stated:

> *"Although this kind of interaction is usually informal, these people's identity and human rights should also be protected according to the IRB rules. In our study, when observing the informant's activities such as grocery shopping or exercise, we sometimes invariably had some interactions with other people, such as the participant's family or family members. The problem then becomes whether we should disclose our study to these people and how many details we should disclose to them. Considering the fact that the informants in our study were reluctant to let these people know what they were doing in the study, we had to face the challenge to meet both sides' ethical requirement. Therefore, we had to find the balance between sufficiently informing these people to protect their ethical needs and at the same time protecting the research informants' privacy."* (Zhao and Ji, 2014, p.5).

(International Review Board)

Zhao and Ji attempt to reconcile this ethical dilemma by suggesting that researchers should carefully consider these issues in relation to their particular research questions (2014, p.6). However, they suggest that verbal consent could be obtained using the following script:

"B. Verbal Consent Script

Hello, My name is …… I'm doing a research that requires looking at interaction. I'm here observing today. Do you mind if I include you in the observation? The observation is voluntary, of course.

(if consented) Great! Thank you for your cooperation!

(if not consented) That's fine. Have a good day" (2014, p.7).

I do not think that this is a practical solution to this dilemma as it does not provide for the scenario where the prospective participant requires further information. Nor does it offer the option of extra time to consider different options or explain what should happen if the prospective participant subsequently withdraws consent. Moreover this is a verbal consent which is not recorded and therefore cannot be said to constitute informed consent. These dilemmas have been encountered by researchers looking at online forums where the lines between public space and consent for communications to be included in studies has not been resolved in the social sciences.

or Zhao and Ji (2014). Indeed Jorgensen claims that researchers have no further ethical obligations to the people that they are studying so long as they are not interfering with their regular activities. Jorgensen states:

> *"The participant observer interacts with people under the ordinary conditions of their daily lives much like any other participant. The participant observer's interest is in research, though different, is not unlike any number of special interests people have in interacting with one another. Consequently, the participant observers has no more or less of an ethical obligation to the people encountered in the course of research than she or he would have under other everyday life circumstances. While this does not free the researcher from responsibility for his or her actions as they might affect other human beings, the researcher is not necessarily obligated to inform people of research intentions, or even protect them from possible harmful consequences."* (1989, p.28).

3.5 Conclusion

This was a small scale qualitative study using mixed methods including semi structured interviews and reflexive diary entries. In total 13 paramedics were interviewed for the study in addition to a pilot interview and a key informant interview, and this was supplemented by reflexive diary entries of emergency care settings in the NHS and the military. I used a reflective diary to think about my role, status and influence on the research process. It is apparent that few resources have been published on ethical considerations whilst undertaking military research but those that have been produced indicated common access issues and the difficulties of negotiating research in strict hierarchical organisations. It was necessary to apply for ethics approvals from the University of Southampton, the Royal Air Force and the Ministry of Defence in order to secure the relevant permissions for this study. Although these procedures were lengthy, the advice received at each stage added value to the study.

Ethical considerations focused on ensuring recruitment was conducted through a senior officer to lend authority and credibility to the study whilst also protecting participations from any possible coercion through rank. Participation was voluntary, based on informed consent, and confidentiality was assured (except in case or revelation of poor practise or breach of military discipline). Although participants were adults their previous exposure to war time operations made them potentially

vulnerable to recalling upsetting events and steps were taken during the interviews to ensure they were supported and had access to further resources if necessary.

Reflexive diary entries raise a number of ethical issues no matter what the location because there is an element of deception involved which is necessary in order to capture authentic behaviour. I therefore ensured that confidentiality was maintained and there were no illicit recordings undertaken. Although personnel were not aware that I was undertaking reflexive diary entries, they were not deceived about my status and this did not affect my clinical performance as notes were written up during down time.

Chapter 4: The Research Context

4.1 Introduction

This chapter draws on my reflexive diaries on handover communication in the military and the NHS emergency care settings to show how differences are maintained between them. It sets out the military context within which patient care was delivered and evolved at Camp Bastion. This includes an overview of the conflict and the type of patient injuries caused by the fighting which are rarely seen in civilian settings. The chapter also provides an overview of the reflexive diaries on handover communication in emergency care settings in the military and the NHS which shows how differences in handover communication were driven by organisation mission, environment, resources, inherent risks and constraints, and how they were maintained through organisational culture and training.

4.2 Military context

4.2.1 Background to the conflict in Afghanistan

The recent conflicts in Afghanistan have their roots in previous colonial wars and the Russian invasion which lasted ten years, destroyed much of the infrastructure, bequeathed a landmine legacy and left the country virtually ungovernable (Barfield, 2010, p.242). Following the events of 9/11 and the destruction of the twin towers in New York, the USA launched a military campaign against the Taleban who had taken over much of Afghanistan and was seeking to impose its own version of Islamic ideology on the country (Barfield, 2010, p.273). The USA held the Taleban responsible for providing a base for, and assistance to, Al Quaida – an organisation committed to violent jihad and the imposition of its interpretation of sharia law (Barfield, 2010, p.277).

In 2001 the International Security Assistance Force (ISAF) was established at the Bonn conference to coordinate a security operation in Afghanistan involving the United Nations, the Afghan Transitional Authority and the North Atlantic Treaty Organisation (NATO) (Resolute Support, 2015). This arrangement came to an end on December 31 2014 and was replaced by Resolute Support which represented a transitional arrangement between the Afghan government and the former ISAF (Resolute Support, 2015). The aim of ISAF was to improve security in the country and support the Afghan National Security Forces (AFNS) with training and reconstruction projects, and UK forces were involved in assisting both ISAF and USA operations in the country (MoD, 2015).

Camp Bastion was set up as a logistics hub for the UK forces operating in Helmand Province and expanded to include a hospital offering advanced trauma care. The base incorporated American, Danish, Estonian, Tonga and Afghan national forces, and at its peak Camp Bastion provided accommodation to over 20,000 people (MoD, 2010). The UK government has now withdrawn its troops from the country and Camp Bastion was handed over to the Afghan forces in October 2014 (MoD, 2015).

4.2.2 Nature of injuries and patient evacuation

Most of the UK's troops were based in the southern province of Helmand which is largely a desert and arid area except along the major rivers (MoD, 2014). The area saw some heavy conflict featuring the use of Improvised Explosive Devices (IED) which are essentially non-conventional weapons made from a range of different materials (NATO, 2015). Along with high velocity gunshot wounds these devices were responsible for the majority of injuries inflicted by Taleban forces upon Afghan civilians, the Afghan National Army (ANA), the Afghan National Police (ANP), ISAF and USA troops. These devices could be fatal and often caused multiple limb loss, pelvic injuries and catastrophic haemorrhage; depending on the height of detonation they could also cause abdominal, chest and head injuries. This type of poly trauma is rarely seen in civilian contexts in the UK.

Injured personnel were evacuated by rotary aircraft at point of wounding and repatriated back to the UK, often within 24 hours if their injuries were life threatening, through the aeromedical chain (RAF, 2015). Each stage of the journey involved handover to a new team, and it is this aeromedical expertise and multiple handovers which made the military relevant to study (RAF, 2015). The first handover in the battle field in Afghanistan was taken by the Medical Emergency Response Team (MERT) following the delivery of 'buddy aid' from the medic on scene. MERT was made up of two paramedics, an Emergency Department (ED) nurse, and in the case of 'Enhanced MERT' an anaesthetist. The team were transported by helicopter from Camp Bastion together with Force Protection and Apache support aircraft. For more information about the composition, role and legacy of MERT please see the comprehensive paper written by Thomas entitled *An overview of the Medical Emergency Response Team (MERT) in Afghanistan: a paramedic perspective* which was published in 2014 in the Journal of Paramedic Practice.

The MERT team had the ability to carry out Rapid Sequence Induction (RSI), initiate transfusion protocols, and resuscitation on scene and in flight. On return to Camp Bastion, patients were collected by Battle Field Ambulance (BFA) from the landing zone to Camp Bastion ED, a journey of less than a

minute (not including the loading and unloading). It was there that a member of MERT, usually a paramedic but sometimes a doctor, would give the handover to healthcare professionals in the ED according to the guidance in the Ministry of Defence Joint Service Publication (JSP) Clinical Guidelines for Operations (MoD, 2013). This document was published for the following purpose:

> *"Joint Service Publication 999 is the policy which provides deployed medical experts with guidance as to best medical practise. It is not intended to be an all-compassing textbook of 'Military medicine and surgery'. Neither should the guidelines be viewed as mandatory practise, clinical judgement must be used at all times.*
>
> *However, Clinical Guidelines for Operations (CGOs) acts as a guide and aide-mémoire for clinicians in the field encountering conditions as they do not often see in their UK employment or the management of which is changed by the deployed environment. CGOs also provide an audit framework against which treatment can be measured."* (MoD, 2013).

This manual covers trauma care in the military on deployments and outlines when trauma teams should be called, how they should be configured and describes the protocols necessary for handover communication between paramedics and hospital receiving staff, including the use of the mnemonic ATMIST. Mnemonics used in handover communication and are described by Wood et al (2014) as:

> "*an alphabetical listing technique that aids information retention*" (Wood et al, 2014).

This ATMIST aide-mémoire provides a structure for handover communication and represents the following: Age, Time, Mechanism, Injuries, Signs and Symptoms, and Treatments. These are used as prompts to sequence the items in the handover so that both receiving team and handing over practitioners know in which order to expect the information and ensures that the most important information is communicated across.

4.3 Entries concerning handover communication in the military

In the ED at Camp Bastion, I witnessed seven handovers during May and June 2012. The excerpts taken from the field diary later in this chapter were accompanied with reflective notes. On each occasion I observed that paramedics gave the handover once, and once only, which was different from NHS practice where paramedics might repeat portions of the handover or even the whole handover.

The following excerpt describes the atmosphere in the ED at Camp Bastian before MERT arrives:

> *"It is clearly rehearsed. Everybody seems to know what they're doing. They even know where to stand and it seems consistent with the clinical guidelines for operations."* (Monday/14.00)

Before deploying, emergency team personnel train together in the high fidelity environment of HOSPEX which mirrors the lay out of the hospital at Camp Bastion where they rehearse these positions and roles. The reflexive diary entries showed occasional straying to converse with a colleague but on the whole clinicians remained in their appointed positions and this was facilitated by careful preparation of the equipment before the arrival of the patient. Healthcare professionals appeared to know where to stand and kept to these positions, and this is likely because of the pre deployment training and strict organisational culture which reinforced this. Consequently, there was not the same feeling of commotion and overcrowding which can be a feature of emergency care in the NHS, where hospital staff try to squeeze past each other or have to reach across a patient to carry out a procedure. Healthcare professionals at Camp Bastion appeared to need less prompting and direction than in the NHS even though they were dealing with very unwell patients who were also subject to environmental stresses including extreme heat and cold. The following exert demonstrates how quick the military handover was:

> "*A paramedic rushes past and proceeds to handover two of the patients to the team at the far end bays. The paramedic is clearly hot, dishevelled and rushed. His face is red and he seems tense and in a big hurry. The handover is shouted, minimal information. It's not my patient but I listen. We know ours is coming next but the front of house staff are still with him. The handover seems much shorter than I had imagined. If you weren't focused you really would miss it. The team leader asks a couple of questions which I can't hear but then appears satisfied. The paramedic seems relieved to have done it and visibly relaxes at the shoulders as he heads over, head up, to the waiting scribe..."* (Tuesday/07.00)

This excerpt is consistent with other handovers that I witnessed. It was summer time and the day time temperatures were heading over 40 degrees Celsius. The paramedics were wearing full body armour, plus personal weapons and medical kit, and had been working on patients in the back of a chinook helicopter. This is likely to account for their physical appearance. It was not surprising that during the interviews a number of paramedics described feeling intimidated when delivering the handover because of the relatively high ranking of the hospital receiving staff waiting for the MERT team, and

the high expectations that came with working for the MERT team. Within the NHS the vast majority of handovers I witnessed were delivered by paramedics who were relaxed and confident although they spoke faster and appeared tenser when handing over sicker patients especially if resuscitation efforts were in process.

This excerpt describes how one patient is brought in, just as a handover for another patient starts at Camp Bastion hospital:

> "*The paramedic stands back as the patient is brought in and confers again with the scribe. He pulls a piece of paper from a pocket. The patient is transferred from the gurney onto the bed. Young man with wounds to his upper limbs and abdomen. He is transferred to the bed and the assessment begins. His heat conserving blanket removed and he is naked underneath under the lights. He has his eyes shut tightly and occasionally moans when he is moved. The lights must seem very bright. I can hear the rustle from the BFA containing our patient and another paramedic rushes in and delivers the handover, even quicker than the first with a similar appearance of heat, exhaustion and sweat. They look so uncomfortable. I listen to the handover intently and realise with relief, this one is not so sick. The ATMIST is as follows:*
>
> *Age: 22*
> *Time: 14.00*
> *Mechanism: IED*
> *Injury: Open fracture of the right tibia and fibula*
> *Signs and Symptoms: Respiratory rate 19, Pulse 86*
> *Treatments: Box splint, cannula right cubital forsa, 10 mg morphine."(*Tuesday/07.00)

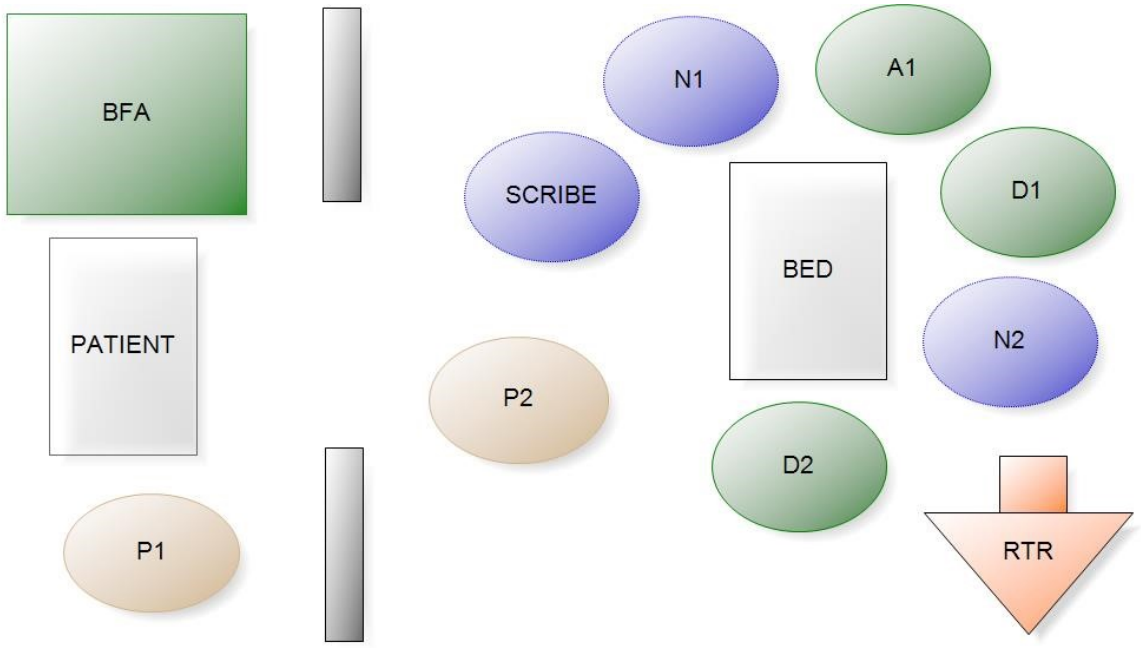
The above ATMIST handover was for a patient who was not seriously injured. This was not a typical patient at Camp Bastion. The ATMIST handover provides only the briefest information on the patient but this was sufficient for the receiving team to begin their work of initiating a full assessment. The NHS has additional information needs that are not required in the military and this is one of the reasons why the NHS handover takes longer but paramedics are under more pressure in the military to convey pertinent information confidently and in the correct order. Indeed the ATMIST handover appeared to last seconds and I have never witnessed a handover this short in the NHS or been aware of ATMIST used in this way.

During this time the hospital staff appeared to be intently listening in complete silence. This was contrasted to the NHS where interruptions were a common feature, and this was corroborated by the interview data. Paramedics expressed frustration with the interruptions and repetitions that they perceived were a feature of handover in the NHS. This was sometimes due to the arrival of a new team member who needed to be updated but could also be the result of a clinician starting the assessment before the paramedic had finished the handover, or team members engaging in conversation which was a particular source of irritation to paramedics. I have seen different initiatives introduced by EDs designed to address this issue but often led to further problems with handover. This included a 'hands off the patient until handover has finished' initiative but the results appeared mixed. It may be that the urge to assist the patient is overwhelming for hospital receiving staff and this might account for why they find this a difficult practice to adopt.

After the handover at Camp Bastion was finished the team leader, surgeon or anaesthetist would ask one or two additional questions whilst other team members took over care but I was always too far away to hear what was said. The first tasks of the receiving team involved removing clothing, inserting lines if required, administering medications, conducting a full head to toe assessment (assuming that other clinical priorities did not take precedence) and ordering imaging. It occurred to me that little thought has gone into the patient experience in both the military and to some extent the NHS. The sensory burden, alien environment, removal of clothes and medical language are potentially bewildering to patients and may add to their distress in both environments. This is likely due to the military preoccupation with war time operations. In the NHS patient consent and comfort are a higher priority and this was mentioned as a positive by the interviewees.

Figure 5 shows the position of patients and staff during the handover at Camp Bastion as I witnessed it in May 2012 which was consistent with the diagram of trauma team roles and position on page 8 of the MoD Clinical Guidelines for Operations (2013).

Figure 5 Position of the trauma team May 2012



P – Paramedic

N – Nurse

D – Doctor

A – Anaesthetist

BFA – Battlefield Ambulance

RTR – Right Turn Resuscitation

Source: Based on illustrations from field diary

4.4 Entries concerning handover communication in the NHS

I observed NHS handover communication in four emergency departments in 2012 and 2013, which included two designated trauma centres, an outer London emergency department and a small local district hospital. It should be noted that much has changed since 2013 with regards to trauma care as a result of the introduction of trauma systems. In 2013 trauma hospitals were already moving towards more formulised and standardised handover practises but the handovers I observed were still quite diverse and were conducted in much less formulised ways. Management of handover appeared to be determined by the preferences of the most senior clinicians on duty. Some senior clinicians arrived in the resuscitation department as soon as the pre alert came in and were proactive in liaising with the

nurse-in-charge and other colleagues. These clinicians would clarify roles and timings, and ensure that the bay was ready for the patients. On other occasions staff might drift in and out of the resuscitation bay, and appeared to lack clear direction regarding patient preparation and role expectations.

The ingredients for a well-structured handover in the NHS included a well-timed and accurate pre alert, the presence of a senior consultant, a structured, clear handover from confident and focused paramedics, and good control of the resuscitation team personnel during the handover. The key elements appear to centre on communication, leadership and confidence. It was my observation that handovers that took place during weekdays in normal working hours tended to go more smoothly. This might be due to a number of factors including staff fatigue, staff numbers, and presence of senior grades, patient throughput and access to hospital services. At other times when senior clinicians were not available, there might be no one taking charge or organising the preparations for arrival. In the latter case, the handover and initial care of the patient may be characterised by disorder and confusion about what is happening and role responsibilities.

In a civilian environment a team at scene of incident are usually in a secure environment, or one that can be secured by the presence of other emergency services relatively quickly, and they will stabilise the patient before transporting them to the ED. Civilian environments could be threatening too either because of environmental considerations (busy roads, rough weather) or human factors (violence, intoxication) but the nature of operations placed an organisational and clinical urgency that was not comparable to working in the NHS. Patients in a civilian environment tend to arrive in a less critical state and are better 'packaged' for the journey in contrast to the military where time on the ground is severely limited due to war time operations. This may be another factor in driving greater standardisation of the handover in the military setting.

Handover mnemonics were used in some NHS emergency care settings. At one NHS Trust I saw the promotion of SBAR (Situation, Background, Assessment and Recommendation) as a general hospital handover communication tool. It is not a mnemonic that I have found easy to use or remember and it is not something I was conscious of others using. It is not clear what 'situation' or 'background' refer to or what elements constitute an 'assessment' or 'recommendation'. The promotion of SBAR consisted of a few small paper leaflets left by telephones and the occasional poster, and was mentioned during a general trust induction but I did not receive any formal training on this and was not aware that any other healthcare professional had received training on it. Nor did I see anybody use the ATMIST format during any of the handovers that I witnessed, or its promotion within NHS

organisations. It may be that NHS paramedics were using handover mnemonics but this was not something that I was aware of during handovers that I witnessed.

4.5 Early comparative analysis

Early comparative analysis points at differences around handover protocols, human behaviour, patient representation, organisational culture, resources and risks. Themes were already beginning to emerge around standardisation (paperwork in the NHS, ATMIST mnemonic in the military) and behaviours of receiving hospital staff. Handover appeared much more standardised in the military and the ATMIST mnemonic was consistently used and the handover was met by consistent behaviour from healthcare receiving staff. In the military there was more space and more staffing for each patient. Patient presentation was a significant difference between the two organisations.

The military patients were characteristically young, previously healthy men, suffering from traumatic injuries sustained on the battlefield. NHS patients could be any age but more often featured elderly patients presenting with medical conditions. It was clear that the Patient Report Form used in the NHS was an important handover tool but this was not used in the military context. Another significant difference was leaving the patient outside the hospital whilst the handover was given by the paramedic or doctor. This practise was not a feature of NHS handover where patients were often physically handed over to the hospital trolley during the handover.

There were similarities found too. In both organisations, pre alerts and scribes were used but in the NHS these were only for very sick patients. Uniforms were used in both organisations to signify rank and role but there was more diversity in the NHS due to the different agencies supplying staff. Healthcare professionals worked under pressure in both organisations but in the NHS this came from managerial targets and demand for bed spaces whilst in the military the demand for bed spaces came from war time operations.

4.5.1 Standardisation

Treatment of injured military personnel is subject to restrictions imposed by the nature of war time operations, and these restrictions are dynamic. For example, I observed additional practices which appeared to have evolved locally that were not included in the MoD guidelines (2013) including leaving the patient outside the resuscitation room during handover. Before I deployed I thought the reason for this was to improve communication during the handover but it was actually performed so that the patient could be searched to ensure that no ordinance was carried into the hospital, and any effects

on handover communication were incidental. Although the military works with strict protocols, there needs to be a degree of flexibility on the ground to respond to local conditions and patient presentation which will develop with the changing nature of the conflict.

Nevertheless, a high degree of standardisation was an important feature of military handover communication due to the organisation mission, patient characteristics and presentation, and organisational culture. Military handover including the mnemonic ATMIST, and appeared to be underpinned by the scribe who recorded all the pertinent handover communication and emergency department care. The record created by the scribe represented a merger of the PRF and resuscitation chart used in the NHS. Due to war time operations and the acuity of military patients, it was not possible for paramedics to write copious notes on their patients on their way to the hospital.

Although there appear many differences between handover communication in the military and NHS emergency care settings, standardisation was a feature in both organisations. In the NHS this was focused on the Patient Report Form (PRF) and in the military this appeared around the ATMIST mnemonic. Organisational mission drove this standardisation and whilst both organisation are tasked with delivering patient care in the military the organisational goal is war fighting and in the NHS the organisational goal is gathering information to support patient care, patient discharge and legal requirements. The reflexive diaries show that there was a high degree of compliance regarding the ATMIST handover and PRF and this was maintained by organisational behaviours, hierarchies and high fidelity training. I used the diaries and analysis of the pilot interview data to alert me to the importance of standardisation.

4.5.1.1 ATMIST mnemonic

The reflexive diary entries showed that the ATMIST mnemonic was consistently followed at Camp Bastion with regards to format and timings. Healthcare professionals appeared to be listening when receiving the handover and there was no requests for repetition. Silence greeted the handover whether given by a paramedic or doctor and no interventions were performed until the handover had finished, only then was the patient brought into the resuscitation department. Attempts to introduce silence during handover were seen in the NHS but these attempts were not as successful and depended on active and positive leadership which involved reminding hospital receiving staff to be quiet. Furthermore, the presence of the patient in the NHS appears to make it difficult for NHS staff not to start assessments and interventions and this is understandable because they want to help the patient as quickly as possible.

After the handover at Camp Bastion the clinical lead might ask a follow up question although I was not close enough to hear what was being said. After the handover, the paramedics went over to the scribe to provide further information important for patient care but not necessary for the ATMIST handover. Again this hinted at the importance of the role of scribe in supporting the ATMIST handover. In the NHS crews face pressure to get back onto the road due to performance management targets so clinicians caring for patients rarely had the opportunity to ask paramedics further questions after the initial handover.

4.5.1.2 Patient report forms

In the NHS, paramedics are required to complete Patient Report Forms (PRF) which contain a comprehensive range of medical and social information. This feature of handover is standardised across the NHS and was the only feature which was common to all handovers that I witnessed regardless of patient acuity or presenting complaint. The PRF has space for three sets of observations taken on scene, allergy status, presenting complaint, diagram of a vehicle for Road Traffic Accidents (RTA), details of medications taken, and past medical history. The PRFs provide valuable information for healthcare professionals in the ED and can often indicate problems that might be relevant for patient discharge such as concerns about the home environment, recent foreign travel, and next of kin details. The PRF is designed to record the patient journey from scene of incident to handover in the emergency department.

It was my experience that the PRFs were written in legible handwriting and provided a useful source of information for the ED nurse. I found the forms logically laid out and a quick scan of the information took only seconds. I often read this form before reading the patient's nursing and clinical notes because it provided an easily accessible narrative presented in chronological order of what had happened to the patient, and gave vital information required for risk assessment of the patient as well as discharge information. In the military hospital receiving staff have to focus on the handover because that is their main source of information about the patient – they didn't have the luxury of looking back through a comprehensive patient record.

In the NHS baseline observations and the crews' initial assessment provided vital information as to how sick the patient was, whether they had responded to any treatments given on scene or on route, and what the underlying problem might be. Also, crews sometimes gave drugs such as morphine and prescribing clinicians did not always check the forms before writing up medications so it was important to check the ambulance documentation before administering medications. If I had trouble reading the medical or nursing notes and could not find the health professional who had written them, I could

turn to the PRF for the pertinent information when handing over to other staff members including on the wards. The typical military patient is unlikely to have a complex medical and social care needs comparable to civilian patients who can have long term chronic disease burden complicated by acute illnesses, polypharmacy and social needs.

There were some difficulties with the PRF. They were A3 size and therefore did not fit into patient notes which were A4 size. This meant that it was easy for them to be mislaid either because they fell out of files or they get separated during handover and mixed up with other notes. They were awkward to photocopy because of their size, necessary for maintaining patient records, and any admissions or referrals, and this increased the risk of them being torn or mislaid. Many NHS trusts have turned to electronic versions of the forms although this is not something that I have experience of so I am not able to comment of how these are used. The ED sheet created at Camp Bastion by the scribe was designed to fit straight into the medical notes and this made it much easier to access.

There is not the same requirement for a scribe in the NHS and handovers can take longer and produce more information than the short, concise military handover. The only other handover documentation I witnessed in Camp Bastion consisted of a small A5 scrap of paper with the mnemonic ATMIST typed on it. These scraps of paper were not completed and information was often unusable due to lack of patient identification, absence of timings, incomplete observations or damage. I did not get the opportunity to see the paperwork used by paramedics in Camp Bastion post-handover but was able to view the A5 sheets used to aid the ATMIST handover. It emerged from the interview data that paramedics were using their own aide-mémoire which they had fashioned themselves to jot information down, so this suggested that there was an unsmet need for recording information on a suitable format. These were adapted to suit the environment and included note books that could be placed in the pocket or waterproof surfaces that could be attached to their uniform. Other paperwork in use included the A3 chart started by the scribe and placed in the ED notes. Flight notes were generated for each patient as soon as they were admitted and their readiness to fly (physiologically speaking) was assessed daily.

The hospital at Camp Bastion did not need to worry about arranging social care or the level of detail required to facilitate patient discharge from an NHS hospital such as which neighbour had a spare set of house keys, or raising child protection concerns, or who is feeding animal companions. These, and a myriad of other issues, fall within the responsibility of civilian hospitals and are driven by concerns about failed discharges, patient compliance, safeguarding issues, health information needs, epidemiology research, audit trails, legal action and public relations.

4.5.1.3 Environment and resources

It was my impression from the reflexive diary entries that the role of scribe was key to the whole handover but this was not acknowledged in the MoD guidance or the interview data. I witnessed the scribe listening intently to the paramedic handover and adding the relevant information to an A3 paper chart. Scribes are used in the NHS but this is subject to availability of staff and acuity of the patient. Even when patients are very unwell I have witnessed the scribe (usually a health care assistant) called away from scribing to undertake other tasks. In Camp Bastion the scribe continued to add information to the patient's chart whilst the patient was in the ED. Information was called out by the healthcare team and included observations, medications, clinical findings, and diagnostic tests. It appeared to me that the role of scribe underpinned the entire handover process because it ensured that all relevant information was included in one place. The scribe never moved away from their position. This role of scribe is not mentioned in any of the literature on handover communication nor was it mentioned in the Clinical Guidelines for Operations (2013) yet appeared a vital part of the ATMIST handover process.

I did not expect to be involved in the handover at Camp Bastion but the scribe requested my assistance in completing the patient chart. This provided me with further insight into this role:

> *"The scribe leans over and asks me to help with information gathering from the handover and I say 'no problem'. I note the time again…Someone rushes in with an ID card for the patient and hands it to me. I take it from him and as soon as the paramedic is finished I hand it over to the scribe so that the name and service number can be added to the resuscitation chart and my flight notes. The scribe confirms with me the information just called out and we compare our charts to ensure we have the same information."* (Monday/16.30)

A quick glance at the chart showed that all areas had been completed. On occasion the scribe would shout out for clarification of additional medications just given or the latest set of observations and the medical staff would provide this. This chart was the result of a team effort. The role of scribe appeared protected and they were given support and assistance by other healthcare professionals including paramedics. The charts were A3 size in size and contained similar features to the NHS ED resuscitation charts with tables for drug administration although both can be awkward when fitted into patients' notes as these are A4 size in both military and NHS settings.

The ED at Camp Bastion was more generous with space around the patient bays in contrast to many resuscitation rooms in NHS hospitals which often accomodated more patients than they were originally designed to do so and this represents a significant resource constraint. I did not witness similar awareness of positioning whilst working in NHS hospitals and consequently staff were frequently trying to squeeze past each other or reaching over the patient in the confined space of the resuscitation bay. NHS hospitals see greater numbers of patients, and staff might be drawn into other tasks whilst waiting for a paramedic crew to arrive. Hence the not uncommon situation of a paramedic crew turning up in an NHS resuscitation department after having issued a pre alert and finding no one to receive them. This was an experience that paramedics mentioned in the interview data and one that I witnessed several times in the NHS. Frustrating as it was for paramedics, it was necessary to re deploy staff in the NHS based on clinical needs of patients and staff management. At Camp Bastion, staffing per patient appeared more generous so there were more people waiting to assist the paramedics with the unload of patients.

4.5.1.4 Technology and pre-alerts

The NHS is able to exploit information communication technology to issue pre-alerts to hospitals about the patients they are bringing in and their medical condition but this is not the case in the military where communications are restricted by operational considerations. In the NHS pre alerts provide vital information that allow the nurse in charge and clinical consultant of the day to allocate resources in the department according to greatest clinical need and facilitates preparation of the resuscitation room for very sick patients. The ambulance control room telephones the ED following the issue of a pre alert by a paramedic crew. A pre-alert can indicate whether the patient is a child or adult, Estimated Time of Arrival (ETA), significant signs and symptoms, and latest set of observations. This information allows the ED time to organise appropriate preparations and allocate staff to the resuscitation bays or move patients around in order to accommodate the expected arrival. Increasingly with the introduction of trauma protocols and different clinical care pathways NHS paramedics are phoning ahead based on patients that meet a set clinical criteria. This was another area that paramedics thought could be improved by making pre alert information standardised. It appears that some ambulance trusts are using ATMIST to deliver pre alert information to hospitals.

It was my experience that these forms used by hospitals to record the information given in the pre-alert were drawn up locally and did not follow the format in which the information was given. It was also my impression when answering these calls that the person giving the information did not understand its clinical relevance and were not clinically trained. One paramedic reported in the

interviews that he telephoned the ED with his own mobile due to communication problems he had previously encountered which he attributed to control personnel not having received clinical training. It was possible for a crew to turn up with a seriously ill patient without an alert having being received and this was corroborated by the interview data. This might be because the patient had deteriorated on route but sometimes the crew might insist that a pre alert had been sent although it had not been communicated through to the hospital. It was also possible for a pre alert to have been received but no one was available to receive the crew in the resuscitation area due to lack of staff numbers or insufficient time to reorganise the department. The reasons for these two scenarios were not always clear but did lead to frustration for hospital receiving staff and paramedics.

Preliminary ECG tracings are often communicated directly to the ED to allow the nurse-in-charge or consultant of the day to decide whether the patient should be brought straight to the resuscitation room and whether the assistance of the Acute Coronary Syndrome (ACS) team was required. Other specialist teams could be pre alerted and these pathways are becoming more common for cardiac, stroke, head injury, burns, and trauma patients. In effect, these pathways represent an attempt to standardise care pathways and are driven by clinical need and optimal resource allocation. Paramedic crews will bypass the nearest hospital to attend hospitals with these specialist facilities if the patient meets the pathway criteria.

In Camp Bastion the vast majority of patients are suffering from trauma, rather than medical problems, and therefore the treatment pathway is standardised to deal with trauma, but pre-alert information is still vital for staffing the emergency department and getting key resources such as blood products and surgical teams ready. Limited information on patients was available to clinicians in the form of pre alerts before the patients arrived. This consisted of approximate flying time, number of casualties, clinical condition, status of patient (e.g. enemy combatant, Afghan National Police, US service personnel) and any difficulties on the ground. The information was derived from the original MEDEVAC (medical evacuation) request form (also known as the nine liner).

Healthcare professionals at Camp Bastion appeared sceptical about the accuracy of the information contained in the nine liner reports although I was not able to explore the reasons for this. ECG tracings were not available but were not so relevant for military patients whose presenting complaints were trauma rather than cardiac disease - a significant difference from civilian emergency care settings. At Camp Bastion the waiting time between pre alert and patient arrival was much longer than in the NHS due to greater distances covered and security considerations. This undoubtedly led to tension and restlessness amongst the waiting healthcare professionals and was palpable. In the civilian setting,

clinical interventions and traffic congestion can delay timings but distances to hospital from scene of incident are shorter. The waiting time appeared to increase the tension amongst the hospital receiving team and they sought to relieve this by rechecking their equipment, joking with colleagues and speculating about the patients' conditions or what might be the cause of the delays. Within the NHS there was little waiting around because timeframes between the issuing of a pre alert and the arrival of a patient were much shorter, and NHS hospitals are far busier most of the time than Camp Bastion.

4.5.1.5 Performance management targets

Time to definitive treatment is important in the military due to the high number of severely injured personnel but NHS ambulance crews and emergency teams experience additional pressures in the form of managerial targets. Indeed, paramedics were concerned about the impact of these on patient care and were sympathetic to NHS paramedics who were answerable to managers for their target performance. A four hour target (from admission to discharge or admittance) for EDs, ten minute turnaround times and 8 minutes response times for category A calls for ambulances were introduced by the NHS Plan 2000 and this means that paramedic crews must handover patients, retrieve equipment, and get their vehicles ready for the next job within fifteen minutes (NHS, 2012, p.4). It is possible that these targets may impact the handover but it was not within the remit of this study to explore this. Healthcare professionals in the military face time pressures as a result of a different set of clinical and operational imperatives. In the military, handover is limited to 20-30 seconds but this is for the actual ATMIST mnemonic rather than the whole process of physically handing over the patient (MoD 2013, p.41). The key driver in military settings is operations and threat to life, limb and assets from enemy action which creates time pressures but from a different source and outcomes were not measured in the same way.

4.6 Understanding the differences between military and civilian handover communication

NHS healthcare professionals are not subject to an organisational culture that demands a high level of conformity or compliance unlike military personnel. The military produces and reproduces conformist behaviours which are replicated through training and reinforced by the rank structure and it would not be possible nor desirable to recreate this in the NHS. Furthermore, because the military is a command and control organisation, its rank structures and high fidelity training ensure compliance with its protocols. The ATMIST mnemonic was consistently used in the military setting and during training, and this was consistent with the interview data where it transpired some paramedics were using ATMIST in the NHS setting. It appeared that training helped created the conditions necessary for

standardisation of handover communication through repetitive assessments, high fidelity training and pass or fail tests in contrast to the apprentice type training provided by the NHS. These different training approaches may account for some of the differences between military and the NHS handover communication, and makes transition more difficult for paramedics.

In the past NHS teams did not have the opportunity to train together, and I only had the opportunity to train with paramedics in the military despite having worked as an Emergency Nurse in the NHS. I valued greatly the opportunities to train with other medical professionals in the military as this provided insight into their roles (in both the NHS and the military) and opportunities to expand clinical knowledge. NHS teams are reconfigured each shift and often work alongside staff they have never met before. Agency personnel are frequently employed and wear a plethora of different uniforms which can be confusing for staff and patients alike. I witnessed some NHS emergency departments experimenting with role identification where hospital receiving staff wear labels on their uniforms to overcome this ambiguity. This made it clear for anyone who was not familiar with the uniforms used by the trust, or the uniforms used by agencies supplying the trust with healthcare professionals, what the role of each person was. Paramedics recalled in the interview data how they often had to cross boundaries between different NHS trusts and this was a source of mistrust and confusion at times.

Differences are further maintained by resources including staffing resources and layout of emergency care facilities. At Camp Bastion the staff to patient ratio was higher and roles were pre-assigned but in the NHS staffing resources are under pressure and frequently redistributed to best meet service needs. NHS facilities are providing for more patients than originally designed for, such as doubling up patients in resuscitation rooms, whereas at Camp Bastion the designers had the opportunity to set up the facility to meet the demands of modern 21st century trauma medicine complete with scanners and theatres. Table 15 shows the result of further analysis on key differences between handover communication in the NHS and military and the reasons for these:

Table 15 Key differences between the NHS and military handover:

Key differences	**Key features**	**Results of difference**
Organisational culture: The military is a command and control organisation tasked with	Training, Protocols, Team identification, Mnemonics	Staff listened intently to handover, Team leader maintained discipline including silence during handover,

use of force in defence of the nation state; the NHS is a large bureaucratic organisation tasked with meeting the health needs of the UK civilian population		Handover consistently followed ATMIST mnemonic, Paramedics appeared tense when walking into ED and during handover, Staff knew their positions and roles and remained faithful to these, Loud confident voices but little interaction with patients or reassurance given.
Organisational mission: To provide medical services in support of ISAF and USA operations to improve security in Afghanistan (MoD, 2015); to provide "Health and high quality for all, now and for future generations" (NHS, 2016)	Paperwork, External pressure, Patient features	No visible paperwork, Patients (young, healthy, men), Handover was very short
Environment and resources: Camp Bastion was a generously proportioned new build hospital with ample staffing and resources; NHS hospitals often old, overcrowded, poorly lit and noisy and have resource constraints	Environment, Staff, Equipment, Team allocation, Personal factors, Scribe	Paramedics always met by ready team, Role of scribe protected, Spacious and well organised environment with clear physical pathways
Inherent risks and constraints: dangers from war time operations including hostile action and live ordinance; NHS personnel subject to targets but communications widely available and operations	Pre alerts, Patient position, Risk factors	Inaccurate timings and long waiting periods, Nine liners appear not always to be accurate, Patient remained outside the ED during handover

unlikely to be interrupted by hostile forces		

4.7 Conclusion

The chapter demonstrates how the reflexive diaries helped supplement the data collected during the semi structured interviews and aided early comparative analysis. It shows that differences in handover communication were driven by different organisational missions and patients' characteristics. The reflexive diaries identified protocols around handover communication in the military that were not contained in the MoD Clinical Guidelines for Operations (2013) and suggested that the role of scribe was vital to the handover process. Early comparative analysis based on the findings from the reflexive diaries suggested that whilst there were significant differences in handover communication between organisations, standardisation was a feature in both settings. However, in the NHS this centred on the Patient Report Form and was designed to meet the information needs of the NHS, whilst in the military standardisation focused on the ATMIST mnemonic and was designed to meet the needs of patients with poly trauma.

Chapter 5: Comparative analysis of military and NHS handover

5.1 Introduction

The following chapter is based on the data from the 13 semi structured interviews with paramedics. This chapter presents the descriptive foundation of the analysis and provides a comparative analysis of handover communication in the military and the NHS. The chapter explains the handover process and describes how this happened at Camp Bastion and in the NHS. It outlines how military and NHS handover communication differ and what these differences mean. It explains how and why these differences emerged around organisational culture, mission, environment and risk; and how these were maintained through training and layout of care facilities. These differences are analysed in three stages and developed using tables inspired by Miles, Huberman and Saldana (2014).

5.2 Explaining the handover process

Handover in the NHS takes place in the ED between pre-hospital and hospital teams. It represents a transfer of responsibility between care givers and is facilitated by the transfer of information between them. The pre-hospital team provide information on the patient's history and initial condition, explain what interventions have been performed and how the patient responded to these, and meets the information needs of the receiving team. Pre-hospital and hospital healthcare professionals give and receive handover communication according to local and national protocols. Handover communication may also be facilitated by information communication technology, written reports and oral communication. Whilst handover communication varies across different emergency care facilities, they share these basic characteristics, and often include a pre-alert in the case of a very unwell patient. In order to identify the key differences between handover communication in the military and the NHS,

Handover communication in the military is formally outlined in the MoD Clinical Guidelines for Operations (2013). There is no similar document available in the NHS which prescribes how handover should be conducted although trauma protocols were introduced by NICE in 2016. The NICE trauma protocols do not go into the same level of detail that the MoD guidelines provide for and only covers patients that meet the trauma criteria. Although NICE has introduced trauma protocols designed to standardise the treatment of trauma patients in the NHS, the guidance permits hospitals to develop

their own pre-alert and trauma response guidelines in contrast to the MOD which provides strict protocols that must be followed. This means that a plethora of different pre-alert systems have been drawn up by NHS ambulance trusts and hospitals. The NICE guidance on pre-alerts and pre-hospital handover teams state the following:

> *A senior nurse or trauma team leader in the emergency department should receive the pre-alert information and determine the level of trauma team response according to agreed and written local guidelines. The trauma team leader should be easily identifiable to receive the handover and the trauma team ready to receive the information. The pre-hospital documentation, including the recorded pre-alert information, should be quickly available to the trauma team and placed in the patient's hospital notes.* (NICE, 2016).

The NICE guidance gives further information on handover communication but this is targeted at handover within the hospital rather than handover between pre hospital and hospital teams, and it appears that this interface is under developed in the NHS which again leads to the emergence of different protocols. The MOD guidelines go further than the NICE protocols by outlining the criteria for activating the trauma team, preparations to be carried out before a patient arrives, the role of receiving team members, the standing position for receiving team members, criteria for 'right turn resuscitation' (whereby a patient requiring emergency surgery was taken straight through the ED and into theatre), and a description of handover including the ATMIST mnemonic.

5.3 Interview data - conflicts over handover

The analysis of the data from the 13 semi structured interviews with paramedics took place after all of the interviews had been completed. The coding was facilitated by the use of NVIVO and key differences were entered into further tables to advance the analysis. The data analysis revealed that paramedics had problems negotiating the transition between organisations and this emerged as conflicts over elements of handover communication. Paramedics expressed the greatest frustration with practises that were more significantly different between the military and NHS emergency care settings such as being met at the hospital, respect from colleagues and the ATMIST handover. At times participants indicated a degree of insight into why certain military practises could not be transferred to the NHS but this varied depending on the issue and their personal attachment to it. Paramedics reported introducing elements of the military practise into the NHS and stated that their expectations had been changed as a result of their deployments. Regulars also reported difficulties negotiating

occupational hierarchies in the NHS whilst reservists had problems negotiating rank and hierarchy in the military.

5.3.1 Behaviours

A key area of concern for paramedics was the perceived lack of standardisation of handover in the NHS and concern that NHS healthcare professionals did not listen to them giving the handover. Some thought this might improve with training, others thought a standardised handover using ATMIST for trauma patients would be helpful:

> "*maybe standardise it into an ATMIST thing so again every unit knows, all the ground crews know that they are going to deliver an ATMIST, all the receiving departments know that they are going to get an ATMIST for your T1 type patient if you can categorise them*." (Interview 9)

The majority of data collected under child node 'behaviours' centred on listening and this theme crossed over with silence, space and timings. Paramedics spoke at length about the difficulties of attracting the attention of NHS healthcare professionals when they arrived at the hospital and getting them to listen to the handover. They spoke of having NHS staff interrupt them whilst the handover was ongoing and reported behaviours such as putting in a stethoscope and carrying out an assessment during the handover:

> *"I'd say 30 seconds is absolutely maximum, the most you're going to talk for, before people aren't going to resist the urge to put the stethoscope in and start attaching leads to the patient."* (Interview 10)

Or,

> *"I've had people interrupt me, I think at times when it's in the civilian setting it's what they're used to rather than waiting until they get the full information, and it depends on personality so people will listen to the whole spiel, and then ask questions and you've got the ones who will say, 'oh what about that?' I'm getting to that - give me a sec."* (Interview 2)

A particular behaviour that paramedics found irritating was being asked questions about information they had already handed over. Or being interrupted and asked questions regarding information they were about to give. They felt that these issues were confined to the NHS and not something they encountered in the military where the behaviours of hospital receiving staff appeared more standardised than the NHS. The key feature here was inconsistency and the range of different factors

that contributed to these behaviours in the NHS. The paramedics reflected on the reasons for this lack of standardisation and they cited personalities, pressure that hospitals and staff were under, lack of professional respect, lack of training, how well they were known by the staff, and they talked about having to manage their expectations when handing over patients in the NHS:

> *"I think my expectations changed, so I find it frustrating when I'm not listened to, I find it annoying if someone has to ask me a question, not to the point where I'm not answering it, well you know it's a failing on the system or your part for not listening, it's OK if you ask something I didn't tell you, but if you ask something I announced during the handover."* (Interview 3)

One of the paramedics referred to the difficulties of developing a consistent handover when they handed over to five different hospitals who all wanted handover in a different format, whereas in the military there was only hospital to handover. It was stated:

> *"To be honest I adapt a military system to suit into the NHS. I use an ATMIST handover in the NHS and the military and I use that for both medical and trauma patients just slightly adapted to be honest. I firmly believe that handover is a crucial area of all healthcare so I try and keep to the basic structure, getting the information across. That said within the NHS as a paramedic in this area I may go to 5 different receiving hospitals in a day and they all have different ways of wanting to receive handovers, if they listen at all, and therefore you adapt it."* (Interview 4)

Whilst there appeared to be many inconsistencies in the way that handover was expected to be delivered and was received in the NHS, some consistencies were reported especially when it came to handing over trauma patients. Even when the patient presentation had some features in common with the critically injured trauma patient in Camp Bastion, the data suggested that there were still issues with getting hospital receiving staff to listen. The data suggested that this might be because of the behaviours of receiving staff who were intent on performing assessments and interventions whilst the handover was ongoing. It appeared that the further the patient presentation and hospital moved away from the military model, the handover was less likely to be received in a standardised way:

> *"I've had it before when you've been wheeling them in and they have just grabbed the patient off you and started doing stuff before they've even listened to the handover but actually in that respect they do want to know what you are saying. And there is more after questions as well I think with bigger sick (patients)."* (Interview 7)

Paramedics were attempting to change these behaviours by employing strategies such as issuing a loud 'listen up' to signal the start of the handover, waiting and looking at the lead clinician until everyone was ready and listening, and even challenging senior staff. These behaviours were assigned 'paramedic driven factors' in the coding. The paramedics stated that having deployed with the military gave them more confidence in their handovers and in challenging other staff members. Paramedics were able to self-reflect as individual practitioners and as a profession, and recognised that some of the negative behaviours that they encountered might be due to paramedic driven factors. These factors included poor NHS handovers that went on too long, confusion over uniforms, and lack of confidence. Interviewees reported that some paramedic colleagues felt very uncomfortable giving the handover especially when it was quiet and everyone was focused on them. It was stated:

> *"I think where handovers go wrong, is where it becomes a rambling tale. Not everyone likes doing it, I had a crew mate who in five years would never handover in resus any call because he found it intimidating, didn't like talking in front of all those people and would invariably delve off into mumbling and just try and get away. We just agreed that I did them."*
> (Interview 7)

The paramedics were consistent with their articulation of behaviours in the military handover process and this indicates that a high level of standardisation was in operation which was also identified in the reflexive diary entries. The participants frequently stated that handover took place in complete silence and that military staff listened to the handover and did not start any assessments until the patient arrived. This was consistent with the findings in the reflexive diary entries but contrasted with the paramedic's experience of NHS handover which was characterised by noise and frequent interruptions. It was believed that interruptions in the military handover were prevented because hospital receiving staff knew what information would be delivered and in what order. Another participant thought that the success of the handover was down to training and discipline:

> *"And each resus bay being manned by people that have been trained through HOSPEX in how to expect an ATMIST, how to deal with a trauma call, so you have your scribe, your nurse one, nurse two, your anaesthetist, and they've all got pre-determined positions and it's all disciplined that way."* (Interview 8)

All of the paramedics spoke about behaviours at Camp Bastion during the handover and spoke positively about discipline, listening, direction, team work, and readiness which diverged from their experiences in the NHS:

> *"the military seem to know before you arrive which bed the patient is going into, there is generally more staff waiting to receive them, even for some of the more minor casualties there will be two or three staff waiting to receive that person rather than putting them into a bay and waiting for the nurse to come and find you, probably the biggest differences, yes, that would probably be the main thing the military seemed more prepared to receive you and direct you."* (Interview 12)

And,

> *"You get a bigger participation, you get participation from the whole team depending on how big the team is and what you are taking in, they are more intense and focused on what you're saying and listening"* (Interview 1)

Several interviewees articulated the belief that things had improved in the NHS particularly in the area of trauma handover. The improvement that was perceived related to specialist trauma hospitals that were receiving handovers with a policy of silence. It was reported that NHS colleagues with military experience, especially those who had been exposed to the ATMIST handover continued to use ATMIST in the NHS, and that increasingly NHS trauma hospitals and some NHS ambulance trusts, had shown an interest in the ATMIST handover and other practices developed at Camp Bastion. It was stated:

> *"So obviously a lot of staff working in Bastion work in the NHS, a lot of cross over…there's regulars, nurses and doctors in the forces, they work in the NHS and I think that's been massive improvement over the decade, the last couple of decades. I can remember when you did it and you would go to a sick bay locally and the ...medical establishment locally and you would have a very iffy, you know, handover…so now it's very much the same sort of trauma approach of you know everyone be quiet and if they weren't quiet then they would be told to be quiet, previously I would stand there looking a bit miffed because they didn't want to listen but now they would be told by the team leader, 'Quiet please, listen to the paramedic handover'. So really professional and the NHS from most of my experience lately has been like that for the serious end of patients"* (Interview 1)

Paramedics were trying to influence the behaviour of hospital receiving staff by strategies such as not speaking until silence had been achieved, stopping the handover when staff talked amongst themselves, letting the team leader know that they were ready, and even commanding staff to 'listen up'. The paramedics made the point that it depended on the situation, they were more likely to be assertive in this area if they were dealing with a very sick patient. Also they spoke positively about working with NHS personnel who had experienced military handovers because they recognised the handover style and understood what they were trying to achieve and why it was important.

Paramedics talked about the lack of professional respect from both doctors and nurses in the NHS and expressed the belief that they were respected far more in the military, this provided another area of conflict around transition. The following statements show some of these issues that paramedics identified, the first refers to perceived respect from other healthcare professionals (a regular paramedic speaking about military doctors) and the second a regular speaking about interactions with NHS nurses:

> *"We've just finished a MERT course this week and there is at least four doctors that I have worked with personally and I was very appreciative that they see me regardless of rank, and experience or qualification or vocation on an even playing field when it comes to pre-hospital emergency care, you just don't get that in the NHS, there's very few doctors that I could ask for feedback on patients, it's very, very old school still in the sense of the doctor knows best, the doctor's always right, there is a way to ask questions, there is a way to approach aspects of treatment I appreciate that but it's more horizontal in the military than the NHS, and I think that thing that needs to be altered massively, you know doctors know an awful lot but not many doctors work pre-hospitally or understand the elements that you work with or how you are supposed to do things, so yes it is a big thing"* (Interview 1)

Or,

> *"I get really annoyed at times with the way I've got treated by some of the nurses that I've handed over to, being ignored pretty much you can tell they're not listening to you and it was evident when I turned round and told them that an 89-year-old woman was pregnant and she just went 'yeah, yeah, cool, that's great, thank you very much,' just to see how much she was listening."* (Interview 11)

Others thought it was personality driven and that NHS paramedics tended to add more detail, especially around signs and symptoms that would not be required in the military. This may be because

reservists tend to have greater clinical and medical experience. One paramedic thought that the reservists were better because they had more clinical experience, it was stated:

> *"Generalising, the reservist paramedics are probably better because we all tend to be fairly experienced civvy paramedics so we have done lots of handover, not in that environment or with the nature of injury, but we are used to going in and giving handovers, even so much as an RTC when you going to go in with your patient who is collared and boarded you go into the trauma room with something simple and you're used to doing two things at once, used to physically moving the patient and doing the handover whereas a lot of the regular guys are inexperienced and haven't got a lot of road time."* (Interview 2)

Other paramedics denied that there was any difference and believed that the reservists were just as good because they had undergone the same training systems and worked alongside reservists.

The paramedics did not specifically mention space when talking about their experiences of handover communication in the military but they did refer to space in the NHS. They referred to the busyness in the NHS, congestion of patients and endless queuing. This was consistent with the reflexive diary entries which showed a different spatial environment. The hospital at Camp Bastion had plenty of space to move patients and for staff to move around in contrast to NHS EDs where patients are sometimes doubled up in resuscitation bays originally designed for half that number.

It is clear that the greatest source of conflict for paramedics was how they were received at Camp Bastion compared to how they were received in the NHS, because their experiences in the military raised their expectations. This was one of the most difficult aspects of transition especially when they were used to help with the offload, a ready and waiting team, and silence during the handover.

5.3.2 Training

The majority of interviewees, regardless of whether regular or reservist, reported that they had not received formal training on handover during their paramedic training in the NHS and that it was an expectation that they would pick it up on the job in contrast to the military where they received formal training on handover. It was reported that mentors discussed handover whilst training on the job in the NHS and two participants recalled a mention of handover on the technician course which they undertook before formal paramedic training. Another two participants recalled being told about handover mnemonics including ATMIST and ASHICE and were given information about these during individual NHS trust inductions.

However it transpired from the data that these were suggestions rather than mandated protocols. The lack of consistent training programmes for paramedics is likely to have led to the diversity among paramedic practice but it appears that this may be changing. Several interviewees articulated the belief that lessons and experiences from Camp Bastion were influencing NHS practice and this was attributed to healthcare professionals who had deployed, and interest from NHS managers. One interviewee reported having received handover training during the university course, from mentors on the job, and training on the ATMIST mnemonic at the local NHS trust induction course.

The participants reported having received training on the ATMIST mnemonic during military courses including medic training courses, battlefield medical courses, the MERT pre-deployment course and HOSPEX. The HOSPEX course involved high fidelity simulated handover training using the ATMIST handover mnemonic in a mock-up of the hospital at Camp Bastion. The interviewees spoke about the intensity of this course and how it focused on handover. It was stated:

> *"I think HOSPEX was probably the most daunting and real because actually you can do your ATMIST to a little team and do it pretending sort of on the MERT course and then HOSPEX you get that feeling of walking into that hospital with that whole team there stopping and waiting for the words to come out of your mouth and that's when you think, oh I've actually got to do this, but all of that led up to actually doing it for real out in Afghan which I think was great."* (Interview 13)

One of the regular paramedics thought that reservist paramedics needed more time to get up to speed with military drills and sometimes struggled to understand how time critical the nature of the job was including the handover when transitioning to the military. Another regular paramedic thought that it depended on the background of the reservists; paramedics who were ex-military or came from an air ambulance background were very good, but those working in rural areas of the NHS required more development at the training stages before they were deployed. This was apparently because they were not used to handovers being listened to and tried to engage in conversational speculation about what might be wrong with the patient. Anderson et al suggest that transitions that have not been undertaken previously are likely to be more challenging for individuals and this might explain why the reservist paramedics without military experience appear to have problems with the handover (2012, p.62). It was stated:

> *“If you’ve got a paramedic who’s a reservist some of them are ex-military and it's very obvious and I’ve seen a couple of them operating and they’re very good. The guys who come from an*

air ambulance background are also very good. The guys who come from a -what I would call- a bog standard NHS background i.e. working on an ambulance in sleepy Ville where they'll do two jobs a shift and probably sleep half the night, they struggle. They struggle, they are not used to command, they're not used to telling doctors to be quiet while they say their piece, they are used to some of the handover being listened to and not fully completed, let's have a little chinwag about what's wrong with the patient, that kind of thing where in the military they need a formal structure and that's what we expect." (Interview 12)

Another paramedic thought that reservist paramedics struggled to adapt to what they perceived as the 'fluidity', greater autonomy and respect that paramedics received in the military whilst others thought that it depended on the type of experience that reservists had undergone. A number of paramedics reflected on their personal experiences of working with reservists and thought they were just as good as the regulars and believed there were similarities between the ambulance service and the military which prepared the reservists for military deployment

At the same time, there was an acknowledgment of the difficulties that NHS staff faced including targets, stress, over work, and lack of staffing, and regular paramedics expressed their admiration for their NHS paramedic colleagues and how they worked. There was self-reflection too and acknowledgement from a couple of interviewees that some NHS paramedics 'rambled' on during handovers and an understanding that the receiving staff were keen to start care. It was stated:

"I work with people that will ramble on for 5 minutes and with the best will in the world the staff are not going to wait for that, they want to be dealing with that patient" (Interview 7)

The 'rambling tales' were criticised not only for taking up too much time but also failing to effectively communicate the most pertinent information. This it was thought might affect the way hospital receiving staff perceived paramedics and their attitude towards handover.

5.3.3 Doctors' handovers

Only one interviewee thought that there were no differences in the way that doctors and paramedics handed over at Camp Bastion, and attributed this to the structured way that handover was delivered and the use of the ATMIST mnemonic. The data suggested that doctors talked more than paramedics when giving the handover or 'waffled on' as two interviewees described it, and that they gave more details particularly around drug dosages, unusual or complex clinical procedures, and statistical

data. During the reflexive diary entries, I only witnessed one doctor giving the handover but this appeared as quick and concise as the paramedic handovers.

One interviewee thought that the extra information that doctors added was unnecessary given the short duration of the handover. It was suggested that the grade of doctor had an impact on handover with junior doctors keen to 'show off' their medicine and going as far as suggesting a diagnosis or intervention. Another interviewee suggested that doctors tended to 'hang around for a conflab' after the handover was given to chat with the receiving doctors about what might be wrong with the patient in contrast to the paramedics.

It appeared that on some tours there was a tendency or an assumption that the doctor, as the clinical lead, would be the one to handover. Indeed the key informant interview with a senior military doctor stated that this was always the case. However, all of the paramedics interviewed claimed to have regularly handed over at Camp Bastion and the reflexive diary entries data suggested that it was common practice for paramedics to handover. Nevertheless, there appeared to be circumstances where the doctor would step in if for example there had been, in the words of one paramedic 'a controversial clinical decision'. It was stated:

> *"I think thoracotomy is probably a good example, if there is a procedure that has failed and there has been a significant complication and it might be more important, and I quote one of the doctors on this, some doctors say 'I'm responsible for this so I'll handover the patient' and if that's their party line and that's absolutely right, there's no issues around that."* (Interview 7)

One paramedic thought it depended on whether the doctor had a reservist or military background and that reservist doctors were less confident at giving handovers and preferred the paramedics to undertake that role. This may be because doctors as well as paramedics find transitioning between the two environments challenging. It was stated:

> *"But then some of the doctors, more so the reservist doctors, controversially, have less confidence. And having worked with both regular and reservist doctors I have to say when I worked with reservists I tend to do the handover and some of the regular doctors tend to do the handover and that's very broad. Being generalist our reservist colleagues are just a bit more NHS orientated but military people, let's be honest, we like to talk a lot and very forthright in our*

opinions, that's not saying that reservists aren't military people but I think sometimes there is a difference that I've noticed." (Interview 5)

It was suggested that how the doctor handed over was personality driven or depended on whether they were reservist or regulars or their clinical grade. It was suggested that doctors might be more likely to hand over on single patient lifts rather than multi patient lifts, if a potentially controversial clinical decision had been made or significant intervention, or if the doctor was a reservist or regular. The data pointed to some inconsistency about whether it was the role of the paramedics or the doctors to handover, and some differences about the reasons underpinning who gave the handover. Certainly at HOSPEX both doctors and paramedics undertook training on how to deliver handover at Camp Bastion and there does not appear to be any regulations covering this issue stating whether it should be a paramedic or doctor.

The differences in organisational culture emerged in the interview data as concerns about standardisation and respect from other professions. Paramedics thought that more standardisation in the NHS would be a positive development because at that time each hospital had its own policies for receiving patients and handover communication appeared to be influenced by the personalities of receiving staff. This was cited as a significant frustration for paramedics who felt that they had to adapt their handover to suit each hospital and different personalities. Paramedics wanted receiving staff to listen to their handover without interruption or seeking too many repetitions. Leadership was mentioned by most of the interviewees as important in controlling and directing staff and handovers were more effective according to the reflexive diary entries with positive leadership.

Table 16 shows the results of a further analysis of the differences between handover communication in the military and the NHS based on the interview data including recommendations for how handover in each environment could be improved.

Table 16 Comparative analysis of military and NHS handover communication

Camp Bastion	**NHS**	**Comments**
Staff knew their positions and roles and remained faithful to these	Staff were not confined to a particular position	CB appeared more fluid & controlled because staff were not having to bend, twist, or reach over the patient to get access to patient

Spacious and well organised environment with clear pathways	NHS resuscitation areas often cramped and overcrowded	As above, manual handling issues, hazardous working conditions and patient assessment more difficult
Paramedics appeared tense when walking into ED and during handover	Paramedics appeared relaxed unless handing over very unwell patient, young patient or abusive patient	Tension in CB maybe due to patient acuity, nature of operations, military culture, focus on paramedics
Handover consistently followed ATMIST mnemonic	Handovers did not appear to follow any set pattern	Military personnel know what information to expect and in what order, - may account for interruptions in NHS handovers
No visible paperwork	Standard A3 patient record in NHS (increasingly electronic)	Paperwork is used in military but information needs are different
Role of scribe protected	Scribe not protected, often a HCA who is called away for other duties	Role of scribe appeared to underpin the handover in CB
Handover was very short	Handovers can be short, and long and rambling	Types of patient and information needs are different in CB and NHS
Team leader maintained discipline including silence during handover	Some team leaders maintained some order and led patient care	Staff in NHS unsure of what is expected of them, would benefit from more direction and would likely benefit patient care
Patient remained outside the ED during handover	Patient brought into ED/resuscitation room with paramedics	Not possible in NHS due to staff resources and infrastructure, also not necessary
Staff listened intently to handover	Staff sometimes having their own conversations, carrying out assessments, and interrupt paramedic	Likely to impact patient care negatively – miscommunication, repetition of procedures

Hot environment which appeared to stress staff and patients	Environment usually unchanging and temperatures comfortable, uniform loose and practical	Staff able to work longer, safely and more effectively if comfortable
Loud confident voices but little interaction with patients or reassurance given	Quiet, more caring voices and lots of attention paid to consent and reassurance of patients	Patients likely to feel more supported in NHS settings
Paramedics always met by ready team	Paramedics not always met	Delays in patient care, frustration for paramedics in NHS
Nine liners appear not always to be accurate	Pre alerts in NHS not always accurate	Delays in patient care
Inaccurate timings and long waiting periods	Less likely in NHS but can be an issue	Nature of warfare operations
Patient tend to be young, healthy and fit men	Patients tend to be older, sicker and unfit	Nature of patient groups

The differences contained in Table 16 can be summarised in three keys areas, organisational mission and culture, environment and resources, and inherent risks and constrains:

5.4 Organisational mission and culture

The military is a command and control organisation and the NHS is a large bureaucratic organisation consisting of many different hospital and ambulance trusts across the UK. The typical military patient was a young, previously fit and healthy, man with traumatic injuries and consequently the military have designed healthcare protocols to meet this need. The NHS is a large bureaucratic organisation consisting of different ambulance and hospital trusts, and this makes some areas of standardisation less desirable and more difficult to introduce. Civilian hospitals and ambulance trusts serve a diverse range of communities in contrasting environments and treat a varied population group who present with a diverse array of medical complaints.

The military is tasked with defending the interests of the UK using armed force if deemed necessary but governed by international norms and protocols whilst the NHS was established to meet the health needs of the UK population. Consequently, healthcare delivered by the military is designed to treat military personnel injured in wartime operations and in some circumstances civilian casualties. Although the NHS does see trauma patients these represent a smaller proportion of patients than those seen on military operations, and the NHS rarely deals with life threatening poly trauma.

Military handover communication protocols have been developed to reflect the specialist needs of a time critical, resource intensive group of patients and such protocols would not represent a good use of NHS resources given that the vast majority of NHS trauma patients do not present with the type of injuries routinely seen in the military. Many of the patients admitted to Camp Bastion at this time had sustained injuries from IEDs that were designed to detonate high off the ground. These weapons had the potential to cause multiple amputations complicated by extensive burns, abdominal, pelvic, chest and head injuries. These injuries are rarely seen in the NHS which primarily deals with medical emergencies in older people rather than traumatic injuries in young healthy men.

5.5 Conclusion

This chapter presented a descriptive foundation of the analysis and compared handover communication in the military. This was based on the reflexive diary entries and the interview data. The findings show that the differences between the military and the NHS can be grouped around organisational mission and culture, environment and resources, and inherent risks. It explains why different handover protocols including pre-alerts have emerged in the NHS and how the military maintains a consistent approach to handover communication through rank, hierarchy and high fidelity training. Moreover it showed that there were good reasons why handover communication is different in the NHS and the military; the NHS serves a diverse civilian population whilst the military predominantly deals with life threatening poly trauma. Paramedics made a variety of suggestions regarding what they thought was important in handover but they were consistent when they spoke about standardisation and respect from colleagues. The following chapter looks at how and why paramedics find the transition between these emergency care settings challenging.

Chapter 6: Managing transitions

6.1 Introduction

After identifying important differences between military and NHS handover communication, I became interested in how paramedics managed moving between these emergency care settings. The data from the reflexive diary entries and interviews suggested that conflicts emerged around standardisation. Standardisation in this context means to consistently follow elements of clinical practice and communication which have been accepted as policy, modelled by senior practitioners and in some cases delivered in training courses to other healthcare staff. Paramedics were critical of what they perceived as a lack of standardisation in the military when in fact, standardisation is a feature of both the military and NHS emergency care settings. Although it is true that these aspects of standardisation have little in common except for the occasional use of ATMIST in the NHS usually within the context of trauma medicine. This chapter sets out these conflicts around standardisation and provides a theoretical basis of transition using the concept of paramedics as 'transmigrant's and transition theory. It includes the paramedics own reflections on transition and a longer discussion on the analysis from the data.

6.2 Conflicts around transition

The features of standardisation in the military have been driven by war time necessity and the need to deal effectively with complex trauma in young, previously healthy, adult males. Handover communication in the NHS is driven by the needs of a bureaucratic organisation tasked with delivering emergency care to a civilian population most of whom are elderly medical patients. Standardisation is based in the military around the ATMIST handover mnemonic whilst in the NHS it is centred on the patient report form (PRF). Organisational context makes it easier to standardise handover communication in the military, a command and control type organisation, rather than a large bureaucracy such as the NHS, even though both are hierarchical in nature. These organisational differences are reinforced by different approaches to training. The NHS uses apprentice type training in contrast to the military where formal courses are delivered in high fidelity environments and assessed in pass or fail examinations.

Participants expressed difficulties with managing the lack of standardisation in the NHS when moving over from the military. Moreover, both regular and reservist paramedics found it difficult to negotiate the roles and hierarchy in their non-home organisation. It is a finding of this study that negotiating the transition between organisations places a unique toll on paramedics who must move between different organisations and practice healthcare in diverse contexts - the nature of which was demonstrated by the comparative analysis. Both regulars and reservists reported that they had the most difficulty making the transition from military deployment back into the civilian world of the NHS and it likely that the pressures and dangers of working on deployments in a war zone and being exposed to severely injured personnel amplified the difficulties associated with this transition, and may indeed have a negative impact on mental health and resilience.

It is the differences between these two settings, not the issue of standardisation which makes this transition so problematic. As far as the paramedics were concerned this conflict manifests itself over aspects of handover communication, the perceived effectiveness of the ATMIST handover, the higher respect and esteem of their military colleagues, the patient group and injury patterns, and the environmental features of Camp Bastion emergency department. These were all cited by the paramedics as features they associated with military handover communication and compared this unfavourably with their experiences of working in the NHS.

However, there are sound reasons why these features cannot be replicated in the NHS except where patients' present closer to the typical military patient. Whilst paramedics conclude that fixing the process, or at least making the NHS handover more like the military handover, will resolve the conflict and frustration that they feel especially when re-entering the NHS post deployment, in actual fact this would not help and is not appropriate to the NHS task.

6.2.1 Pre-alerts

Pre-alerts are used by NHS ambulance crews to inform the hospital receiving staff that they are bringing in a patient who is very unwell and requires time critical or specialist treatment; these are used in the military also, but are affected by operational considerations. Participants reported using radios or telephones to communicate a pre-alert to the hospitals either straight through to the ED or via a call centre in the NHS. The interviewees expressed a preference to call the hospital directly rather than go through call centres because of concerns about information being lost or changed when a third party is introduced. What information was contained in the pre alert changed according to the clinical pathway followed (and was driven by the patient's main presenting complaint) and in some

cases paramedics would speak directly to the receiving team if specialist care was involved. This might involve diverting to a specialist stroke ward or cardiac department. Interviewees spoke about using ATMIST when telephoning through a pre-alert, and adapting it for a medical or trauma patient:

> "*Here locally within this region from an ambulance to the hospital point of view, there's two forms of pre-alert. There's what I would refer to as the standard pre-alert which would be done via radio through ambulance controlled, again I don't think they have a formal structure for that as an organisation. I use a general form of structure surrounding the ATMIST process, adapted if it's a medical patient appropriately. You've passed that on the only thing is through radio you've often got the patient in the back if they are sick you might need hands on to do that, so is probably a shortened version they would then telephone the receiving hospital with your estimated time of arrival. The differences being are in major trauma if you're bypassing to go to a major trauma centre you have to ring the major trauma centre direct to get authority to bypass the local hospital so you would speak to them on the telephone.*"
> (Interview 3)

One interviewee talked about a pre-alert board board which contained the following prompts:

> "*It's more of a condition, signs and symptoms, you handover, you wouldn't say I've done this or I've done that on the pre-alert board. You would just say this is what you're getting*".
> (Interview 1)

One participant stated that their ambulance NHS trust was actually using the ATMIST mnemonic for its pre-alerts and training on this was included in the trust induction. Another interviewee indicated that he used what was already written on the PRF and the pre-alert using the CABC mnemonic (catastrophic haemorrhage, airway, breathing and circulation) and the top to toe approach to listing injuries. The use of pre-alerts demonstrates some of the significant differences between the information requirements of the NHS and the military, and the availability of communication devices. It demonstrates an area were some standardisation has been achieved in the NHS but differences remain between NHS trusts, and some of these elements of standardisation are also used in the military. The differences between the process for paramedics between the NHS and the military was not raised as a concern by paramedics but the differences between pre-alert protocols in the NHS trusts was. This may be because paramedics understood the reasons for the limitations of pre alert

communications in the military and could assimilate this knowledge relative easily but had difficulty negotiating the different pre-alert systems used in the NHS.

6.2.2 ATMIST

The most significant mnemonic used to standardise handover in the military and NHS context was ATMIST, other mnemonics were mentioned in passing but were not in current use. The success of the military handover according to one paramedic was down to the use of the ATMIST mnemonic:

> "*Using that mnemonic it's a standardised approach that everybody knows so I think straightaway that makes it more helpful because everybody knows the order and the process of what you are going to say, so the expectation is there of how it is going to be worded, and I think it works it is simplistic in a sense of getting all the information across but without waffling so without saying a irrelevant staff that you really don't need to know about."* (Interview 5)

Some of the lack of standardisation in the NHS was being driven by paramedics themselves and seven interviewees made reference to using ATMIST, or a handover inspired by ATMIST, in the NHS context especially when handing over a time critical patient although paramedics did not appear conscious of doing so or how this might create further inconsistencies in handover communication. At the same time, further differences in NHS handover were driven by the paramedics who admitted adjusting the handover according to the patient's acuity and perceived credibility and this was apparent from the previous research into Quality of Ambulance Crew Handovers: A Qualitative Study of Knowledge Transfer in Emergency Care (NIHR: 2009 to 2011). In the course of this study, it was reported that handover protocols might be less rigorously followed for a patient who was assumed to be intoxicated by alcohol and had injured themselves by falling over. The culture of the local hospital also appeared to affect the handover. It was noted that hospitals which had been designated trauma centres were, in the words of one paramedic, 'trying to professionalise' and that hospitals which employed military personnel also veered closer to the more standardised military model at least for trauma handovers.

The data suggested that the NHS, including hospitals and ambulance trusts, were looking at practises in Camp Bastion and that ATMIST was being introduced in some parts of the NHS by managers in the ambulance service and hospital clinicians, and was used by some military colleagues when working in the NHS, especially when dealing with trauma patients. The majority of interviewees talked about how they were using ATMIST, or an abridged version of ATMIST for trauma patients and in some cases time critical medical patients in the NHS. This theme related to transition and standardisation in the military

through the use of ATMIST in NHS handovers by paramedics with military experience. They reported that their military experience had impacted the way that they gave handover in the NHS and the use of ATMIST was one of the key practises they transferred over, sometimes adding an introduction to the patient or expanding on signs and symptoms. It was stated:

> "*I changed the way I handover after a MERT tour. I always still start off by introducing the patient to the team then they would get a general sort of reason why the patient is here, signs and symptoms, current set of observations the patient had and what treatment had been done but since my first MERT tour which was a couple of years ago I try and adopt an ATMIST style handover but still hitting all the points of the ATMIST."* (Interview 11)

It appeared that the closer the patient presentation was to the classic military patient the more likely it was that ATMIST would be used and this suggests that it is more appropriate to trauma patients. Interviewees differed in the extent to which they thought that ATMIST could be used for medical patients in the NHS. One interviewee stated that it was not applicable to the civilian medical patient as there was too much information that needed to be conveyed. However, other interviewees thought that it could be used for medical patients and were already doing so. A number of interviewees reported sticking to the use of the PRF during handovers in those cases where time was not critical but then switching to ATMIST for trauma and time critical medical patients. One participant mentioned how useful it was for time critical patients including medical patients suffering cardiac and other circulatory events such as stroke.

One of the interviewees felt very strongly that ATMIST could not be amended for medical patients on the grounds that the doctors at the hospital would want to undertake their own assessments and come to a diagnosis; it was believed that ATMIST went too far in offering a potential diagnosis. It was suggested that NHS nursing and medical staff had different information needs about their patients than their military counterparts and that this drove some of the differences in handover communication. It was stated:

> *"They generally have a very clearly defined injury mechanism, so it's not a 'collapse query cause' it's an IED or it's a gunshot wound, generally you've got a very clear (…) mechanism of injury. Now that can transfer over to trauma in civilian settings because generally trauma is an obvious event, so they've crashed into a tree, they've crashed their car head on into a tree, or they've been stabbed, it doesn't work so well for medical. And if you are talking about patients that are*

on multiple medications, who have a complex social history, you know, they've been found on the floor, last seen two days ago, you tell me when they last...you know it doesn't fit a short ATMIST handover because if you tried to bastardise that into an ATMIST handover you're missing all the important information that would be important to the receiving team and so I don't think it would really work…" (Interview 7)

The interviewees were very positive about the use of ATMIST for trauma patients particularly at Camp Bastion because it provided for efficient transfer of pertinent information for time critical patients; but these were patients whose conditions were unlikely to be complicated by medical conditions and did not have complex social care arrangements. The main concern about introducing ATMIST for non-trauma patients in the NHS centred around the complex medical and social history of typical NHS patients where the mechanism of illness or injury was not always evident, who might be suffering from a range of chronic pre-existing medical conditions, taking multiple medications and with complex social and mental health histories. These differences in information needs according to the hospital receiving staff also made it more problematic to lift the military type of handover and introduce it to the NHS. The data suggested that this might be why many NHS handovers tended to be more conversational and were not easily standardised using a simple mnemonic. Handovers it appears are driven by demand from hospital receiving staff for relevant information.

In the NHS where beds are sometimes in short supply, healthcare professionals are already contemplating how to facilitate the patient discharge and this is one of the reasons that NHS handovers require more information regarding patients' home situations and current care input. They have a duty of care and must act if paramedics raise concerns about the home situation, child protection or the involvement of the police. Few NHS hospitals have security on duty in their EDs so healthcare professionals must risk assess patients and this drives information needs also. Moreover, ATMIST has not been formally evaluated for use in handover communication or pre-alerts in the emergency department. It appears that the success of ATMIST in the military may be down to a range of factors including patient type, patient presentation and training of both paramedics and receiving staff all of which are more consistent with handover communication in the military. The closer the patient was to the typical military patient in terms of clear presentation of time critical trauma injuries, the more likely the paramedics were to report using it. The data suggested that the military system of handover was effective for handing over trauma patients and potentially time critical medical patients but there were differing views about whether this could be transferred to the NHS. It was suggested by one paramedic that these adaptations to ATMIST would make it appropriate for medical patients:

Introduction = patient and staff

Age = Age

Time = Onset of injury or injury

Mechanism = Illness or cause of injury

Injury = Injury (injury caused or insult sustained)

Signs and Symptoms = Signs and Symptoms (at scene and then additional observations)

Treatments = Treatments given and effect

According to the participants, the benefits of ATMIST included how easy it was to teach, how easy it was to remember, its structure and the speed at which information could be conveyed. One interviewee believed that the ATMIST handover reduced patients to a set of numbers and could be potentially viewed as 'dehumanising' but this view was an isolated one. Another thought that student paramedics should be taught ATMIST because it would give a structure to their handover and see them through the difficult transition between being a student working with the support of a mentor, to working as a qualified practitioner. It was reported that a number of ambulance NHS trusts had sanctioned the use of ATMIST for pre-alerts and information on this had appeared in a trust induction. Furthermore, some NHS trusts appear to be using ATMIST mnemonics for trauma handovers. When participants were talking about what improvements they would see like to see in handover, ATMIST was mentioned or at least a standardised version adopted for use in the NHS.

With regards to the issue of transition, it is clear that some paramedics are bringing aspects of the clinical practise in the Camp Bastion into the NHS notably the ATMIST mnemonic but they did not report transferring any practises from the NHS to Camp Bastion. The participants demonstrated an understanding of why certain protocols were different in the military and why ATMIST might not be appropriate for all patients in the NHS.

6.2.3 Practises

The 'pre handover' node contained reflections on how paramedics prepared themselves mentally for the handover. Paramedics were divided 50/50 as to whether they needed to write the handover down or practise it in their minds:

> *"normally I'd have just carried one of those waterproof notebooks in my body armour and before the job I've already got ATMIST written down and then I just fill it as I go because I haven't got a good enough memory to remember"* (Interview 4)

Or,

> *"Some people have to have it written down some people love memoirs and books, I'm a in the head kind of guy you know I've done it for quite a long time, and done it in very stressful circumstances with multiple patients and I think you become quite accustomed to handing over a patient. The reason it's good not to miss any information off, if the quality of your handover in terms of the severity of the patient, if you've got a feeling of your patient in the prehospital care arena, I suggest you should be spending more time treating or monitoring and keeping a closer eye rather than necessarily worrying about that time writing things down. I suppose the best you are going to get is the back of the glove and notes just to prompt you in the vital signs."* (Interview 13)

This was an area where practises were not consistent and there were differences in how paramedics prepared themselves for the handover and their views on this. There was little mention of how paramedics prepared themselves for handover in the NHS and it could be inferred from this that the military handover required more thought and this may have significant consequences for the difficulties associated with transition but from the NHS to the military.

Only two paramedics mentioned the use of aide-memoirs when working as a paramedic in the NHS. One paramedic stated that they used to carry an aide-mémoire card in their early career but now they were familiar with handover they no longer needed it. Another interviewee admitted using the back of the glove where the mnemonic 'ATMIST' had been written and then transferred over to the PRF; this information consisted of the latest set of patient observations taken moments away from the hospital. This suggests that NHS paramedics did not have an unmet need for an aide-mémoire, as they appear to have in the military, and that the PRF adequately performs this function.

Participants referred to using a number of different aide-memoirs whilst working as a paramedic in the military. Some of these were supplied by the military and consisted of slate cards or laminated cards with the mnemonic ATMIST already printed on it which encouraged standardisation. Other paramedics fashioned their own aide-memoirs from card, and notepads which were contained in a pocket or strapped to a limb. One paramedic outlined how he had sourced divers' slate pads and used these. It was stated:

> *"We do carry slate cards they are about a six size, a hardened plastic that you can write one on in a removable pen to make notes, it could be a piece of paper. I've used the divers' slate which is a bit of plastic that attaches to your arm and it's used in sub aqua and you write on it*

in pencil and it's got a hardened surface and that actually retains and grips the graphite as you write. Pencil is waterproof so I've written on that in pencil and then read that out to the team and then read out to the team leader and his resus team in the bay and then given the information to the scribe afterwards." (Interview 2)

The fact that paramedics were fashioning their own aide-mémoire suggested that there is an unmet need and hints at the creative resourcefulness of the participants in the study. It is interesting to note that paramedics working in the NHS did not appear to use aide-memoirs on a consistent basis. This is a potential area were paramedics may need supporting in making the transition between the NHS and the military, especially the reservists who may be less used to the ATMIST military model.

Every patient that arrives by ambulance to an NHS hospital will be accompanied with a PRF which is then filed in the patient's notes. Interviewees reported using the PRF's as a guide and prompt during the handover and in one case the basis of the pre-alert. This included standing with the PRF in hand during the handover and 'pointing out the pertinent information'. Some ambulance NHS trusts appear to have moved towards electronic versions of this report although one paramedic was concerned that these were not printed out at the hospital or read by the receiving clinicians. The concern and potential for adverse consequences was articulated as follows:

"I know for a fact only one of the five hospitals I visit here prints off the PRFs that we complete, so all that PRF information a lot of them don't print off and put in the notes. They just take your handover and do their own thing from scratch. There could be all sorts and, that that's what I've been led to believe, and that worries me, you know the continuum of patient care is all about information which handover is just a small part of information, and information provides you the answer. And that could be a small bit of information that I wrote down on a PRF or I've mentioned in the handover that's been missed so they could have had a recent travel to a foreign country and then that explains why their wound which they've had for three months has not healed or its consequent leishmaniosis or something like that, it could be such a little thing, and somebody else won't asked the question because we're humans and its lost." (Interview 3).

However, another paramedic thought that the use of electronic PRF's was a positive step because it meant that the report could be sent straight to the hospital when there were on route. The same interviewee thought that this was an improvement on the PRFs because they seemed to increase in size every year to the extent that they resembled "wallpaper". There was some concern that medical

staff did not take notice of the PRF and that this was seen as a 'secondary' handover and that nursing staff depended more upon the oral handover. It was stated:

> *"Normally the paperwork is a secondary item to most nursing staff, they don't look at it at that time and they are looking to you for what information you can give them."*
> (Interview 10).

The claims that the PRFs were not read or consulted by the hospital receiving staff were anecdotal and as I have not worked in an ED that uses electronic forms I am not able to comment on this. Whilst working as an emergency nurse, I always found the PRF an invaluable tool for patient care and often consulted this before any other nursing or medical documentation in the patient's file.

Two other interviewees reported using a combination of the PRF and ATMIST to assist with formulating the handover to the hospital receiving staff. The interviewees spoke positively about the PRF and one paramedic stated that they were useful for including information that was not necessarily appropriate for the initial handover but still important for patient care and discharge. The example given was a medical patient with complex social needs:

> *"…but then making sure that you record on the form that she does live at home but that carers come in four times a day things like that, and that is still relevant information but it's not something I would necessarily say at the handover but I would make sure that I record it on the PRF and hand that across. I might say to the nurse afterwards, show her the form, by the way lady does live at home she's got caregivers they called us that kind of thing but I wouldn't give it on the initial handover."* (Interview 10).

The interviewees stated that they wrote the PRF on route if it was an 'easy job' which meant that the patient was relatively stable and required few interventions. If the patient was time critical and required multiple interventions then the participants reported that they finished writing the PRF at the hospital after giving the oral handover. The PRF is one of the areas of standardised practise which is common throughout the NHS and is designed to meet the information needs of healthcare professionals caring for the patient and facilitating the discharge. The level of details contained in the PRF is not appropriate to military personnel and if their needs turned out to be more complex and involved rehabilitation and social support then this was dealt with by hospitals back in the UK.

It appears that the PRF is one area of standardised practise that the paramedics took for granted probably because it is a very effective communication tool and underpins the NHS handover in the way that the role of scribe underpinned the military handover. The conflict between military and NHS handover communication did not appear to centre on the PRF and is unlikely to cause significant issues with transition between the military and the NHS.

The participants had mixed feelings about leaving patients outside the emergency department whilst the handover was on going at Camp Bastion. All of the paramedics expressed their understanding of why it was necessary to have patients searched by the front of house team for any ordinance that they might be carrying on them and the negative consequences of an explosion occurring in the hospital. However a number of interviewees expressed concerns about leaving their patients with personnel who did not know that patient's history and whose priority was security rather than clinical. One paramedic stated that they would never leave a patient who was in cardiac arrest and another expressed concerns about how sick the patient was when they were left outside.

Interviewees disagreed as to whether leaving the patient outside to be searched constituted a delay in receiving treatment. Again, the concern was mainly focused around how unwell the patient was. Two of the interviewees indicated that it felt 'odd' or 'bizarre' and that time seemed to slow down once they reached the emergency department. Two other participants described the practice as 'brilliant' and were very enthusiastic about the perceived benefits which they identified as facilitating communication between the paramedics and the hospital receiving staff. They believed that the absence of the patient enhanced this communication because the receiving team focused on what the paramedic was saying rather than being distracted by the patient's arrival. Another perceived benefit was that it gave the paramedics a 30 second 'head start' before the patient arrived and that the handover could be given without the distraction and noise of organising a pat slide.

One of the paramedics expressed concern about an incident where the person handing over the patient, in this case a doctor, took the patient's drugs with them and this caused difficulties when the patient needed more pain relief during the log roll (where patients are turned over in a controlled manner so as to protect the spine and airway) performed by the front of house team. This particular team then made a decision that whoever was responsible for giving the patient drugs stayed with the patient. Another paramedic mentioned how the team ensured that one of their members remained with the patient during the search by front of house staff to ensure that no lines or vital equipment was pulled out and that the patient was safe. This suggested a further variation in practise as different teams appeared to treat this issue differently and this may be because they were reacting to incidents

rather than any forethought. Further standardisation could be achieved by introducing guidance on whose responsibility it is to give the handover and who should stay with the patient to ensure that clinical care is not compromised during the search by front of house (security) staff.

The data suggests that the patient's absence appeared to have an impact on hospital receiving staff and improved handover communication. Indeed, the receiving staff could not start working on a patient that had not yet arrived, but it is difficult to say whether the military hospital receiving staff would restrain themselves if the patient was present. It would be useful to study this handover in more depth in order to understand whether the practise of leaving the patient outside constituted a delay in treatment, and to what extent it affected the handover.

There is no comparable practise in the NHS of leaving the patient outside the resuscitation room during the handover. Participants spoke about the possibility of transferring this practise to the NHS and most agreed that this would be an improvement because the receiving team would be more focused and listen to the handover but they did not think it would be possible to introduce it to the NHS principally due to lack of staff. Two of the paramedics thought there was no reason to implement it in the NHS because there was no risk of ordinance in the hospital. It was stated:

> "*I don't think that it would be necessarily be required because the reason why it is happening out in theatre is that they are getting sanitised for explosives and things like that, there's not a huge amount of that in the UK obviously I understand that there is some but there is not the same sort of inherent risk that we experienced out in theatre."* (Interview 13)

It should be noted that if it was shown that this practise did constitute a delay in reaching definitive care then it would not be ethical to introduce it in the NHS.

At Camp Bastion the reflexive diary entries suggested that the handover appeared to be facilitated by personnel who helped with the unload and took care of the patient during the handover. There was a concern that trying to implicate this in the NHS might actually lead to a reduction in the standard of care due to lack of resources (mainly staffing) and the way in in which handover is conducted and received in the NHS. In the NHS there are usually staff around to help transfer the patient to the bed, but they do not meet the paramedics at the doors of the hospital or help with the unload from the ambulance. One interviewee pointed out that time pressures to get back on the road would make this too difficult to carry out in the NHS. Another interviewee thought that it might be disturbing for family members to see the paramedics apparently leave the side of the patient and go into the ED without the patient. It was stated:

"…bearing in mind that it is commonly a two-man ambulance crew, you are either going to have to ask somebody who hasn't seen the patient to give the handover or somebody who's not been actively treating the patient to take over treating the patient whilst the other person then gives the handover, so that would be a disadvantage I think there also would be the disadvantage of perception that the paramedic wandered in whilst my wife or partner or husband or child was left with somebody else whilst they went in to have a chat, why weren't they taken in straightaway? I think unfortunately the perception of the ambulance service can be skewed by an event like that so I feel it has its advantages but unfortunately the disadvantages outweigh that, just from the perception point of view and we are fortunate within the NHS that we would only really be carrying one patient we won't have four or five or 17 that we could be potentially handing over so with taking one patient in between the two crew to give the handover is not necessarily a bad thing." (Interview 11)

The data suggested that some aspects of the military handover including leaving the patient outside the ED during the handover meant that receiving staff were more likely to focus on the handover but this cannot be proven. It may be that other factors such as training, organisation culture, rank and hierarchy are just, if not more relevant, to explaining this phenomena. However this practice evolved in the military in order to keep the hospital safe not to improve the handover. Not all the interviewees were comfortable with this practice or thought that it would be appropriate or possible to introduce in the NHS due to concerns about staffing, delayed treatment and public perception. Certainly, extra help from porters or other staff to help with the unload and transfer of patients from the ambulance to the hospital trolley was a popular idea with the participants and could be implemented if the NHS provided the required staffing. The hospital at Camp Bastion was not a public place unlike the NHS and public perception was not a constraint that the military had to consider. Whilst the majority of the participants thought that this practice made the handover easier they understood the rationale underpinning it, and the impracticalities of introducing it to the NHS, but such a difference in practice is likely to accentuate difficulties around transition and this may explain why even some of the regular paramedics were uncomfortable with it.

The participants spoke about assisting the scribe with the information gathering process after the handover had been given to the hospital receiving team. They did not refer to assisting the scribe in NHS hospitals, although a scribe might be present during some handovers. This suggests that the information recorded by the scribe in the military context requires the collaboration of the paramedics in formulating the ED chart. According to the reflexive diary entries and interview data, speaking to

the scribe after the handover was a standardised practise, however it is not referred to in the MoD Clinical Guidelines for Operations (2013).

> *"So I go to the scribe and make sure that they've got everything down, give them a load of extra info that's pertinent to go on the notes, but it isn't pertinent to that exact moment in time… I'm trying to think of examples… just bits and pieces that we have done and what's happened with his kit and equipment, little things personal to him, things to bear in mind, wounds that need attention to but if someone is missing a leg you don't want to worry about a scratch on the other one sort of thing, you know what I mean? That is important."*
> (Interview 6)

The participants did not reflect much upon the role of scribe in the military setting or how this facilitated the ATMIST handover. In the NHS the type of information referred to in the above data is contained in the PRF rather than collected by a scribe working in the ED and present during the handover. One staff member is dedicated to the role of scribe in the military and this is a protected position, whereas in the NHS there is not always the resources to appoint a staff member. Whilst they did not all think that leaving the patient outside the ED was an appropriate practice to transfer from Camp Bastion to the NHS, they certainly thought that getting help with the unload would give them a head start:

> "*That could be helped actually if you were met at the door by two confident, competent nursing staff who said right we'll take the patient you go into resus and you start the handover and it would take 30 seconds so I could start the handover."* (Interview 7)

Several paramedics mentioned being met at the hospital and given assistance with unloading the patients as changes they would like to see which would improve handover communication. Indeed, the lack of assistance that crews receive on reaching the emergency department in the NHS, and the delays, was a particular concern and the different welcome that they received at Camp Bastion was likely to have accentuated the difficulty of transition.

6.2.4 Areas for improvement

This data was sorted under the following parent nodes: 'patient driven factors', 'communication', 'human resource factors', 'preparing for handover', 'features of handover' and 'paramedic driven factors'. Most of these nodes were related by communication or human factors and one of the striking

things about the data was the huge diversity of responses. Within this diversity there was some agreement that the best handovers were short and concise, where the correct information was transmitted between paramedics and hospital receiving staff. It was also possible to divide the data between communications and clinical priorities. For example, most of the paramedics mentioned that the handover should be concise and that the most pertinent information should be transmitted without 'rambling on'. It was stated:

> *"You need to get the relevant facts across. You need to get the history, what's going on, what you've done and what you think is wrong. I think four things there I said. They are key. What you don't want is war and peace. You don't want to know that patient X was sat reading the Sun newspaper on page 7 and they'd done the cross word. Because then you switch off if you're taking the handover."* (interview 7)

Participants mentioned the importance of being prepared to receive information. It was noted that willingness to listen was variable between hospitals in the NHS and different factors were involved. These disparate factors related to different hospitals, trauma expertise, NHS trusts, and how busy the receiving hospital was that day. There appeared to be patient dependent factors at work such as medical acuity, whether the patient was a regular attender, and the apparent cause of the patient's injuries or illness (i.e. judgements made about whether self-inflicted). It was interesting to note that the paramedics did not report or mention patient dependent factors or patient factors as affecting military handover communication.

Although most military patients would in the main have been young healthy males there were differences regarding enemy combatant, civilian, rank and nationality and in retrospect this would have been an interesting question to ask. There was a perception that personal factors mattered in some handovers in the NHS; certain staff members were believed to be more or less willing to listen to handovers, and paramedic crews were listened to if they were already known to hospital receiving staff. Again, these comments emerged from their experience of giving handover in the NHS and it did not seem that these inconsistencies were an issue in the military handover.

The practise of leaving the patient outside the resuscitation room in the military was believed to benefit the handover because the receiving team were not distracted by the presence of the patient and therefore listened better. However participants were divided about whether this practise delayed arrival to definitive care, and whether it should be introduced into the NHS as it was not necessary to

search patients for ordinance before entering a civilian hospital. Most participants mentioned how useful help with the unload (taking patient off the back of the ambulance and transferring them by trolley into the hospital) would be in the NHS context so that they could get ahead but they were realistic that staffing issues would make this difficult to implement. Another participant made the point about handing over to the staff that would be actually looking after the patient rather than someone who was managing the department. This was another key difference between the military and the NHS which emerged from the reflexive diary entries and the interview data.

In the NHS paramedics would hand over to an initial triage nurse, who would then handover to another ED nurse and perhaps even a third nurse handover would be involved if the admission covered a shift change, and then a final handover to the ward staff. Multiple handovers were a common feature of NHS ED admissions in comparison to the NHS, and this might be explained by the relatively long time that NHS patients spend in the ED due to long waits to be assessed, diagnosed, treated, and discharged or admitted. Despite having complex injuries, military patients appeared to spend less time in the ED because they had senior medical and nursing teams waiting for them, diagnostic tools and theatres ready and available and speedy admissions and transfers.

Another participant spoke of measuring how good the handover was by whether any of the hospital receiving staff answered yes or no when asked 'Any questions?' at the end of the military handover. One participant spoke about the importance of being 'confident and professional' when delivering the handover in both the NHS and military. There were concerns expressed about the professionalism of NHS hospital receiving staff and how busy and pressured staff appeared to be in contrast to the military where paramedics felt more respected as professionals. It was thought that everyone taking part in the handover should listen but it was acknowledged that NHS emergency departments were very busy and the staff were 'rushing around'. One participant mentioned the four hour target as an impediment to handover communication because it put too much pressure on NHS hospital receiving staff and this was not something paramedics had to be conscious of in the military. Another participant thought that team work, and working together, without the impediment of hierarchy would be effective:

> *"You know there is no point reinventing the wheel but I think it's the multidisciplinary thing, the horizontal element as we've discussed the mutual team respect so that all levels can understand everything that is going is a massive thing especially when it is a horizontal working environment*

on the patient and there is lots of things going on at once and see you don't want to miss anything at all, it's all about the patient isn't it at the end of the day" (Interview 3)

Paramedics disagreed about whether hierarchy could be more of an impediment in the military or the NHS – their perception depended on whether they were reservists or regulars. Indeed, the regulars thought the military was less hierarchical and the reservists thought the NHS was.

A common issue, which four paramedics mentioned, was the importance of better training for NHS staff and paramedics. Two paramedics referred to the importance of having a good team leader and it was thought that leadership was more effective in the military hospital. One thought that if NHS nurses were given training which involved practising giving handover that they might be more understanding of the challenges involved. Another participant thought that simulation training was especially effective in the military and expressed concerns that the lessons and experiences from Camp Bastion should not be forgotten. It was stated:

"I think simulation training in the NHS. In the military in general they have got it…erm…I only hope they don't let it slip once they've established, like when Herrick finishes I think they're not running HOSPEX any more then … erm… you don't want to leave these lessons learnt in a dusty folder …erm… you know so there's a lot of really slick operations and the military, it's roles reversed, the military are leading the way, in how a lot of things are done, training, simulation training is some of the best I've ever done." (Interview 4)

One participant reported that the perfect handover required having preparation time beforehand so that they felt rehearsed and confident, and knew what they were going to say. However, due to the nature of operations and the acuity of military patients there was less time to prepare the handover and this may have increased the pressure on paramedics although they did not make this linkage in the data. Perhaps this is another reason why ATMIST was effective; it was short and therefore did not need a lot of preparation. Most paramedic jobs in the NHS allowed crews time to fill in the PRF and prepare for the handover because civilian patients generally require fewer interventions on route. Two participants mentioned the importance of preparing and rehearsing handover beforehand in order to get practised and know what information would handed over in both emergency care settings. They spoke about checking oneself so as not to rush the handover:

"the person delivering they just need that condor moment to calm themselves down, sort it out, I say that but they are not normally flapping, but take it so they are not still on that adrenaline buzz that have been working ten to a dozen (I nearly said something else there) and then err delivering still at a 100 miles an hour, they need to be able to come down to about 60 so that it can be understood first time" (Interview 8)

Aide-memoirs were mentioned in the context of preparing for and delivering handover in the military. It appeared there was an unmet need for a suitable aide-mémoire as some paramedics were fashioning their own, and it was thought that they should be wipeable and pocket sized. Several participants mentioned the importance of writing information down to help prepare for the handover and protect against the perceived litigious nature of NHS practise:

"The old days of leaving them on the trolley and they'll eventually work out for themselves, it's litigious now isn't it? If it's not written down, it's not done. And you write it down."
(Interview 9)

A standardised format would improve handover communication in the NHS, it was suggested, so that the hospital receiving staff would know in what order to expect the information and one participant even suggested that a national handover should be introduced. The words most commonly used in this context were 'structured' and 'consistent'. It was believed that this would be challenging because of the different hospitals and trusts involved and diverse presenting conditions of patients:

"I think the perfect handover would be one where I'm giving the information in exactly the same format as they are expecting the information to a team that have heard it so many times before so they are already tuned in to us, so when they are hearing the mechanism, they know that the injury is coming next when they hearing the injuries they know that signs and symptoms are coming next." (Interview 1)

One paramedic suggested that improving the NHS pre-alert system so that hospital staff were ready to receive the paramedics was important.

Five interviewees cited the use of ATMIST taken from the military context, or at least a version of ATMIST adapted for medical patients, to improve handover and one paramedic referred to the importance of having a scribe. One of the paramedics thought that the ATMIST handover had been

validated at Camp Bastion by successfully treating so many severely injured casualties and another thought that it was validated by the fact that other nations used it. It was thought that NHS medical patients would need a more detailed handover than the typical military trauma patient including the opportunity to raise other issues such as social history or concerns about equipment placing. The mnemonic could be adapted to medical patients retaining Age as Age, Time as time of onset of illness, Mechanism as medical condition, Injury as presenting complaint, and Signs and Symptoms and Treatments as the same. An alternative to ATMIST for less time critical patients made by one regular paramedic went as follows:

> *"What you've got, what are the injury patterns, what the signs and symptoms, what you've given them and what they are like now*" (Interview 10)

This suggestion touched on issues that other paramedics raised in the context of clinical priorities, namely any changes in patient condition as a result of interventions performed so far. There was some differences between what was offered as being of most importance in relation to clinical presentation but included signs and symptoms, noted changes in physiology, time of injury, and interventions performed (such as administration of drugs and blood products). It was stated:

> *"For trauma, especially, time of injury, you can go down to specifics so for instance that time a tourniquet went on, any medication that's being given especially things like blood, blood products can be very, very, important and then follow up things like tranexamic acid and calcium which they need to know."* (Interview 5)

This points to another difference between the military and the NHS which paramedics mentioned when discussing the issue of transition. Given the time critical nature of military operations and the severity of injuries seen there was little time for the social niceties expected within a civilian environment and indeed would be critical for gaining trust and consent with civilians. This need for pleasantries and informed consent was seen as a positive in the NHS, and was cited by one paramedics as being a welcome relief from the military context.

One participant mentioned the environmental features required for the perfect handover which included good lighting and quiet so as to create a serene place without stress or pressure as well as everyone listening and knowing their role. It was stated:

"Well lit, quiet reception.....Everybody knows their job Bastian to be honest Bastian, you can bring in the sickest of sick, and it's well lit and its quiet, it's serene. Yes there's 50 people around you, but you're never pressured, never imposed on, nobody is asking questions, you can hand over. You're safe, and you can handover your patient onto the stretcher and take two steps back, and then everybody knows what they're doing because of what you've said." (Interview 5)

This was in contrast to NHS environments which were reported to be noisy, cramped and busy. However, there was acknowledgement that many paramedics felt uncomfortable giving handover to a crowd and this could result in NHS handovers that were too brief or too long. It was stated:

"…people don't like speaking in front of a group so they try and cut it down to the shortest account or they get nervous and I've listened to some waffling long handovers where at the end of it I'm bored and I was at the job. And I'm thinking he hasn't actually said what we're here for and you've seen it yourself, where these, and often what happens with those is you can see it, and the team leader starts getting on with the patient and somebody will take the ambulance paramedic to one side, just ask a few questions, and then almost re handover and it's a bit of a shame when that happens, what they've actually done is worked out a punchier handover for themselves." (Interview 7).

The participants were able to reflect on their own contribution to handover and that of their profession. They indicated problems with handovers in the NHS that 'waffled on' and spoke about the attributes that they though paramedics should have when working in both military and NHS settings. These included: adaptability, flexibility, knowing the patient, personalising the handover and ensuring all relevant information was handed over. Another paramedic thought it was not possible to come up with the perfect handover because perceptions of hospital staff differed and human beings are fallible. The participants spoke at length about the importance of giving a handover that was meaningful and relevant to the patient. This covered their medical condition, observations, interventions (and response), history, mechanism, and acuity of the patient.

In the military, paramedics are given training, and assessed on their ability to give handover to hospital receiving staff at HOSPEX. This was one of the key differences that participants identified between handover communication in the NHS and the military, and they believed this affected the behaviour of staff during the handover. There were negative comments made about handover in the NHS. There were frequent complaints that NHS staff did not listen and perceptions that the way handover was

received was personality dependent which related to the theme of transition. The paramedics often said they did not feel respected by some NHS colleagues and one paramedic thought that some nurses viewed him as nothing more than an 'ambulance driver' particularly when he was met with questions such as 'why did you not do this?' which he felt indicated little understanding of the pressures of the paramedic role or the difficulties under which they sometimes worked in the pre-hospital environment. This related to the node of roles and hierarchy.

Finally, two paramedics mentioned the importance of introducing the patient because the military handover protocol does not include any provision for this. This was something that emerged as a deficit in the military handover, and paramedics thought this was important for reassuring patients. It was stated:

> *"So I would always introduce patient by name if I know it and the age, and I think the name is important, especially if they are awake it's a little bit less than saying, I mean if they are unknown, they are unknown. And if they are in the military, you don't do names maybe give nationality, perhaps, but only if you need help with the language. I think that's funny, one of the funny things with the military, if you ask a soldier his name he will always tell you the surname, it just sounds silly now. So in civilian world I generally handover with the name, I think it just gives that little bit more personal to the story, so you would say this is John, he's 74,"*
> (Interview 2)

This was raised as an issue by a reservist and a regular paramedic, and demonstrated a sensitivity and reflection of the patient experience.

6.3 Paramedics reflecting on transition

Four of the regular paramedics believed that they did not have any difficulty transitioning from the NHS to the military because they spent more time in the military and saw the military as their default mode. Two of the regular paramedics talked about turning on a switch when transitioning and many of the regular paramedics talked about feeling more comfortable in the military. Regular paramedics had the impression that the NHS was rigid and hierarchical and talked about the need to be a 'politician', 'understand their processes' and not to 'ruffle feathers'. This related to nodes on roles and hierarchy and paramedics reported their concerns about how hierarchy and interprofessional relationships affected the way they were received. This relates to Schiller et al (1992) theory on transmigrants as people who must break and remake bonds within different communities. On the

contrary, one of the reservist paramedics perceived the military as hierarchical and rigid and found it difficult to question clinical decisions or treatments. It was stated:

> *"I'm a corporal, they're a lieutenant colonel general major something, mostly lieutenant colonels, and they might be doing something that you think 'well that's a bit weird', you've got to be able to challenge that certainly within the (NHS) you work as a team and it wouldn't be anything abnormal for me to question what a doctor was doing for suggestions…er…so the military, certainly within the medical world they are relaxing a little bit, but otherwise I find it a little bit difficult the discipline, I don't know it doesn't really sit with my view on calling each other sir and all that stuff."* (Interview 7)

According to the data, the success of handover in the military was down to factors such as standardisation focused on the ATMISTS handover, organisational culture and high fidelity training. However, the reservists were more inclined to see rank and hierarchy as a hindrance in the military to patient safety whereas the regulars thought that clinical hierarchy in the NHS made it difficult to challenge clinical decisions. It may be that when personnel are more familiar with an organisation they find it easier to challenge clinical actions that they may believe are incorrect. This is potentially significant for patient safety and suggests that regulars may need more support to challenge decisions undertaken by more senior clinicians in the NHS and reservists may need more guidance with challenging senior ranks in the military.

It is also possible that the reservists come from relatively senior positions in the NHS where they are respected and trusted by other healthcare professionals who are familiar with their specialist work and skills. The reservists I encountered tended to have clinical backgrounds that included significant exposure to trauma in large cities and had other advanced paramedic skills and these were recognised in the NHS. However, these skills and seniority were not recognised in the military and the vast majority held the relatively junior rank of corporal (Please see Appendix E for more information on ranks in the RAF). This feature of older, experienced reservists who were effectively 'under ranked' has been identified within the Israeli army by Lornsky-Feder et al (2008, p.606).

One regular paramedic commented on how difficult it was to witness what they perceived as incorrect protocols when dealing with trauma in the NHS. They felt that the military should be seen as the experts in trauma care because that was what they were most familiar with and trained to deal with, but they felt inhibited raising their concerns and communicating with NHS colleagues especially where there were practices in place that they thought were not necessarily best for patients. This was

consistent with Anderson et al (2012) work on transition as a process that necessitates "*changed relationships, routines, assumptions, and roles"* (p.39).

For example in the NHS protocols dictate that the first paramedic on scene would treat and take initial responsibility for managing a patient, whilst the regulars believed that it should be the best qualified person regardless of when and in what sequence they had arrived. Another regular interviewee commented on how they felt empowered to make suggestions and felt listened to within the military in contrast to the NHS. It was stated:

> *"We're military paramedics we're guests in the NHS and we're following their processes and procedures we know them to be wrong, out of date and incorrect, and I think that's the hardest thing to manage is expectations. We may not be the world leaders in medical patients but we are in trauma so when you're coming across traumas by the roadside and something that is going on that's not wrong but it's probably not best practice it's how you address those issues which is the biggest challenge when working in the NHS."* (Interview 5)

The two reservists found the transition to the military environment difficult and one mentioned the handover in particular and how important it was to remember to give 'just bullet points' and not 'waffle on'. The interviewees, both regular and reservist, mentioned different ways of preparing themselves for the handover in both military and NHS settings. This included needing to think about dangerous situations in the civilian setting, such as drug dens and bar fights, and dealing with different types of patient whether UK patients, service personnel or Afghan nationals. It was perceived that dealing with NHS patients was more conversational and extra time was needed to gain patient consent but these were seen as positive features of working in the NHS.

The participants spoke about the pressure and intensity of dealing with patients that had sustained life threatening poly trauma but also the narrow band of presentation that this represented. Two of the participants talked about military patients as 'genuine' patients which hinted at a different perception or attitude towards certain types of NHS patients. However, the diversity of NHS patients and their presentation was mentioned as a positive attribute of working in the NHS:

> *"the underpinning knowledge that you do get from a bigger mix of patient at risk sort of thing, you know grannies down and paediatrics and your medical patients gives me a wider base to understand better treatment methods and opens my mind up more I think because if you go into the military you expect guys from 18 to 35 or 40, not much else around that"*

(Interview 3).

This suggested that regulars in the NHS were gaining valuable experience that was beneficial to their professional clinical practise. Most of the paramedics talked about the difficulty of returning from the military after the experience of dealing with military causalities, which were characterised by poly trauma and catastrophic life changing injuries. They reported finding it difficult to deal with what they perceived as relatively minor conditions or those that were self-inflicted.

> *"I think doing the military side of things, being away seeing injuries and illnesses that I've seen over the years you lean to realise how short life is and how much to value life and stuff like that, and then you go out into the NHS setting and you're dealing with 999 calls of what at times seems to be utter rubbish, people have no idea about things, it may be the worst thing that's happened to them in the world and they've basically got really horrible injury or illness whatever but dealing with military injuries and stuff like that and you go out and see that, this is a waste of time, why have you even bothered to phone an ambulance? It's getting your head back into that side of this, is important to them, they might not feel it, I have to bring my head round to, and it is hard, I've had times when I had to bite my tongue and stop myself from saying, 'you are wasting my time,'. It's not professional."* (Interview 6).

Paramedics talked about needing to take some time out to readjust back to the civilian or 'normal' world again and of engaging in reflective practice so that they could maintain their professionalism. A reservist paramedic spoke of seeing himself as a paramedic first and foremost and treating whoever requested assistance but always having to bear in mind the environment whilst another thought that there was 'no correlation' at all between the two worlds. There were difficulties of coming back to working with NHS personnel and having to readjust expectations when arriving at hospital and giving the handover, but they acknowledged that other ex-military personnel who worked in the NHS could be supportive and many regulars spoke of having respect for NHS colleagues. Strategies employed for dealing with the psychological and professional difficulties of transitioning back from deployments included seeking support from colleagues, spending time with family, self-reflection, shadowing colleagues, working with a mentor, brushing up on policies, treatment pathways and protocols, and working bank shifts to get back into the civilian world. It was stated:

> *"I generally try and give myself a little bit of a break between going straight back into doing any bank work or honorary shifts and then again ideally I will then go and try and shadow somebody*

or go on a shift with somebody that I know just to get up to speed on any minor changes that have happened in trust policy and just refresh myself with seeing the different types of patients again." (Interview 5)

At the same time the less serious injuries in the NHS and the opportunity to converse with staff and patients and even share a joke was seen as a positive thing, and even a source of relief after having dealt with such serious injuries on deployment.

6.4 Conclusion

The lack of perceived standardisation in the NHS compared to the military was frequently cited as a source of frustration during the interview data, yet further analysis demonstrated that this frustration emerged from the difficulties of transitioning between two very different environments. It was interesting to note the difficulties that both reservists and regulars had in challenging clinical practice in their non-home organisations and the fact the both regulars and reservists claimed the most difficult transition was returning from deployment back into the NHS. Paramedics believed this was due to different presenting complaints, lack of respect from colleagues and the pressures of working in the NHS. However, transition theories suggest that this in itself has a psychological toll and this was reflected in the self-help methods that paramedics employed to reintegrate back to the NHS. The narrative review although not directly applicable to this unique group of health care workers suggested that pre deployment briefings and mental health support would help paramedics make this transition as well as assistance with carefully timing re-entry into civilian practise.

Chapter 7: Discussion

7.1 Introduction

This study has shown that there are considerable differences between handover communication as it was practised by the UK military at Camp Bastion and the NHS although standardisation is a feature of both. These differences relate to organisational culture, mission, environment, resources, war time operations, performance management culture, patient presentation and patient characteristics. It is clear that there is a lack of knowledge in the literature regarding handover communication in the military or how paramedics make the transition between working in different clinical environments. This discussion focuses on these issues of difference, standardisation and transition, the views of paramedics, and will be placed in the context of the literature on handover communication.

7.2 Standardisation

Standardisation is presented as a solution to improve handover communication in the NHS, however when we compare NHS and military emergency care settings we find many differences. In the military there is rigid adherence to rules and the use of ATMIST (underpinned by Clinical Guidelines for Operations 2013) is a good example of this whilst the NHS is a much more fluid environment. Context is all important. The military use high fidelity training, rank structure and formal protocols to ensure consistent procedures are followed and this is necessitated by war time operations, command and control organisational culture, risk management and patients with multiple trauma. In contrast the NHS uses more apprentice type training and patients' present with a larger range of conditions. There is some standardisation around the PRF and trauma centres are employing greater standardisation in handover communication but by and large the NHS lacks the rigid training and rules which characterises the military.

Recent literature on handover communication warns against too much standardisation (Sujan et al (2013) and Sujan et al (2014)) but the paramedics in this study strongly believed that more standardisation would be a positive step in the NHS. Moreover the literature on standardisation does not acknowledge that the PRF as representing an element of standardisation and where studies do argue for the use of ATMIST there is little acknowledgement of its military application. The only exceptions were Talbot and Bleetman (2007) who referred to the origins of ATMIST in South Africa trauma hospitals and the acknowledgement by Evans et al (2010) of its military origins.

There was some deviation away from standardisation in the military which was identified in the reflexive diary entries and the interviews but on the whole the data suggested that the Clinical Guidelines for Operations (2013) were closely followed. The few divergences related to the additional practises had evolved around leaving the patient outside the hospital to be searched for ordinance by the front of house team which was not described in the JSP publication. The significance of the scribe in underpinning the handover communication also seemed underplayed. These practises may not have been described in the Clinical Guidelines for Operations (2013) but they were embedded in routine practises.

In the NHS, standardisation is achieved through the use of Patient Report Forms (PRF) but the only study to look at the role of this in handover communication was the study by Murray et al (2012) which found evidence of inconsistencies between ambulance sheets and ED notes. The NHS is a large bureaucratic organisation made up of separate hospital and ambulance trusts. The NHS does not have a rigid command and control structure and the training reflects this. There have been some attempts at standardising handover communication aside from the PRF especially for time critical medical and trauma patients, and the emergence of clinical pathways. Furthermore, some ambulance trusts are using the ATMIST mnemonic in their pre alerts, and trauma centres are experimenting with initiatives such as time 'hands off the patient'. There is still variation in the way that standardisation is attempted and context is all important and shapes what type of standardisation is possible and desireable. The use of mnemonics in pre alerts has been acknowledged by Budd et al (2007) who carried out a survey and found that nearly half of respondents were using ASHICE whilst Shar et al (2016) found that MIST-AMBO was being rolled out in Qatar. It is more difficult to standardise treatment in the NHS because of the number of hospitals and ambulance trusts involved, and diverse patient characteristics and presentation. It is this diversity that makes some elements of the military standardisation less desirable in the NHS whilst the information needs of the NHS have driven the development of the PRF.

Whilst the NHS is not able to replicate the military organisational culture, improvements in leadership and training programmes for staff members would be improve how hospital receiving staff receive paramedic handovers. This is borne out by the literature which suggests that leadership and communication play an important role in handover. Dawson et al (2013) carried out a literature review which suggested that improved communication was needed in handovers. The data suggests that when receiving staff know what order the handover is delivered they are less likely to interrupt with questions whilst the literature also supports the introduction of a mnemonic. The papers by Dojimi et

al (2014) and Iedema et al (2012) both supported the introduction of more structured handovers. Iedema et al (2014) advocated the use of the IMIST-AMBO mnemonic whilst Dojimi et al (2014) supported the use of tick boxes.

It is possible to expand the ATMIST handover to accommodate medical patients using 'ATMIST PLUS', without going too far in offering a potential diagnosis, whilst meeting the information needs of an NHS hospital receiving team. For example 'mechanism' could refer to the patient's status when the original 999 call was made and 'injury' the presenting clinical features. In addition the 'PLUS' add on provides for the following: P = Past Medical History, L = Life style, U = Useful information, and S = Significant concerns. ATMIST PLUS represents a concise yet comprehensive mnemonic for use in NHS emergency departments which could be delivered quickly and within a one minute timeframe. Given the short time frame, there would be no reason for the receiving team to begin their assessments unless the patient was receiving pulmonary cardiac resuscitation. Further research is needed to validate this structured mnemonic for handover communication in the NHS to ensure that it is suitable for dealing with the diversity of NHS patients and meets the information needs of the hospital receiving staff.

Mechanisms for standardisation identified in this study include the ATMIST mnemonic in the military and the PRF in the NHS. Further attempts to standardise patient handover in the NHS are evolving around the introduction of separate clinical pathways according to patient presentation e.g. cardiac, stroke or trauma and have been developed further with the NICE guidelines released on dealing with major trauma in 2016. The literature focused on the trauma pathway although this was not always explicitly stated and there was little attention paid to the other care pathways that are developing alongside trauma protocols. There was little criticism of the PRF in the data but concern was raised as to whether the electronic forms were printed off and read by hospital receiving staff. The reflexive diary entries suggested that this was a useful tool for hospital receiving staff and met information needs to facilitate patient discharge. There was concern that the PRF was expanding in size and now resembled 'wall paper' and the A3 size was incompatible with the A4 patient files. Notwithstanding the use of the PRF, the perception of handover communication is that it lacks standardisation and paramedics perceived this as a negative factor. They reported that each hospital they handed over expected the handover in a different way. The literature suggests that further diversity in handover communication is driven by perceptions of whether a patient is clinically unwell (Bost et al, 2012) and whether the receiving personnel are nurses or doctors (Owen et al, 2009), and concerns regarding performance management targets (Wells et al, 2015).

Paramedics used electronic, radio or telecommunications to send out pre-alert information to hospitals especially if they had a time critical patient or were following a specific patient pathway that necessitated discussing admission to a specialist unit for conditions such as trauma, stroke or cardiac. The interview data suggested that many of the paramedics preferred to call the hospitals directly rather than go through a call centre because of concerns that information might be lost or changed when an additional person was involved – particularly if personnel were not clinically trained. This was another issue not picked up in the literature. As stated above, some ambulance trusts have introduced ATMIST for pre-alerts or other white board prompts and a study by Evans et al (2010) showed that per alerts were useful for receiving patients. Some paramedics have received training on ATMIST or other handover mnemonics such as ASHICE but this appeared to be local initiatives or suggestions from mentors. The study by Budd et al (2007) showed that over half of pre-alert information was standardised and that six trusts were using the ASHICE mnemonic. It appears that some hospitals are expecting to receive handover using the ATMIST mnemonic at least for trauma and other time critical patients but without the other practises associated with its use in the military. There was no acknowledgement of this in the literature and no apparent understanding of how military handover communication was conducted at Camp Bastion.

Handover tools in the military included the A5 slip of paper with ATMIST printed on it which was not mentioned at all in the interview data but was observed in the reflexive diary entries. The MERT team were not able to utilise electronic, radio and telecommunications to the same extent as their civilian counterparts due to the nature of wartime operations but some limited communications between the helicopter and the hospital were possible under certain situations. The military issue paramedics and other personnel with ATMIST slate cards which are laminated cards with ATMIST written on and used as a prompt to ensure consistency of handover throughout the military. The interview data suggested that paramedics were aware of these cards even if they did not use them. A number of the paramedics reported using aide-mémoire that they had fashioned or selected themselves and included simple notebooks, divers' apparatus, and armbands but not all of the paramedics required their use. This suggested that there is an unmet need for an aide-mémoire in the military but was not mentioned in the NHS context.

ATMIST was consistently used in the military handovers according to the data to handover patients and the paramedics found it easy to remember and had all received training in its use. Some paramedics were using ATMIST, or elements taken from it, to handover patients in the NHS especially with trauma patients and very unwell medical patients. They found it easy to remember and believed

it was effective in handing over very sick patients. There was disagreement about its suitability for medical patients given the complex social and medical needs of NHS patients and the requirements for discharge information. Although ATMIST appears to have been used successfully in the military context, its use should be validated before transferring to the NHS.

7.3 What do interviewees think is important in handover?

Interviewees recognised that standardisation was different in the military and the NHS and this was a source of tension and problematic for them. There was a great deal of diversity expressed in their views but they were consistently in favour of further standardisation in the NHS along the lines of what they had seen and experienced in the military. This focused on the behaviours of the receiving team, and an emphasis on consistent handover structures so that staff knew what to expect and in what order so as to negate the need for interruptions. This might include the use of ATMIST, or some variant of it which could cater for medical as well as trauma patients such as ATMIST PLUS, but this was reliant on a good team leader, better training for NHS staff (for those both giving and receiving handover), and the importance of creating an environment that was conducive to the transfer of information (quiet, spacious and well lit).

Paramedics felt that the best handovers were concise and to the point in which the correct information was transmitted in an atmosphere where everyone was willing to give and receive information. They disagreed about whether leaving the patient outside the hospital constituted a delay in treatment, and most thought it would not be appropriate to introduce it to the NHS. Nevertheless, many thought that help with the patient unload would be useful but were sanguine about the practicalities of introducing this to the NHS. It would be worth looking further into this at least in trauma specialist hospitals that are more likely to realise patient benefits from this and have the extra staff resources.

7.4 Transition

The data suggested at first glance that standardisation was a significant concern for paramedics but further analysis showed that this was a theme around transition. The handover, and perceived lack of standardisation, was the site of conflict for paramedics especially with regards to how they were received and assisted on arrival, relationships with colleagues, and the ATMIST handover. The main areas of conflict in the handover for the paramedics focused on issues such as behaviours of NHS hospital receiving staff, the lack of help with the physical aspect of handover, and difficulties

challenging poor practices. The latter issue concerned negotiating hierarchical structures but it was noted that both reservist and regular paramedics cited concerns about challenging practise they believed was incorrect in their non-home organisation. The problems with perceived lack of standardisation in the NHS are concerns about process and even if these could be addressed it would not resolve the key issue of making the transition between two different environments.

This issue of transition was not located in the original literature reviews on handover communication and required broadening the search to cover a wide variety of academic disciplines. These sources demonstrated that military personnel and paramedics are vulnerable to mental health problems and need managerial and personal support in their roles but especially when managing transitions. Lornsky-Feder et al (2008) produced a useful paper which identified reservists in the Israeli army as 'transmigrants', a concept inspired by the social anthropologist Schiller et al (1992). They identified the reservists as 'transmigrants' because they cross boundaries between different communities whilst retaining links in both and this aptly described the paramedics in this study who, whether reservists or regulars, must negotiate the transition between civilian practice in the NHS and military practice on deployment. Further theoretical insight was provided by Schlossberg (1981), Anderson et al (2012) and Nicholson and West (1988) with their transition models.

The Anderson et al (2012) model was useful because of its comprehensive nature which accounted for the complexity of factors involved with making successful transitions between different environments. It suggested that support networks were important for making successful transitions and this was consistent with the narrative review and the interview data. Paramedics, whether reservist or regular, found the transition from deployment back to the NHS the most difficult. This appeared to relate to changes in expectations of colleagues, the culture of the NHS, and dealing with a civilian patient group characterised by relatively minor afflictions. However, it may be that paramedics had less 'resilience' in dealing with transition back to the NHS due to the physical and psychological toll of the deployment which involved dealing with acute poly trauma in a conflict zone on a daily basis, and therefore making any transition more difficult to embark on.

Paramedics spoke at length of the difficulties they encountered moving from one organisation to another, and found the transition to the NHS the most challenging partly due to the severity of trauma they encountered in the military which made it difficult for them to readjust to the 'minor' complaints of NHS patients. Regulars found it difficult to negotiate the hierarchy and politics of the NHS whilst reservists found the reverse; and both reservists and regulars felt that their skills and expertise were

not recognised in the other organisation. Paramedics talked about how they put in place mechanisms for enabling them to readjust and this suggests that extra support making these transitions would be helpful. This is one of the key recommendations to emerge from this study. There were positive aspects of transition that were mentioned including the opportunity to share knowledge across organisations, the development of their own clinical practise and respect for colleagues.

One of the limitations of this study is that the participants who had left the military were not included in the recruitment pool and it was only possible to interview paramedics who had successfully made the transitions between the NHS and military environments. The government has indicated its desire to increase the number of reservists so it is important to understand how transition affects their professional practise and mental health in order to support them through this adjustment. Further research should be undertaken in this area.

7.5 Paramedics as transmigrants and transition theory

Lornsky-Feder et al (2008) found that it was useful to borrow the concept of "transmigrant" from social anthropology to describe the experience of reservists and how they make the transition between different worlds. It is appropriate to apply this to both regular and reservist paramedics in this study because they work in the NHS when not deployed. The authors noted how critical the reservists could be of military policy whilst this PhD study has shown that the paramedics (both regular and reservist) are critical of NHS handover. It may be that both Israeli reservists and paramedics in the RAF experience difficulties with transition and focus these difficulties on an aspect of policy or process. Lornsky-Feder at al describe this transmigratory experience:

> *"More generally, it seems that there is something about many reservists' association with the military that is emotional, nostalgic, and embedded in social ties, all features that are reminiscent of the kinds of bonds that migrants have to the home they have left and to which they return. Yet at the same time, there is something voluntary about this revisiting because the migrant has another home where his or her life and are anchored. The analogy to transmigrants thus underscores the voluntary, emotional, and nostalgic elements that are part of reserve service. It is this rather unique kind of link to the military that undergirds the kinds of conditions and stipulations attendant on the implicit contract we have been examining in this section. Reservists, like transmigrants, have cross-cutting commitments that demand allegiance and devotion but also allow autonomy and room for bargaining."* (2008, p.606-607).

Lornsky-Feder et al believe that this example could be useful for better understanding the reserve forces and other areas in society where there was an intersection between the military and civilian worlds (2008, 610). This study has shown that each time a reservist or regular leaves one emergency care setting for another they are breaking and reforming bonds as part of the transitional process, and this has an emotional toll. They must get used to the new ways of working, uniforms and equipment and establish themselves in their new environment.

The concept of transmigrant used in the Lornsky-Feder et al paper was drawn from Schiller et al (1992) who described the characteristics of people who move back and forth between countries and their ties and concerns with both host and home societies. The definition was as follows:

> *"Immigrants are understood to be transmigrants when they develop and maintain multiple relations – familial, economic, social, organizational, religious, and political – that span borders. We came to understand that the multiplicity of migrants' involvement in both the home and host society is a central element of transnationalism. Transmigrants take actions, make decisions, and feel concerns within a field of social relations that links together their country of origin and their country or countries of settlement."* (Schiller et al, 1992, p.ix)

The characteristics of the transmigrants was similar to those of both regular and reservist paramedics in the UK who must cross national boundaries as well as organisational ones. This includes adapting to different types of threat, patient presentation, and environmental conditions. Policies and procedures too will also be different. One paramedic reported updating himself with local procedure and policy changes as part of how he managed the transition from deployment back to the NHS. Although the literature review only produced a limited narrative review it led to a theoretical concept for understanding the paramedics as transmigrants, and suggests that regulars and reservists in particular needed more support from the military and mental health services to successfully make the transition between military and civilian life. In order to understand more about how paramedics as transmigrants adapt to change it is useful to look at a theoretical model from occupational psychology including a definition of transition. Anderson et al (2012*)* states that*:*

> *"In broad terms, a transition is any event or non-event that results in changed relationships, routines, assumptions, and roles."* (2012, p.39).

This was certainly true of the paramedics in this study who believed that their experience of deployment (a significant event) had informed their clinical practice and changed their expectations of colleagues within the clinical environment. Paramedics reported frustration that behaviours of receiving staff in the NHS were different to the military and this had changed their views of how they should be received. They reported adapting their practices to incorporate elements of military practise that they had found effective. Indeed, one paramedic reported having attempted to leave one of his patients in order to give a handover, thus replicating the practise at Camp Bastion, but had encountered resistance from NHS staff. Other paramedics had reported introducing behaviours to encourage NHS receiving staff to listen such as only giving the handover once the team leader had silenced the receiving staff or shouting 'listen up' in a loud military voice. The paramedics had experienced a change in relationships with other healthcare workers in the military which challenged their assumptions, practise and roles in the NHS. When they returned to the NHS with these experiences they tried to change how they were received in the emergency department.

The work of Schlossberg (1981) produced the following theoretical framework to account for how adults adapt to transition:

A Model for Analyzing Human Adaptation to Transition:

Transition is affected by:

1. Perception of the particular transition
   (Role change: gain or loss, Affect: positive or negative, Source: internal or external, Timing: On time or off time, Onset: gradual or sudden, Duration: permanent, temporary or uncertain, degree of stress)
2. Characteristics of pre transition and post transition environments
   (Internal support systems: Intimate relationships, family unit, network of friends, Institutional supports, Physical settings.)
3. Characteristics of the individual
   (Psychosocial competence, sex (and sex role identification), age (and life stage), state of health, race/ethnicity, socio economic status, value orientation, previous experience with a transition of a similar nature).

Resulting in adaptation

- Movement through phases following transition: pervasiveness through reorganisation

Depends on: 1. Balance of individual's resources and deficits 2. Differences in pre- and post- transition environments re perception, supports and individual

Source: Schlossberg, 1981 p.5

In 2012 this model was further refined by Anderson, Goodman and Schlossberg as follows:

1. Approaching Transitions: Transition Identification and Transition Process
2. Taking Stock of Coping Resources: The 4 S System (Situation, Support, Strategies, Self)
3. Taking Charge: Strengthening Resources

Source: Anderson et al, 2012, p.38

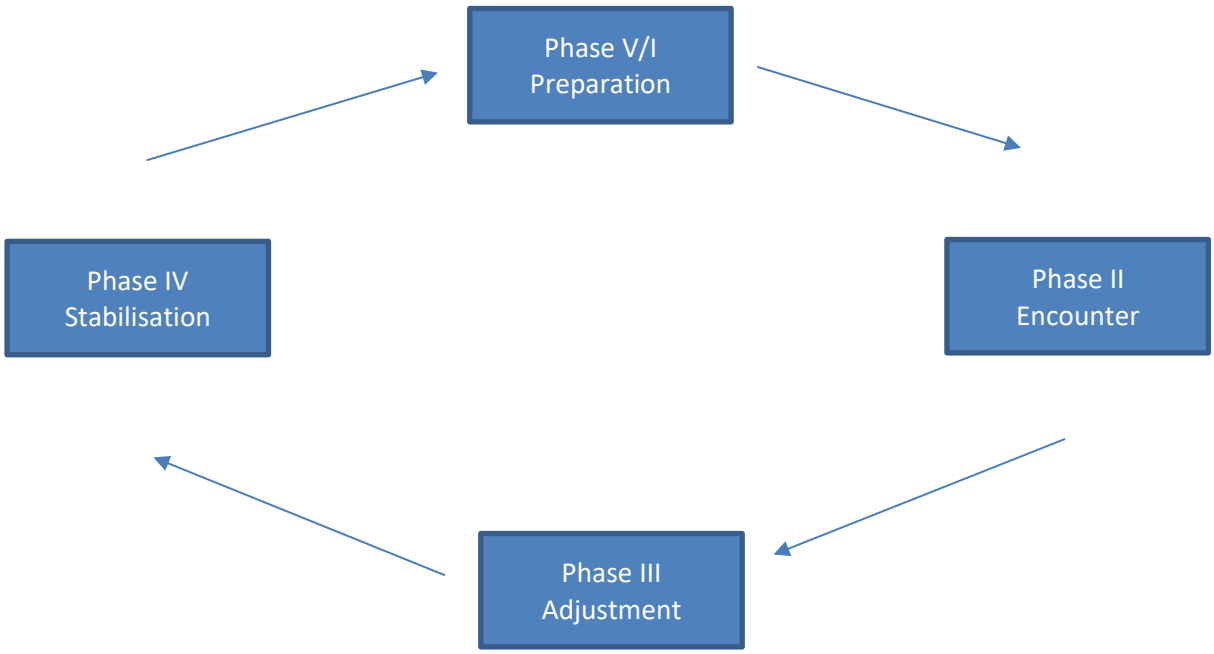
Previously it was thought that human development finished on the commencement of adulthood but it is now understood that development continues throughout adulthood (Schlossberg, 1981). This development invariably means dealing with change and making transitions especially in the modern workplace where there are few jobs for life and people are expected to frequently change careers as well as jobs. Therefore, it is likely that paramedics will have encountered various transitions in their personal and professional lives before qualifying as paramedics or joining the armed forces. These previous transitions may, according to Schlossberg's model have prepared them for further transitions in their professional lives but it is clear from this model that there are personal as well as institutional factors involved in successfully negotiating a transition. It is the comprehensive nature of this model which makes it most appropriate for understanding the transition that paramedics who deploy, whether regular or reservists, undergo. This is because transition involves a whole set of changes including changes in work colleagues, organisational culture, tasks, patient groups, environment, climate, living accommodation and diet.

Deployments have an impact on family, friends and partners and this can be a stressful and worrying time for them. Perhaps the most significant limitation of this study is that it did not include paramedics who had not been able to make the transition and had left the military or clinical practise as a result of these experiences. It would be useful to know when and why transitions have not been successful between different emergency care settings. The paramedics included in this study had identified their own support networks and found ways to make the transition successfully between the military and the NHS. The Schlossberg model also accounts for transition perception. Reservists have some choice

about when they deploy but regulars less so, and this may contribute to difficulties with transition. The Scholssberg model has links to the concept of 'resilience' identified by MacManus et al (2014) and has implications for recruitment. It suggest that personnel who have robust mental health, good support networks, a positive outlook and previous experience with managing transitions will fare better. These factors point to better coping mechanisms with psychological stress.

Nicholson and West (1988) have produced a more simplified transition model in an attempt to cover all sorts of transitions that individuals may experience; this transition cycle is intended to be one of "perpetual motion", "interdependence" and "discontinuity" (p.8) and can be seen in Figure 6:

Figure 6 Men and women in transition



Source: Nicholson and West (1988, p. 9)

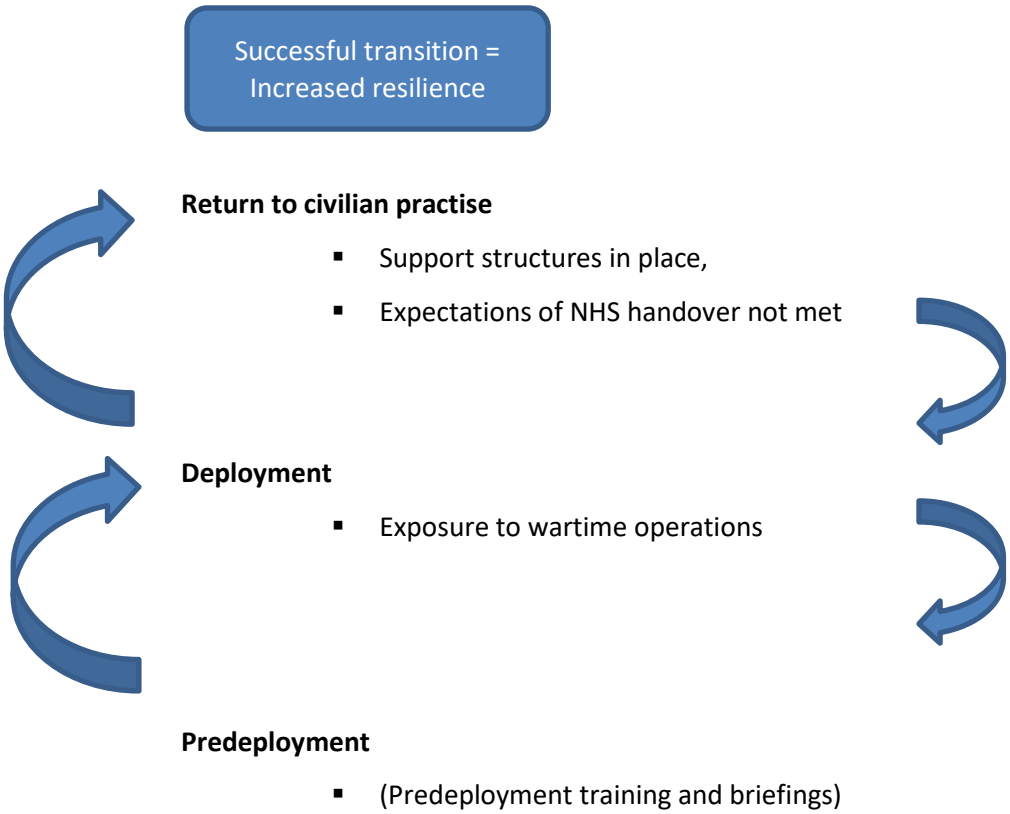
The preparation phase is dependent on factors such as "psychological readiness", "forewarning" values, behaviour and education (Nicholson and West, 1988, p.8-9). The encounter phase is influenced by degree of change (environment and role), expectations (positive and negative) and preparation (Nicholson and West, 1988, p. 10). This encounter phase is especially pertinent for paramedics entering their less familiar role and helps explain why transitioning into the non-host environment is

problematic. The adjustment phase is based on work role, colleagues and environment (1988, p.11) and again may explain why paramedics have difficulty transitioning back to the NHS and have difficulty with colleague relationships. The stabilisation phase is understood together with the preparation phase due to the cyclical nature of the model. This phase "*sees the individual striving to maintain valued elements of the role, making fine tuning adjustments to experience and action, and enjoying or suffering the fruits of success or failure."* (1988, p.14).

The theories put forward by Nicholson and West (1988) shows that pre deployment and post deployment preparation and support can help paramedics make transitions. It shows that adjustment is a key phase for paramedics and may explain why paramedics encounter difficulties when treating NHS patients with relatively minor, or self-inflicted, injuries or problems. They spoke about difficulties adjusting back to the NHS type of patients after dealing with acute battle field trauma and this took some time. Paramedics cited self-reflection and timing of re-entry to the NHS as important factors for managing this adjustment. It was significant that issues around standardisation (where the behaviours of NHS staff differed so much from the receiving staff at Camp Bastion) and patient acuity were the site of frustration. This is because these were the most significant differences between the two emergency care settings for paramedics and their ability to process and deal with this was key to managing transition.

Therefore we need a model of transition that incorporates Schlossberg's (1981) breaking and remaking of bonds, Nicholson and West's (1988) cyclical transition process, and the concept of resilience identified by Macmanus et al (2014), together with the experiences of transition recounted by the paramedics in this study. This model needs to take account of the greatest challenge associated with deployment: change in expectations of colleagues which are not met on return to the NHS, and dealing with patients with less serious injuries on return to NHS practise. The following figure 7 shows a model of how paramedics manage transition between deployments and NHS practise.

Figure 7 Paramedic deployment transition model



- Pre deployment (Preparation phase)
- Deployment (Changing expectations of colleagues, dealing with acute poly trauma)
- Post deployment (Difficulty with colleagues, dealing with less serious injuries)
- Increased resilience (self-knowledge, re-entry preparation, previous experiences)

The above model incorporates some of the elements of previous models and breaks the deployment and return to civilian practise into separate transition phrases and presents it as an active process. It highlights how making previously successful transitions increases resilience to further transitions including the most difficult transition which paramedics identified as being the return to civilian practise. At each transitional stage, resilience can be strengthened by activities such as pre deployment briefings, support from colleagues, support from friends and family, and staged return to NHS practise with the support of mentors. The interview data suggested that identity issues were not paramount for paramedics and this was in contrast to the literature which suggested change in identity was a significant for military personnel and reservists. Therefore managing changes in identity was not included in the transition model but this makes it less transferable to non-paramedics.

7.6 Handover communication in the military

What was clear from the literature review was that little is known about how handover communication is conducted in the UK military and only one paper was located that was directly relevant to this study. The paper by Arul et al (2015) was positive about communication in the in the ED at Camp Bastion and the use of the ATMIST mnemonic. The study by Rond (2012) represented missed opportunity to study the experiences of clinical staff at Camp Bastion and the ethical dilemmas posed by dual loyalty. Whilst the paper by Hodgetts and Mahoney (2009) did not focus on the ATMIST handover it did offer a comparison of civilian and military trauma systems and suggested that it would be beneficial for each organisation to learn from the others. This PhD has also shed light on some of the different practises carried out at Camp Bastion which differ in many ways from handover communication in NHS hospitals but advocates the use of caution when transferring military systems to civilian hospitals not least because military systems are different for very good reasons. It would not be appropriate to draw direct comparisons of how effective care delivery is because there are many variant factors between NHS hospitals and Camp Bastion including resources, mission, patient group, patients' presenting complaints, environmental conditions and organisational context. Nevertheless, it is worth discussing how some of these differences may have impacted handover with reference to the literature review, the reflexive diary entries and the interview analysis.

This study was not able to evaluate different approaches to handover communication. The reflexive diary entries suggested that handover in the military was more standardised and controlled; hospital receiving team members knew what their roles were and appeared to know in what order the information would be delivered. There was quiet during the handover, with no interruptions, and everyone appeared focused on the paramedic or doctor giving the handover. The handover itself was projected loudly, strictly followed the ATMIST mnemonic and was short. The patient remained outside the room during the handover whilst they were searched and the senior clinician led the team and asked questions at the end of the handover. As soon as the handover was over the patient was brought into the room, transferred to the bed, and care began. The paramedic then went over to the scribe to provide further information about the patient. In the military, the patient group were characterised by young, previously healthy men, with traumatic injuries and this facilitated the standardisation of the handover, and made it more desirable.

One of the key issues that arose during the course of this study was the use of ATMIST mnemonic by the military, laid out in the JSP Clinical Guidelines for Operations 2013, and the additional practises that have evolved around it but which were not documented. The analysis of the interviews showed that the paramedics were mostly positively about the experiences of handing over at Camp Bastion including the use of the ATMIST mnemonic but they differed on their views as to whether it would be appropriate to introduce it to the NHS. The main concern was whether it could be adapted for the average NHS patient (typically elderly and with multiple long term chronic conditions) given the additional information on social care needs and past medical history that was required to facilitate patient care and discharge. Nevertheless, it appears that some NHS hospital trusts, and NHS ambulance trusts, have adapted ATMIST or suggested its use for time critical trauma and medical patients, and for use in structuring the delivery of pre-alerts. This is interesting given that this is not a validated tool according to the literature review. The results of this study indicate that it would be worthwhile to study ATMIST in greater depth not least because there are a number of variables around its use that are either not true for the NHS or could not be replicated. There was a lack of acknowledgement in the literature concerning how the military uses ATMIST or the differences between emergency care in the military and the NHS.

A number of studies located in the literature warned against introducing elements of standardisation that were not properly validated for use in the NHS. For example, Manser (2011) has suggested that handover is a dynamic process in the civilian contact represents more than just an exchange of information about the patient. Manser (2011) claims that handover provides other purposes such as conformation of clinical concerns, avoidance of medical errors, and training, and therefore procedural rules are not always helpful in this context. The data suggested that handover communication in the military was designed to work in an organisation characterised by command and control and backed up by high fidelity training on formal pre deployment courses. The handover was driven by operational concerns in an active war zone and designed to meet the needs of a complex poly trauma in young, previously fit and healthy males. Therefore, it would not be appropriate to lift this model from the military and transfer it straight to the NHS.

The paramedics understood the reasons for leaving the patient outside the resuscitation room whilst the handover was in process at Camp Bastion. The interview data suggested that the absence of the patient affected the handover positively because the hospital receiving staff were focused on the paramedic or doctor giving the handover rather than being distracted by the arrival of the patient. Interviewees differed over whether they thought it was possible or appropriate to introduce this to

the NHS, and whether or not it delayed treatment or expedited the patient journey. The main objections to its introductions in the NHS were lack of staff to take care of the patient during the handover, the fact that it was not necessary to search NHS patients for ordinance, and how it might look to bystanders not involved in the patient's care. Also a number of paramedics suggested that some paramedics felt uncomfortable giving the handover when all the attention and focus was on them and this appeared to be consistent with the data from the reflexive diary entries. Nevertheless the data was consistent in suggesting that the hospital receiving staff were more responsive to the handover when the patient had yet to arrive. There were ten intervention type studies located in the literature review that assessed different handover initiatives although none conducted a handover without the patient.

The reflexive diary entries data another significant difference was the use of scribe. Although many of the interviewees mentioned the role of scribe they did not appear to accord it much significance. However, the reflexive diary entries data suggested that the role of scribe is a key part of the ATMIST handover. A dedicated scribe can note down the pertinent facts from the handover, clarify these points with the paramedics after the handover is given, and make accurate notes of further interventions, observations and personal information throughout the initial patient care pathway. The role of scribe appeared important in the military because the healthcare professionals do not have the benefit of the PRF which is always available to NHS clinicians. It is a recommendation of this study that the role of scribe should also be investigated further along with the use of the ATMIST mnemonic and its possible use in handovers for medical patients in the NHS. Again, there was no mention of the role of scribe in the literature on handover communication aside from pictorial images.

7.7 Handover communication in the NHS

What is evident from policy documents, the literature review and the data analysis from the interviews is that handover communication in the NHS has evolved over time but there are significant differences between NHS hospital trusts and NHS ambulance trusts. Nevertheless, standardisation has been achieved with the Patient Report Form (PRF) which paramedics consistently use when conveying a patient to hospital although this element of standardisation is under acknowledged in the literature. It is evident that the greatest amount of change has been in trauma centres some of which now use the ATMIST mnemonic for handover communication. Some of these changes may have been driven by the introduction of trauma networks in 2012 but it is possible that many NHS healthcare professionals and managers have been influenced either by their own military experiences or those of their colleagues, although this has not been confirmed in the literature or by this study.

There appears to be some inconsistency in the use of pre-alert tools, the format of Patient Report Forms (PRF), and training on handover communication between NHS trusts. A study by Bledsoe et al (2013) found that doctors preferred electronic handover reports but did not consult the opinions of nurses or paramedics. Certainly the national guidance on pre-alerts is underwritten and this is an area where standardisation would be helpful especially given the introduction of additional care pathways. Paramedics were generally less favourable when they talking about their experiences of handover in the NHS and they cited a number of areas of concern including not being listened to, not being respected as a professional, lack of help when arriving at the hospital, personal factors affecting willingness to receive handover, the impact of target culture including handover turnaround times, the four hour target, pressure on staff at NHS hospitals, and long waiting times for handing over patients. Sujan et al (2015) found that performance management targets were creating conflicting priorities for healthcare managers and negatively affecting handover communication in the NHS. In the NHS there appeared no need for an aide-mémoire as the PRF included all the prompts and information that was required. Paramedics often had the time to fill in the PRF on route as most patients transferred to hospital were not as acutely unwell as the typical military patient

The interview data suggested that there are differences in the way that NHS hospitals, and indeed personnel on the ground, want to receive handover, and it is possible that one standard format which all staff were trained in would overcome some of these difficulties. The interview data suggested that there were different handover mnemonics in operation based on suggestions given during paramedic training. Many of the interviewees indicated that they had received limited training on handover communication, during their paramedic training and the mentorship period, and there might be an opportunity to formalise training in this area. Indeed the data indicated some criticism not just of hospital receiving staff in not listening to the handover but also concerns about paramedics who felt uncomfortable giving handover and 'rambled on'. Paramedics tended to change their handover depending on the expectations of the receiving hospital, the patient presentation and their own preferences including influences from their military experiences which was another factor creating divergence from standardisation.

7.8 Conclusion

It is clear that although standardisation is a feature of both NHS and military emergency care settings, there are important differences in how these are enacted in the two settings. These differences appear

to centre on fundamental differences in the context of emergency care, difference in organisational culture and different patient presentation. In the military strict handover protocols are mandated in the Clinical Guidelines for Operations (2013) and even small practises that have evolved around these are embedded in routine. The NHS does not have the same rigid control structure, training is more of an ad hoc apprentice type nature and there is a great deal of diversity in handover practices despite the PRF which represents some degree of standardisation.

There was a literature gap regarding handover communication in the military, lack of understanding regarding the use of ATMIST in the military context, and the difficulties of transition. The reflexive diary entries and interview data were consistent in acknowledging the differences between handover communication and the diverse settings in which it takes place. An analysis of the interview data showed that paramedics had difficulty with transitioning between the two environments and the most difficulty transitioning from the military to the NHS. This may be because of the psychological and physical toll that military deployments in an active war zone have on mental health.

The principal site of conflict for transition difficulties centre on the perceived lack of standardisation in the NHS and this created tensions. There were inconsistencies around the behaviour of receiving staff during the handover and the disparate protocols on pre-alerts. This could be addressed with national pre-alert protocols and staff training. However, it appears that the real challenge for participants is making the transition between different healthcare environments. Transition theories suggest that pre-deployment briefings and post deployment mental health support would help paramedics make the transition between different emergency care settings. Indeed the transition model developed in this chapter shows transition as an active process which can be positively and negatively affected by interventions such as pre deployment training and post deployment mentoring. It shows also that paramedics can build resilience as they become more experienced at dealing with transitions associated with deploying, and returning from military operations to the NHS.

Chapter 8: Conclusion

The aim of this study was to improve our understanding of paramedic handover communication by exploring the experiences of paramedics who have worked in the UK military and NHS emergency care settings. These paramedics deployed as part of the Medical Emergency Response Team during the conflict in Afghanistan, known as Operation Herrick, and handed over their patients at the British operated hospital in Camp Bastion. That conflict has now ended, and the hospital closed, so it would be useful to capture some of evidence of the clinical practise that evolved there as a result. The key objectives of this study were to gain further insights into how handover communication is practised in the NHS and the military, how working in these environments changed paramedics' expectations and practise of handover, and how they managed the transition between working for two diverse organisations particularly after being deployed on Operation Herrick. My clinical and military background provided further inspiration for looking at handover communication in the military as it appeared to differ from the NHS.

The literature review showed that there was a lack of knowledge about how handover communication was conducted in the UK military, and much of the work that had been done focused on the experiences of nurses and doctors rather than paramedics and very little considered handover in the military. During the 1980s and 1990s there was growing concern among emergency clinicians in the UK that much could be done to improve survival rates of trauma patients, inspired by work done in North America and new methodologies for calculating survival rates. NICE have introduced guidance on receiving trauma patients but there is little guidance on how to conduct handover communication and hospitals have developed their own pre-alert protocols. NHS guidance on handover communication between paramedics and hospital receiving staff focuses on performance management targets with turnaround times for paramedic crews.

The latest report from the NHS Confederation in conjunction with the Association of Ambulance Chief Executives entitled "*Zero Tolerance. Making Ambulance delays a thing of the past*" covers on handover but its main focus is around preventing delays. Regional trauma networks were established in 2012 to improve trauma care in the UK in an attempt to save 450 to 600 additional lives a year (NHS Choices Major Trauma Care, 2012). These emphasised the importance of identifying trauma patients as early as possible (ideally pre-hospital) and transporting them by ambulance to the nearest regional trauma centre even if that meant by passing a hospital that was nearer. It seems that survival rates are improving for trauma patients in the UK but that the picture is not consistent across the country and the data is not complete.

The literature search demonstrated that whilst there are many studies advocating the merits of standardisation in NHS hospitals, concerns are emerging in the literature that too much standardisation may not be a good thing. It was evident that there was little knowledge in the literature of how ATMIST had been adopted by the military, the unique circumstances in which it evolved, and the development of other handover practises alongside it that were not documented in the Joint Service Publication (JSP) Clinical Guidelines for Operations (2013). Although there was a lack of information in the literature regarding handover communication, practise in the UK military is laid out in the JSP Clinical Guidelines for Operations (2013). This contains guidance on how handover communication should be conducted and how the trauma team should be configured. The literature on handover communication in the military, is relatively recent, and there are few primary studies.

My study focused on the paramedic experience but makes use of data collected through reflexive diary entries. A total of 13 interviews were conducted with paramedics as well as additional interviews with a senior military doctor and a pilot interview with an emergency nurse. The study was informed by a mixed methods approach and explored the experiences of paramedics who have given handover in both NHS and military environments. The reflexive diary entry data was collected by myself whilst working in Camp Bastion and four NHS emergency departments in the UK. This background enabled me to understand medical terminology, differences in handover style, transitioning between military and NHS settings, and issues around communication.

An analysis of the data suggests that there were considerable differences between handover communication as it was practised in the UK military at Camp Bastion and the NHS. This study has found that standardisation is much more tightly adhered to in the military than the NHS and this is a key difference which is driven by organisational culture, training, organisational goals, and patient types and conditions. The military handover appears much more standardised than the NHS handovers and is mandated by the Clinical Guidelines for Operations, 2013. The military is characterised by a chain of command, and a strict hierarchy organised by formal rank structures. In contrast, the NHS is a large bureaucratic organisation where training is less formulised and more of an apprentice type nature. There are a plethora of NHS hospital trusts, ambulance trusts, training organisations, and local protocols each of whom have a different approach to handover communication and different expectations. It is for this reason that taking practises which have been designed by the military and evolved to meet the needs of war time operations should not be transferred to the NHS without sufficient testing and explains why standardisation is not as desirable.

Organisational culture and behaviours are reinforced in the military through high fidelity training courses. The standardisation which characterised handover communication in the military was only possible due to the nature of the patient group who commonly presented with the extreme end of poly trauma rarely seen in the NHS. There is one document that covers the handover, one hospital from which it takes place and a unique context of war fighting operations which impose other restrictions, such as the danger from ordinance, not encountered by the NHS. This standardisation was driven by the needs of the patient group who required immediate access to resuscitation, diagnostic tools and surgery. NHS hospitals cater for a wide variety of patient types and presentations. Therefore standardisation is much more difficult to achieve and in many ways less desirable. Despite the apparent diversity of handover communication in the NHS there are some areas of standardisation which have emerged. Most notable around the use of Patient Report Forms (PRF), pre-alerts for time critical medical and trauma patients, the emergence of clinical pathways for trauma and acute medical conditions, the increasing use of the ATMIST mnemonic for time critical and trauma patients, and the introduction of performance management targets.

It appears that NHS handover has been influenced by Operation Herrick to some extent although it was not the intention of this study to evaluate the extent of this. This may be due to the numbers of healthcare professionals returning to the UK who have incorporated some of their military experiences into their own practise. There has been reported interest from clinical managers in military healthcare practise as well. The data suggests that the use of the ATMIST mnemonic is becoming more widespread within the NHS for pre-alerts and handover communication between paramedic and hospital receiving staff. Other areas of military practise that have appeared in the NHS include silence during handover, hands off the patient until handover is complete, listening to the paramedics and more emphasis on leadership. It should be noted that these practises are not being introduced for all patient types and presentations – just where the patient is closer to the military trauma patient.

Analysis of the data demonstrated that paramedics believe that NHS handover communication is characterised by a lack of standardisation but this is the site of conflict for their difficulties managing transition between different clinical environments. The study showed that both regulars and reservists appeared to have difficulties adapting to the less familiar organisation. Reservists struggled to deal with the hierarchy and ways of working in the military, and regulars struggled to deal with these issues in the NHS. It was interesting to note that paramedics both reservist and regular encountered more difficulties returning to their NHS practise after a deployment and this may be due to the psychological burden associated with a deployment. This is an area where change management theory can assist

our understanding or how paramedics manage these transitions and how they might be better supported. The transition theory developed from these authors and the data gathered in this study indicate that transition is an active process which can be influenced by interventions such as training and mentorship, and that making successful transitions can increase resilience. Indeed, the paramedics themselves had developed a range of coping strategies to ease their transition back to working in the civilian environment. This is an important finding because the UK government intends to increase recruitment of reservists yet we know little about how military deployments affect healthcare professionals in respect of their professional practise and their mental health.

8.1 Key findings

This study has provided some new evidence about what paramedics think about handover communication in military and NHS emergency care settings, This has identified that standardisation is more rigid in the military. Whilst the literature suggests that standardisation is a solution to improving handover communication, it seems more difficult to bring this about in the NHS. The reflexive diaries and interviews have shown why there are important contextual differences that mitigate against using some of the key mechanisms for standardisation in the NHS. In summary what we can say is there is a lack of information about handover communication in the UK military, but this study helps to fill that gap. The data showed that there were many differences between handover in the NHS and the military which were accounted for by the diverse settings, nature of the organisation, information needs, training of personnel, and patient presentation and characteristics.

Both healthcare settings were characterised by standardisation, in the military this was driven by the ATMIST mnemonic handover outlined in the Clinical Guidelines for Operations (2013), and in the NHS by the Patient Report Form (PRF). Standardisation in the military is achieved through high fidelity training on formal pre deployment courses where only personnel who make the standard can deploy. This is reinforced by the rank structure, chain of command and military culture. The nature of working in a conflict zone, the need to deliver care to patients with poly trauma, and the characteristics of the patient group reinforced the need for standardisation in the military and made it easier to achieve. For a summary of the key differences between NHS and military emergency care settings please see Table 17.

Within the NHS standardisation is achieved by the PRF which is handed over with each patient to the hospital receiving staff. This contains a huge amount of detail about the patient, medical history, presenting complaint, and helps as an aide-memoire for the handover. The NHS is a huge bureaucratic

organisation with legal and health information needs which are served by the PRF. The PRF assists medical and nursing staff with patient care and their discharge back into the community or other care settings. Further standardisation of handover communication in the NHS is less desirable because civilian populations present with diverse conditions and often have mental health problems and/or social care needs. This means that handovers in the NHS must be more flexible and contain additional information compared with the ATMIST mnemonic so they are inevitably longer. This could be met by a variant of the ATMIST mnemonic such as ATMIST PLUS. Nevertheless there are areas of standardisation within the NHS, and practises around the care of trauma patients in particular, and possibly acute medical conditions, that might be desirable given appropriate validation. There are behaviours during handover that are more effective for giving and receiving information such as silence during handover, hands off the patient during handover, and a standard handover format that would negate the need for interruptions, that could be usefully introduced. The NICE guidelines introduced in 2016 on major trauma stated that the receiving trauma team should be "ready to receive the information" and "an easily identifiable" team leader (NICE 2016). Where resources are available, help with the unload of patients would assist paramedics especially in case of serious trauma or acute medical presentation. Such initiates would require adequate testing, training of hospital receiving staff and paramedics, and the support of clinical leadership.

There were some divergences from standardisation even within the military. The practise of leaving the patient outside the resuscitation room in order to facilitate a search for ordinance has evolved outside of the MoD Clinical Guidelines for Operations (2013). There were no definitive protocols on which professionals should hand over. The nature of operations and local environmental conditions also affected standardisation because of changes to patient injuries and challenges to the working environment. Deployments themselves are relatively short so teams are always reforming and leadership frequently changes. Whilst paramedics believed that the NHS handover was characterised by a lack of standardisation they also sort to change handover behaviours and sometimes incorporated elements of their military experiences.

Finally it should be noted that transition is a difficult issue for many paramedics. It appears that both regular and reservist paramedics found the transition from military deployments back to the NHS more difficult than moving from the NHS to the military. Paramedics noted negative feelings around civilian patients with minor complaints after returning from deployments where they had routinely dealt with death, poly trauma, life threatening and life changing injuries. Paramedics had developed a set of strategies for dealing with their return from deployment such as working with a mentor on their return or spending time with family. It is one of the limitations of this study that interviews were

only conducted with paramedics who had successfully made this transition and were still serving in the military. Given that the UK government is intent on increasing the number of reservists, further research is needed into the impact of deployments on the mental health and clinical practise of healthcare professionals. This is perhaps the most important finding from the study. The theory of transition developed in this study can help our understanding of how moving between such different emergency care settings affects paramedics and how they can be supported to make these moves especially from deployment back into the NHS.

Regulars found it difficult negotiating NHS hierarchies and challenging practises that they believed were wrong, and reservists found the rank structure similarly restricting. Both felt that their respective skills and experiences were not recognised in the other organisation and reservists are not accorded a military rank which reflects their professional experiences. Nevertheless, their appeared to be benefits from working in diverse healthcare settings. Regulars gained experience of different medical conditions and age groups from working in the NHS, and reservists gained experience of military practises and exposure to a different type of trauma.

Finally, another issue that emerged from the study was paramedics increasing concern about the impact of staff shortages, delays and performance management targets in NHS emergency departments. Again, it was not the aim of this study to examine these difficulties but this is an important area for future research. Please see Table 17 for a summary of the key findings.

Table 17 Summary of key findings

Key findings
Little is known about handover communication in the military in the literature
There are significant differences between handover communication in the NHS and military
Standardisation is a key feature in both NHS and military emergency care settings
NHS standardisation focuses on the PRF
Military standardisation focuses on ATMIST
Paramedics experience difficulties with transition especially military deployment back to NHS
Handover communication mnemonics should be validated before introduced to the NHS
A perceived lack of NHS standardisation was the site of conflict for paramedics
Transition theory can assist our understanding of how paramedics move between care settings
Paramedics would like assistance with the patient unload in the NHS

Paramedics found challenging clinical practise more difficult in their non-familiar organisation
Research is needed on performance management targets in case they affect handover

8.2 Strengths and limitations

It was not possible to extend this study to include other healthcare professionals due to time and resource constraints although valuable information was gained from an informal interview with an experienced military doctor and a pilot interview which was carried out with a reservist nurse. It would have been useful to interview other healthcare professionals to gain an understanding of their experiences of receiving the ATMIST handover from the MERT team and how this might compare with their experience of NHS handover communication. It would also be useful to see whether other healthcare professionals encountered challenges with transitioning between military and NHS emergency care settings or whether this is more of an issue for paramedics.

A further limitation of this study was the relatively small number of personnel included in the study and the relatively small numbers of reservists. Future research could be conducted with a greater number of personnel to understand how handover communication differs between NHS and emergency care settings, and how transition affects regulars and reservists. The previous study into handover communication entitled Improving the Quality of Ambulance Crew Handovers led by Pope and Crouch between 2009 and 2011 interviewed patients as well as healthcare professionals but time and resource constraints meant that this was not possible with this study.

Future research could look at handover communication from the perspective of the patient and this would be useful for military handover in particular as there are no studies looking at the experience of being handed over as a military patient at Camp Bastion or how patients perceive the experience of being left outside the hospital whilst the paramedic goes inside to handover.

This study has helped capture some of the experience of paramedics who have participated in handover communication in military and NHS emergency care settings. As time goes by it becomes more difficult to capture the experiences and knowledge gained from the medical teams employed at Camp Bastion which has now closed. Wars are well known for advancing medical knowledge and the conflict in Afghanistan was no exception. Advancements that have been introduced to benefit civilian populations in the UK include advanced resuscitation protocols, treatments of catastrophic haemorrhage and intra osseous devices for the administration of fluids and medications. This study

has helped to capture these experiences of handover communication and may help develop handover protocols in the NHS and future military conflicts.

A strength of this research is that it adds to our understanding of both military and NHS handover communication in terms of how and why they differ, not least regarding the issue of transition. This is an area where paramedics appear to need more support and transition theory can help understand this process.

8.3 Further research

Further research is needed to understand how transition affects paramedics and should include veterans as well as serving military personnel both regulars and reservists. It appears that military handover is more standardised both by design and implementation but this is facilitated by common patient presentation and characteristics. Standardisation is also a desirable feature in the NHS because effective communication is made more difficult when it involves handing over to hospitals with different handover requirements. However this diversity of patients in the NHS also means that standardisation can only go so far and needs to be flexible enough to accommodate this diversity, whilst meeting the additional information needs of the NHS. Nevertheless, further research is needing before introducing changes to handover communication in the NHS especially when taking elements of military handover communication which may not be appropriate. Another issue that emerged from the study was paramedics increasing concern about the impact of staff shortages in NHS emergency departments, delays and performance management targets. This study did not seek to examine this issue but it is an important area for future research.

A number of papers in the literature review explored the potential of technology to improve handover communication from scene of incident, on route updates, and handover between paramedics and hospital receiving staff. Although it was not the aim of this study to evaluate the use of technological solutions, this is clearly an important area for future research not least because of the pace of change in computer software and communication devices. It was evident from the study that the NHS already uses a variety of devices for pre alerts and these might be usefully standardised to improve communication; communication technologies in the military have yet to overcome operational limitations imposed by conflict and hostile environments. Advanced technological communication systems might improve communication between pre hospital and hospital healthcare professionals in the civilian environment but could change relationships between personnel and therefore new systems should be adequately rested and validated before implementation.

Significantly, this study adds to our knowledge of handover communication in the military and the NHS, and our understanding of the difficulties paramedics encounter when making the transition between military and NHS emergency care settings. The UK government intends to increase the number of reservist personnel and future research should be conducted into how military deployments affect not just paramedics but other healthcare professionals who make these transitions. Such research should focus on the impact on professional practise and the mental health of practitioners in order to find ways to better support them.

8.4 Publications, conferences and dissemination

In February 2013 I attended a conference at the Interallied Confederation of Medical Reserve Officers (CIOMR) and delivered a conference paper entitled 'Military and civilian handover communication in the ED: A literature review'. The CIOMR is describes as:

> *"An umbrella organisation, in which the national existing associations of reserve medical surgeons of the NATO member states are united. As political independent and separate organisation the CIOMR makes a significant contribution to force the alliance and the further development of the military medicine, pharmacy and security policy in their homelands with the aid of further and professional training activities."* (CIOMR: 2015).

This paper was well received and I have been invited to present my findings by the CIOMR committee who expressed an interest in the results of the research.

I have presented a poster presentation at the University of Southampton's Post Graduate Research Conference in the Faculty of Health Sciences in June 2013, and gave an oral paper at the same conference in June 2014. This paper was entitled '*An exploration of handover communication in military and NHS emergency care settings*' and was also well received. I intend to disseminate my work as formal papers to journals also the most appropriate of which would be journals such as the Emergency Medicine Journal, the Journal of Advanced Nursing, and paramedic journals. I attended the MEDEVAC (Medical Evacuation conference) in October 2013 as a guest with the intention of speaking a future event.

8.5 Recommendations for practise

- Ensure that the PRF is fit for purpose and fits securely within patients' notes, where electronic versions are produced they should be printed out and attached to notes.
- Develop an appropriate aide-mémoire that can be reliably used on operations and meets the information needs of paramedics
- Any further attempts to standardise handover communication in the NHS should be carefully validated
- Guidance on which healthcare professionals are responsible for delivering the handover and in what circumstances
- Develop protocols for leaving the patient outside the emergency department
- Formulise the role of scribe in the handover process
- Provide pre- deployment advice regarding transition
- Follow up mental health support post deployment
- Further research on how reservists manage transitions and the challenges they encounter
- Develop training programmes on handover communication which include different professional groups on how to receive handover communication
- Formulise and standardise handover training for student paramedics
- Review how targets are affecting handover communication in the NHS
- Carefully evaluate any handover communication tools such as ATMIST or ATMIST PLUS for use in NHS emergency care settings
- Introduce standardised pre-alerts and clinical pathways across NHS trusts
- Where resources allow the NHS could allow porters to assist paramedics with the unload for time critical and trauma patients
- ATMIST could be amended in the civilian environment as follows (ATMIST PLUS) (Age, Time, Mechanism, Injury, Signs and Symptoms, Treatments, Past Medical History, Lifestyle status, Useful information and Significant concerns

Appendices

Appendix A Recruitment email

Subject Box: Study investigating paramedic handover communication

Circular e-mail for use for recruitment of volunteers for study reference Ref no: 471/MODREC/143, approved by the Ministry of Defence Research Ethics Committee.

You are under no obligation to reply to this e-mail, however if you choose to, participation in this research is entirely voluntary.

I am a nurse and a researcher and I would like to invite you to take part in a study on paramedic handover communication in the Emergency Department. I would like to speak to you about your experiences of working in the NHS and on deployment on OPERATION HERRICK, Afghanistan as a paramedic. I am particularly interested in your experiences of giving handover in these different environments. The attached information leaflet will explain what the study involves in more depth and why your experiences are so important. The purpose of the study is to increase our knowledge of handover communication in both NHS and military settings from the perspective of paramedics. I would be grateful for the opportunity to discuss your experiences in an interview which should take no more than 90 minutes and would be conducted at a time and place of your convenience.

If you would like more information or wish to take part please do not hesitate to contact me, via email rs2a06@soton.ac.uk or mobile

07763 942113

I look forward to hearing from you.

Many thanks for your time,

Kind regards,

Cpl Rowena Slope

PhD Researcher

Appendix B Consent form

MODREC reference: 471/MODREC/143

CONSENT FORM

Study title:

AN EXPLORATION OF HANDOVER COMMUNICATION IN MILITARY AND NHS EMERGENCY CARE SETTINGS

Name of Researcher:

Rowena Slope, PhD Student

Please initial each box if you consent to the corresponding statement. If you do not consent to one or more statements please leave the box blank. Feel free to make comments on the back of this form.

1. I confirm that I have read and understand the information sheet for the above study. □
2. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. □
3. I agree to take part in the above study. □
4. I agree to have the discussion recorded by the researcher. □
5. I agree to notes being taken during the discussion by the researcher. □
6. I am happy to be contacted at a later date by the researcher if necessary regarding this study, in which case the researcher will explain what my involvement will be so that I can give further consent if required. □
7. I understand that my participation is voluntary and that my chain of command will not be informed of my decision to take part in the study. I can also leave the study at any time if I wish and this will not affect my legal rights or my medical care. However, I understand that if I withdraw after seven days from the interview then it may not be possible to remove my data from the study which is captured in an anonymous form. □
8. I understand that in the unlikely event of a disclosure being made that suggested a breach of a clinical code or military discipline had occurred then this might result in confidentiality being broken and my chain of command and/or professional body being informed. □

COMMENTS

Name of Participant	Date	Signature
Name of Researcher	Date	Signature
When completed:	1 for participant 1 for researcher file	

Appendix C Participant information leaflet

MODREC reference number: 471/MODREC/143

Participant Information Leaflet

Study title:

An exploration of handover communication in military and NHS emergency care settings

Invitation to take part

You are being invited to take part in a study exploring handover communication in the Emergency Department between paramedics and hospital receiving staff. I would like to speak you about your experiences of giving handover in different environments as you are a paramedic who has worked in the NHS and deployed on OPERATION HERRICK, Afghanistan as part of MERT between 2003 and 2013. This information leaflet will explain what the study involves.

What is the purpose of the research?

This study seeks to learn more about handover communication in the military and the NHS by exploring the experiences of paramedics who have worked in both environments.

Who is doing this research?

My name is Rowena Slope and I am a PhD student from the University of Southampton as well as a Registered General Nurse and an RAF reservist.

Why have I been invited to take part?

I want to learn more about handover communication from your perspective as a paramedic who has experienced giving handover in NHS and a military setting. This study hopes to inform handover communication with paramedic experiences.

Do I have to take part?

Participation is entirely voluntary and you can withdraw from the study up to seven days after the interview.

What will I be asked to do?

This study will involve talking to you about your experiences of handover communication in the military and the NHS. You will be asked to discuss your experiences with me and this should take a maximum of 90 minutes. The interview will be recorded, with your consent, to capture the quality and accuracy of the data.

What are the benefits of taking part?

The study will inform our knowledge of paramedic experiences in giving handover in Emergency Departments in military and NHS settings.

What are the possible disadvantages and risks of taking part?

None. However I appreciate that your discussion might touch on subjects that upset you, or bring back unpleasant memories. You can have a break at any time during our discussion or even to stop it if you wish.

Can I withdraw from the research and what will happen if I don't want to carry on?

You can leave the study at any time without giving a reason up until seven days after the interview. After this time, it will not be possible to remove your contribution to the study because it will have been added to the computer data analysis. You will not be identifiable in any of the documentation or reported in the findings of the study. Your contribution will be completely anonymous except if a potential breach of military discipline or clinical code is revealed in which case further advice from a suitably qualified expert would need to be sought.

Are there any expenses and payments which I will get?

Unfortunately, participants' expenses for time and travel cannot be refunded. However, interviews will take place at a location and time convenient for you.

Will my taking part or not taking part affect my Service career?

Choosing to take part or not take part in this study will not have any bearing on your service career. No record will be made of your decision to volunteer or refrain, and your contribution will be anonymous and your Chain of Command will not be informed (except in case of revealing a breach of military discipline or clinical code).

Whom do I contact if I have any questions or a complaint?

If you have any further questions please do not hesitate to contact me at the following email address: rs2a06@soton.ac.uk or mobile 07763 942113. You will be provided information on how to complain should you have any concerns about the study at the bottom of this sheet.

What happens if I suffer any harm?

It is unlikely that you will suffer any harm but it is possible that recalling and discussing memories of upsetting incidents may be upsetting for you. You will be reminded that you can withdraw from the study up to seven days after the interview. I will also provide information of follow up services and resources that might be of interest to you.

What will happen to any samples I give?

You will not be required to give any samples for this study.

Will my records be kept confidential?

Any information which could identify you or anyone else will be deleted from the transcripts and data kept in accordance with the Data Protection Act 1998. After the transcription process is completed, the recordings will be destroyed. However, in the unlikely event of a disclosure being made that suggested a breach of a clinical code or military discipline had occurred then this might result in confidentiality being broken.

Who is organising and funding the research?

This study is being funded by the Economic and Social Research Council (ESRC) and the Faculty of Health Sciences at the University of Southampton.

Who has reviewed the study?

This study has been reviewed and approved by the Ministry of Defence Research Ethics Committee and is registered with the Ethics and Research Governance Office at the University of Southampton.

What if there is a problem or I have a complaint about the study?

If you have a concern or a complaint about this study you should contact Linda Hammond, Senior Research Support Officer, Faculty of Health Sciences (Address: University of Southampton, Building 37, Highfield, Southampton, SO17 1BJ; Tel: +44 (0)2380 528569; Email: L.Hammond@soton.ac.uk)

If you remain unhappy and wish to complain formally you should contact Dr Marina Prude, Head of Research Governance, Research Governance Office (Address: University of Southampton, George

Thomas Building 37, Room 4050, Highfield, Southampton SO17 1BJ; Tel: +44 (0)2380 528848 Email: M.A.Prude@soton.ac.uk) who can provide you with details of the University of Southampton Complaints Procedure. In the highly unlikely event of you suffering any adverse effects as a consequence of your participation in this study, you will be eligible to apply for compensation under the Ministry of Defence's 'No Fault Compensation Scheme'.

Further information and contact details.

For further information please contact Rowena Slope at the following email address: rs2a06@soton.ac.uk or by mobile on: 07763 942113

Compliance with the Declaration of Helsinki. This study complies with the Declaration of Helsinki and the ESRC's Framework for Research Ethics.

Appendix D Further information for participants

Further information for participants

If you experience any undue distress about recalling unpleasant experiences or have concerns about your mental wellbeing, you should discuss these issues with your Medical Officer or GP. You might also want to seek advice from the Departments of Community Mental Health (DCMH) via your RMO or you are free to consult any of the agencies, charities and services listed below:

Reserves Mental Health Programme

The Ministry of Defence established a joint venture between the Defence Medical Services and the NHS specifically targeted to help reservists whose mental health may have been impacted by operations. For more information go to:
http://www.nhs.uk/NHSEngland/Militaryhealthcare/Documents/rmhp.pdf

Help for Heroes

This is a charity that was set up in 2007 to support veterans, serving personnel who have been wounded or made sick as a result of operational deployments. The charity assists families and dependents of veterans and serving personnel and supports a number of other charities. This includes mental health charities such as Big White Wall, Combat Stress and Horseback UK.
http://www.helpforheroes.org.uk/

SSAFA Forces Help

This charity runs a free and confidential hotline for serving military personnel, their families, and veterans. Telephone: 0800 731 4880. http://www.ssafa.org.uk

Appendix E Ranks of the Royal Air Force

Rank*
Marshall of the Royal Air Force
Air Chief Marshall
Air Marshall
Air Vice Marshall
Air Commodore
Group Captain
Wing Commander
Squadron Leader
Flight Lieutenant
Flying Officer
Pilot Officer
Warrant Officer
Flight Sergeant
Chief Technician
Sergeant
Corporal
Lance Corporal
Junior Technician
Senior Aircraftman (Technician)
Senior Aircraftman
Leading Aircraftman

*Ranks of interviewees in bold

Source:

Ministry of Defence. (2015). *Ranks and Badges of the Royal Air Force.* Available: http://www.raf.mod.uk/organisation/commissionedranks.cfm. Last accessed 30 January 2015.

Ministry of Defence. (2015). *Ranks and Badges of the Royal Air Force.* Available: http://www.raf.mod.uk/organisation/ranks.cfm. Last accessed 30 January 2015.

Appendix F Sample of coded transcript with coding manual

My paramedic role was just frontline paramedic role on the ambulances or RRV (Rapid Response Vehicle).	Paramedic role (1), NHS (2), Paramedic role (1), road vehicles Paramedic role (1)
I qualified in August, two years in August.	Length of time as qualified paramedic
Well yes (I trained as a paramedic in the NHS) but still in the RAF who put me through my training with WM and University so I did all my time on the road with WM. And I've currently got an honorary contract with SW. I do 50 shifts in a year.	Paramedic training, RAF NHS training Regular commitment to work in NHS
Eh yes absolutely (I had training on handover in the NHS), both at university with WM from our mentors and I've just recently done my induction with SW and they've adopted the military approach using ATMIST and they've made it a little bit more long winded sort of handover with WM.	Handover communication NHS (1) Training on handover (2) University course (3) Handover communication NHS (1) Training on handover (2) mentors (3) Handover communication NHS (1) influence of military on NHS handover Handover communication NHS (1) Training on handover (2) induction (3)
Well as you are aware the civilian medical world looks very closely at what we do from takes from us what is going to suit them, and they've taken on ATMIST. We certainly didn't use ATMIST when I was with WM but it is what they were teaching on my SW induction.	Handover communication (1), influence of military (2) use of ATMIST (3) Difference between military and NHS handover (1) length of time (2)
(Handover in the NHS) Well normally I would just sort of have my PRF and just go off this. For a non time critical patient it would just be sort of like a little story really…This is Maureen, She's 60, She's had some breathing difficulties, COPD, it's quite long winded and slow	Handover communication (1), influence of military (2) use of ATMIST (3) Handover communication in the NHS (1), Changes over time (2) Handover communication in the NHS (1), PRF Handover communication in the NHS 1), non critical patient 2) story Handover communication in the NHS (1), non critical patient (2) Example (3) Handover communication in the NHS 1), non critical patient 2) story (3) slow, long winded
Something a bit more time critical I would probably resort to ATMIST because it's something I am familiar and comfortable with I 've been a long time in the military	Handover communication in the NHS (1), critical patient (2), use of ATMIST (3), feeling comfortable using military approach
(Differences between NHS hospitals) Normally I think it's down to the individual nurses really, some will pay attention others seem not to pay any attention, they'll take the patient off	Handover communication in the NHS (1), Differences in handover(2), Behaviours (3), Staff (4) Handover communication in the NHS (1), Behaviours (2), not paying attention (2)

to a cubicle and get someone else to have a look at them. I understand it's a bit busy but sometimes it's really irritating, we are there for a reason, to provide some information. I think nurses look down at paramedics as maybe some of the lesser clinicians and that's the impression that you get, er so you just grin and bare it.	Handover communication in the NHS (1) constraints (2) busy Handover communication in the NHS (1) Behaviours (2) irritating Handover communication in the NHS (1) Behaviours (2) nurses (2) Handover communication in the NHS (1) being seen as lesser clinicians (2)
I have not had any experience of handing over at a trauma centre in the NHS.	Handover communication in the NHS (1) Paramedic driven factors (2) having to grin and bare it (2) Handover communication in the NHS (1) trauma centres
(Big sick patients) Well I would always result to ATMIST and go into resus and there would be like a team, the doctors hopefully would identity themselves, so I just sort of handover to them and everyone else should be listening. I would like to expect everyone to be quiet and listen to me whilst I speak, and then give them a chance to ask any questions.	Handover communication in the NHS (1) influence of military experience (2) ATMIST Handover communication in the NHS (1) Behaviours (2) listening (3) Handover communication in the NHS (1) Behaviours (2) listening (3)
(Pre alert tools) With SW its ATMIST, with WM again it was just like a brief down sort of story	Handover communication in the NHS (1) Post handover (2)asking questions (3) Handover communication in the NHS (1) Pre alerts (2) ATMIST (3)
(Phone through) yes with SW, the thing that they have is you would go through control, control would alert the receiving hospital using the ATMIST template.	Handover communication in the NHS (1) Pre alert (2) Phone call (3)
(Other handover mnemonics used in the NHS) Yes I've heard talk of METHANE, not really a handover as such, er no I haven't.	Handover communication in the NHS (1) Pre alerts (2) ATMIST (3) Handover communication in the NHS (1) Mnemonics (2) METHANE (3)
(handover in the NHS) I think the military do it better and I think because everything is a drill, everyone knows what to expect and what's occurring and stuff. The response from the people can vary from hospital to hospital. You'll have nurses being interested or not interested and such like, so it is inconsistent where as in the military it is consistent.	Differences between handover (1) Military do it better (2) everyone knows what to do Differences between handover (1) Military do it better (2) drills Differences between handover (1) Different hospitals in NHS Handover communication in the NHS (1) Behaviours (2) Nurses (3) Not being interested
I've been in the military XX years, a paramedic for 2, served in the XX, XXX, most of the time spent on XX, moved operationally been down to	Handover communication in the NHS (1) Inconsistent Military experience (1) Time (2)

the XX. I was in XX, XX five times and I had to go back this year for MERT.	Military experience (1) Tours (2)
I've done one MERT tour.	Military experience (1) MERT tours (2)
At the ED we'd go in, we'd be expected, get off the cab, into the BFA, go round to the Role 3 as it was.	Handover communication in the military (1) Handover stages
The RSM will then come out and do a triage of the casualties from the back door of the ambulance, if we've got stable or unstable patient and the T category. Er we'll will then get loaded into the hospital, we'll go into the hospital with the team that are receiving the patient and we'll be ready to deliver an ATMIST and everyone shuts up and listens to us, the ATMIST and then ask any questions and then that's handover done.	Handover communication in the military (1) Triage (2) Handover communication in the military (1) Receiving team (2) Behaviours (3) Everyone shuts up (4) Handover communication in the military (1) Receiving team (2) Behaviours (3) Everyone listens (4)
(Preparing for handover)	Handover communication in the military (1) ATMIST (2)
Well generally you'd have a little bit of time, next to a minute, I have an ATMIST template and will scroll down some points on that for my ATMIST. Quiet often you would remember it, it's a mnemonic we are all very familiar with.	Handover communication in the military (1) AMTIST (2) Post handover (3) asking questions (4) Handover communication in the military (1) ATMIST (2) Preparing for handover (3)
(Aid memoires) Just a little ATMIST card.	Handover communication in the military (1) Aid memoire (2)
(After the handover)	
Well I've asked for any questions, and then it's actually a case of replenning kit, out in Afghanistan we spend a little bit of time in the ED replenning drugs, and make sure we've got everything and then get back and lay in and wait for the next job.	Handover communication in the military (1) post handover (2) Replenishing kit
We don't handover until we get inside the ED.	
(Leaving the patient outside)	
They have to be sanitised, so it's like activity, you don't want something going off a grenade hidden away, even though they are being sanitised, we have to get them off the aircraft, it's just something that they have to do, so it's concurrent activity, in fact, if you wait and then go in you are delaying them getting into the ED.	Handover communication in the military (1) Reasons for leaving the patient outside (2) Sanitisation Handover communication in the military (1) Reasons for leaving the patient outside (2) concurrent activity

(Effect in handover of leaving the patient outside). No it doesn't effect the handover. And it doesn't happen on every occasion. I've come straight from the BFA and straight into the ED, I guess it just depends on how many patients you're bringing in really.	Handover communication in the military (1) Reasons for leaving the patient outside (2) Effect on handover (3)
(First heard of ATMIST) Oh when I first joined the military I would imagine it would be that long ago, it's like I can't remember it's just been with me for my whole military career.	Handover communication in the military (1) Atmist (2) First heard of ATMIST (3)
(Training in the military on ATMIST handover)	
Every course that we do uses it, it's a tool for handover, when I was an RAF medic, and a paramedic on my IEC courses, my Battles courses it's what's used, the MERT course it's used.	Handover communication in the military (1) Training (2) Courses (3) Battles
	Handover communication in the military (1) Training (2) courses (3) MERT
I wonder if it's maybe not covered as much as other topics but then again, I do understand it is very key but because every is so familiar with it we don't need to spend a 45 minute lesson on it or on an ATMIST handover. I mean I never had any problems with the time spent on it.	Handover communication in the military (1) Training (2) ATMIST
(doctors vs paramedics handover at CB) If I'm getting off I probably wouldn't really here the doc handover although it would probably be, docs tend to waffle on a bit longer than paramedics, and it's just a doctor tendency to talk. Yeah.	Handover communication in the military (1) doctors handover (2) Waffling (3)
(reservists vs regulars)	
When I was out there we had a reservist with us, he was very good, ATMIST template was used, very competent, very good.	Handover communication in the military (1) ATMIST (2)
	Handover communication in the military (1) Reservists (2) Good (3)
(Similarities between handover in NHS and military).	
Not at the moment, from my time in the WM, the hospitals that I was going to would really benefit from doing things in the way that we did out in theatre. That said, as I mentioned before, SW are talking about using this but I'm sure when I get out on the road and see that, I would imagine it's going to be better.	Handover communication in the NHS (1) NHS benefits of using military handover

(Key differences handing over in the military and NHS). I guess in Camp Bastion because of the type of casualties you are bringing in, it's very time critical, it's just 30 seconds, get all the key information across straight away, and then everyone that is in the ED can get on with it, generally in the NHS, it's rare to be picking up trauma, or trauma full stop, significant trauma, you've got plenty of time, you can be quite relaxed about it, have a bit more of a story, go into a little bit more depth, and do you know what I mean?	Differences in handover communication (1) Military handover (2) Types of patient (3) Time critical (4) Handover communication in the military (1) ATMIST handover (2) 30 seconds (3) Handover communication in the military (1) ATMIST handover (2) getting information across (3) Differences in handover communication (1) NHS handover (2) Type of patients Differences in handover communication (1) NHS handover (2) More relaxed (3) Differences in handover communication (1) NHS handover (2) Story
(transition between NHS and theatre) Well I find it quite easy because the majority of my time is spent in the military whether it be on exercises, wherever it is in the world that we are and the time in the NHS is minimal compared to the military, so military practise is the norm for me.	Transition (1) NHS to Military (2) Default position in the military (3) Transition (1) Time in the NHS (2)
(transition theatre back to the NHS) erm well I've not done a shift since I've come back from theatre but I don't foresee any dramas it's just going to be a different type of medical work that I will be dealing with, medical as supposed to trauma, so obviously with pre deployment training we are all geared to trauma, trauma, trauma, so getting back, and brushing myself back up on the medical side of business. (Impact of military experience on handover) Well I'd imagine coming more online with what is going on in the military, that's the transition for me really.	Transition (1) NHS to military (2) Difference in handover communication (1) NHS (2) Types of patient (3) Medical (4) Transition (1) NHS to military (2) Brushing up
(crowd control) Again possibly but with no disrespect to our counter parts in the civilian world, they don't have the discipline that you get with the military so they are maybe doing other bits and pieces, they are maybe prepping kit and stuff, when everyone at handover should be listening in to the clinician that's handing over, whereas in the military situation everyone will be looking at me whilst I give the handover. I would say 'look,	Differences in handover communication (1) NHS (2) Lack of discipline Handover communication in the NHS (1) Behaviours (2) Distracting tasks (3)

listen in'. (Use of ATMIST for medical patients). Well if you look at the mnemonic, the mechanism of injury if you just use that for medical condition then the rest is fairly much the same isn't it? You can give some physiological obs and treatments given so. (Leaving patient outside into NHS). I don't think it would necessarily be required because the reason it is done out in theatre is because they are being sanitised for explosives and things like that so there's not a huge amount of that in the UK. I understand that there is some but there is no inherent risk, that we experience out in theatre. (other types of handover) When exercising in the field, we have to call in the civilian ambulance and it's a field handover but again I just use ATMIST. Again I would just use ATMIST and it would depend on the situation, it might be more of a waffle or just stick to ATMIST because they are going to want to get going. (what's important in handover). I think the very first thing you should be saying is whether you've got a stable or unstable patient. Then after that the physiological obs, any changes in them, particularly medications they've been given. Quite often we are out in theatre we are picking up patients that have been intubated and ventilated and then the doctors are telling us what drugs they have given which obviously impacts on whether we have to give further drugs, so things like that are pretty key. (Perfect handover?) Oh I don't know, I'm not sure having to answer on the spot, I suppose you are so used to ATMIST that you can modify it very easily for a medical patient. The fact that ATMIST is not just used by us, it's used by other nations as well, is surely evidence that it's fairly decent, it's	Handover communication in the NHS (1) Paramedic driven factors (2) Everyone should be listening (3) Handover communication in the military (1) Paramedic driven factors (2)Getting their attention (3) Handover communication in the NHS (1) ATMIST for medical patients (2) Mechanism for injury (3) Handover communication in the NHS (1) ATMIST (2) Example of handover Handover communication in the NHS (1) Transfer of military practises (2) Reasons for leaving the patient outside (3) No risk in NHS of ordinance (4) Handover communication in the military (1) Other types of handover (2) Handover in the field (3) ATMIST (4) Perfect handover example (1) Patient status (2) Handover communication in the military (1) Handover at Camp Bastion (2) Handover communication in the military (1) Handover at Camp Bastion (2) Doctors (3) Perfect handover (1) Example (2) Perfect handover (1) Example (2) ATMIST (3) Perfect handover (1) Example (2) ATMIST (3) Medical patients

robust, it's simple, it's quick. (example of handover) Well I haven't done handover since I was out in theatre so…Stable, Adult male, IED blast, partial amputation of lower right leg, haemodynamically stable, tourniquets, morphine. I couldn't remember a case of the top off my head (NHS example of handover) but what I would use, I would just look through the PRF in the civilian environment and it's very slow, this is Maureen, lives alone, COPD patient, and it just goes on and on for probably a couple of minutes perhaps. (Performance management targets and handover) Not me personally because I would pass over information that I am going to pass over, if the information takes 30 seconds or it takes four minutes that's the time I'm going to take. And that's what's important. (any difference working with military and NHS paramedics). That's a good question, I don't think so. I think for the military paramedics we don't spend so much time out on the road as our civilian counterparts and they probably be a little bit more au fait with local areas and things like that, probably a bit more familiar with bits of equipment, there are pieces that we don't have in the military and using them in other ways that we potentially have not thought of. (changes over time in the NHS), The big one would be SW introducing the ATMIST so it's a fairly good system to be using. I think it will take a little bit of time for the paramedics and technicians to adapt to it as you're coming away from a more story telling type handover towards a fixed format but I think once they get their heads around it it should be preity good. As much as the people delivering the handover in the new format need training so do the receiving team, so the order that the information is coming in , the logical order, especially if you've got a scribe,	Military handover communication (1) ATMIST (2) Used by other nations (3) Military handover communication (1) ATMIST (2) Quick (3) Military handover communication (1) AMTIST (2) Example (3) Handover communication in the NHS (1) PRF (2) Handover communication in the NHS (1) Example of handover (2) Handover communication in the NHS (1) Performance Management Targets (2) Getting the information across (3) Differences in handover communication (1) Paramedics (2) No difference (3) Differences in handover communication (1) NHS paramedics (2) Familiar with equipment Handover communication in the NHS (1) Changes over time (2) ATMIST (3) Handover communication in the NHS (1) Changes over time (2) (ATMIST) (3) Time to adapt (4) Handover in the NHS (1) Telling a story (2) Handover in the NHs (1) Scribe (2)

so they are ready taking notes down and stuff. With anything when you bring in change there's going to be some teething problems getting used to it. There's no reason why it shouldn't be successful. (Perfect handover). ATMIST I think really, possibly, in the civilian environment there are other things you need to think about it, especially with people that are on a lot of meds, so there's maybe some other letter to add to it, like medications, some sort of past medical history, something a little bit more relevant to these type of people, so add to the mnemonic another letter so it's not too confusing. Yes it's just a simple little tweak.	Handover in the NHS (1) ATMIST (2) Training for receiving team (3) Handover in the NHS (1) ATMIST (2) Logical order (3) Handover communication in the NHS (1) Changes over time (2) (ATMIST) (3) Time to adapt (4) Perfect handover (1) ATMIST (2) Perfect handover (1) Example (2) ATMIST (3) Medical patients

Glossary of Terms

Log roll – this is where a patients is turned over in a controlled manner so as to protect the spine and airway

Thoracotomy - this is an emergency surgical procedure involving opening up of the patient's chest for the purposes of controlling haemorrhage, performing cardiac massage and/or releasing cardiac tamponade

Unload - taking patient off the back of the ambulance and transferring them by trolley into the hospital

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