# How do junior doctors experience management of critically ill children?

**Dr. Therese Mary William**

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**Masters in Medical Education**

**Dissertation Project Monograph**
**Medical Education Research Project**

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**2017**

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# Preface

This case study was the core part of my research project and undertaken as part of my Masters in Medical Education. This research project draws on qualitative methods to explore junior doctors' preparedness for managing critically ill children and identify potential barriers and possible ways for improvement in the future. I have undertaken this research project whilst I was a senior paediatrics specialist registrar working at Health Education East of England (HEEOE). Participants were junior doctors within a period of generic training in paediatrics. The chosen category for this project was from senior house officer at the first and second year of training(ST1 and ST2). Junior doctors were offered to participate in individual interviews after receiving the project information sheet and after voluntary signing a consent form. Due to time constraints at the workplace and in order not to compromise patient care delivery, this project was discussed with junior doctors outside the working hours, during paediatrics regional educational seminars and national conferences where junior doctors gather for teaching and sharing individual experiences.

The framework developed by this research allows us to be more explicit about the tools that can be integrated into clinical training which may help shape the future education to benefit junior doctors' learning needs and improve patients safety.

There are many people I would like to thank who have assisted and contributed to shape this project in some way and gave me assistance during this journey, including all junior doctors who took time to participate with their views. I am so grateful to Dr Wilf Kelsall , the Head of School of Paediatrics, at Health Education East of England;  who gave me a support during this phase of my life, nurtured my enthusiasm and approved the funding for this project. I was fortunate to have Mr. Anthony Farrant as my project supervisor and Dr. Imogen Davis as a tutor throughout this research project. I am so grateful for their fruitful thoughts and valuable feedback throughout the whole research project, and for encouraging me to complete and publish this project  I would like to thank Dr. Helen smith, for her help and valuable suggestions and support when I started this project, which helped me to get the ethical approval of this project without any amendments.  I am so grateful for  the assistance and support I got from all administrative team at all sites.

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**Competing interests -** None declared.

# MA in Medical Education Project Report

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# Chapter 1

## Abstract

**Introduction**

A case study was undertaken to explore junior doctors' experiences in managing acute paediatrics emergencies. This is an educational research project builds on multiple perspectives of educational ethnography and draws on qualitative methods. This study aims to address a gap in the literature as there is a paucity of the research conducted on evaluation of junior doctors' preparedness for managing critical ill children. Junior doctors are often the first to the scene in managing acutely ill patients and are expected to be able to assess and manage acute illness and provide immediate care. Deficiencies in junior doctors' skills have the potential to affect the management and outcome of actually ill patients. Failure in clinical assessment and escalation of care lead to avoidable patients' morbidity and mortality. Managing acutely unwell patients is a complex task and one of the most important competencies to be mastered by healthcare practitioners. In Tomorrow's Doctor (2009) it was stated that one of the fundamental aims of General Medical Council (GMC) is to ensure medical graduates are prepared to practice safely.

**Methods**

A case study was undertaken to examine junior doctors' insights and experiences in managing critical ill children. A literature review was used to develop an initial framework to identify junior doctors' preparedness for managing acute paediatrics emergencies. Two main methods were used for data collection; in depth semi-structured individual interviews and personal project diary notes of ethnographic data which were collected from informal discussions and observations during the project timeline. Five interviews were conducted successfully, 4 participants were Senior House officers at the first year of training (ST1) and one participant was senior house officer at the second year of training (ST2).

**Results**

The project found that junior doctors feel under-prepared to deal with acute emergencies and in particular critical ill children. Barriers to learning do exist in the workplaces and interfere with junior doctors learning. Ways of enhancing junior doctors' learning experiences and preparedness to deal with acute emergencies were highlighted on this study. Experiential learning which underpinned by regular simulation are perceived by junior doctors as the most valuable methods to enhance their experiences in managing acute emergencies.

**Conclusion**

Management of acute ill patients is a complex task in particularly in children and young population. Exposure to such challenging emergencies requires technical and non-technical skills, namely; medical knowledge, clinical skills, communication skills, practical skills and high level of confidence. Some skills like those needed in acute care require more preparation and further experience. This study concludes by drawing upon the fundamental use of apprenticeship in medical education. Opportunistic learning can take place regardless of how busy the working environment and can be found through daily practice. The framework developed by this research allows us to be explicit about the tools can be integrated into clinical training which may help shape the future education to benefit junior doctors' learning needs and improve patients safety.

# Chapter 2

**Introduction**

This is an educational research project report for the MA in Medical Education project. The project report aims to give an overview of the project and to pick out the critical areas that are of most relevance to junior doctors' experience in managing children with acute illness. This chapter explains the rationale for the project and then move onto the literature review, ethical consideration and methods sections. This will be followed by discussion including findings, recommendations, limitations of the study and finally a conclusion. This study draws upon my lived experiences during my training journey. Having progressed in my career and became a senior specialist registrar in paediatrics department, I became accustomed to the pressure involved in the exposure to acute emergencies and managing acute ill children. Nevertheless I continuously witness junior doctors' anxieties in the early exposure to acute emergencies and the lack of their involvement in the clinical tasks. I wanted to explore in depth junior doctors' experiences in managing acute ill children to identify potential barriers that interfere with learning in this critical domain. McGaghie highlighted that the ultimate purpose of medical education at all levels is to improve quality patient care by providing highly equipped physicians with the required skills and knowledge. A discussion centred on management of acute emergencies by junior doctors is of particular importance as this is directly related to patients' welfare and favorable outcomes.

Acute unwell patient refers to "any alive patients where resuscitative measures are required" and can be initiated by junior doctors, however, it excludes patients with cardiac arrest where senior doctors are often first to the scene due to policies of the process and escalation of care. The term "junior doctors" refers to graduating medical students within a period of generic training. UK medical graduates proceed to two Foundation Programs; Foundation year 1(F1) and Foundation year 2(F2), during which they complete six placements in different clinical specialties.

In F1 they work with provisional registration with the GMC under supervision and must demonstrate sufficient competence for full registration. After completion of F2 they will proceed to the desired specialty training (ST) to be trained for a number of years according to each specialty, usually eight years of training in paediatrics (ST1-ST8). The first three years of training (ST1-ST3) they work as senior house officers (SHO), then they progress to a registrar level in the next five years. The chosen category for this study is the SHO as these are the doctors who are often the first to the scene in acute emergencies and required to begin initial resuscitative measures and escalate care when required.


Junior doctors are considered as the backbone of the National Health Services (NHS). However, the challenges facing junior doctors are immense and seem to affect their motivation and preparedness for practice. Working as a junior doctor entails dealing with high level of stress and anxiety due to shift patterns and dealing with variety of work load and acute emergencies. Such stress can result in compromising patient care if junior doctors are not adequately prepared (Lempp et al, 2004 and Paice et al, 2002). In the UK the importance of managing acutely ill patients by junior doctors is recognised, the General Medical Council lists that junior doctors should be able to assess the severity of a clinical presentations, provide basic management and able to escalate care when required. However a recent systematic review related to this topic highlighted that junior doctors felt that they were least capable of managing acute emergencies (Tallentire et al. 2012). Moreover, it was claimed that perceived competencies in this domain has been declining in the last decade.

This research project is designed to explore junior doctors' preparedness for dealing with acute paediatrics emergencies and to explore learning barriers and possible ways to enhance their skills to improve patients' outcomes.

**Project Rationale**

The idea of this project stemmed from my lived experience and the difficulties I experienced in developing my skills in acute emergencies which later became one of my strengths. The main motivation for this project is driven by the fundamental philosophical underpinning of the research. It is imperative to acknowledge such influences in order to understand the subsequent method and methodology of this research project. This study aims not only to explore junior doctors' preparedness to deal with acute emergencies, but also, to increase awareness of the potential barriers that can interfere with junior doctors' learning.

Paediatrics department is a busy department and there are ample opportunities for learning and teaching to take place to enhance junior doctors' competencies in this domain. Senior clinicians are willing to teach and junior doctors are eager to learn, however, in real life this unfortunately does not happen. Paediatrics department is one of the busiest departments, however, acute emergencies are unpredictable and daily workload often varies by the hour. It is well documented by international and national studies, that newly qualified doctors feel unprepared for the role they are about to take upon qualification. For example, a recent study carried out by Tallentire et al. (2012) highlighted that newly qualified doctors do not feel adequately prepared or supported in dealing with acute emergencies. McGloin et al. (1998) and Mcquillan et al. (1998) had further explanation about the implications on patients' care if basic management and escalation of care failed to be provided and stated that failure of such initial management lead to avoidable patient morbidity and mortality. Junior doctors are supposed to be equipped with essential technical and non-technical skills that enable them to provide appropriate care to minimise unnecessary intensive care admissions and avoidable patients suffering and deaths.

From an organisational context, there is intense work load, large patients flow and administrative tasks and as a result the teaching and learning opportunities can be easily lost. This has been echoed by Bligh (2007) who described the perception of junior doctors during their rotation as "survival exercise" due to the constant tensions between services' demands and teaching opportunities which often compromise junior doctors learning.

Billett (2002) stated that workplace cannot always offer the same learning opportunities to all learners. Learning opportunities should be made more explicit for juniors by engaging junior doctors in the workplace and encourage them to participate in acute emergencies management. Influences such as Billett have inspired me to think through their theoretical lens and thus through this project. Workplace can be the asset of inter-psychological and reciprocal process between individuals' engagement with the physical environment in workplace and transforming this experience into practice.

This project intends to expand on current understanding of workplace pedagogy which emphasises that learning occur as a product of interaction within the workplace from where the knowledge is sourced.

The overarching aim is to explore junior doctors' preparedness to undertake acute emergencies in paediatrics department and to ensure that the workplace environment meets junior doctors learning needs to enable them to be a safe practitioners. Norman (2008) stated that clear objectives and purpose of studies are of high importance in order to be accepted as legitimate research. This research project is designed to help shaping a deep understanding of junior doctors learning needs and shed light on possible ways to enhance their learning to manage acute emergencies.

**Project Direction**

This report relates to education research centered on a critical area in the medical practice. The importance of this research project taking place on this domain is based on the difficulties highlighted by junior doctors coupled with my first-hand experience working as a senior paediatrics specialist registrar. It will explore junior doctors' experiences in managing acute paediatrics emergencies and highlight different elements that can enhance junior doctors' learning. This is directly linked to previous research and evidences in literature that will be explored more in the literature review and discussion sections.

This makes the project invaluable in the sense that it focuses on one of the most challenging area in the medical practice to ensure that junior doctors are well prepared to manage sick children and provide appropriate care for a vulnerable group of the population. This chapter will be followed by the literature review section and the ethical consideration of this project, and then move onto the methodology and methods sections.

# Chapter 3

## <u>Literature Review</u>

The intention of the literature review is to look at a select set of key papers to shed light on an under-researched area of junior doctors' preparedness for managing acute emergencies. This literature review will discuss papers of different epistemological positions which is related to junior doctors' experiences with acute emergencies. The overarching aim of this literature review is to provide a conceptual framework within which the role of supportive learning environment and positive patients' outcomes will be linked.

### Data Sources

The literature was searched via the Health Information Resources websites and accessed through the online bibliographic databases CINHAL, Medline, PsycINFO, Embase and Discover search databases. Articles were also sourced from citations in the reference lists of retrieved articles. The MeSh headings used were, acute emergencies, junior doctors preparedness, paediatrics resuscitation, patients outcomes and simulations of acute emergencies. The articles selected included academic review of literature, systematic reviews and primary research.

### Review methods

This literature review spans twenty-seven years (1986 - 2013) and examines supporting articles of different epistemological positions and different philosophical perspectives.

### Inclusion and exclusion criteria

The search strategy involved studies of any design that attempted to evaluate junior doctors preparedness in managing acute emergencies, or if they focused on the educational impact of teaching methods and strategies to improve junior doctors performance and skills in this domain. Articles were excluded if performed on nursing staff or non-medical population, or if they did not address educational and clinical aspects of acute care.

**Discussion**

This is a cross section of literature to provide a deep understanding and rationale related to the chosen researchable questions. This section is not a traditional literature review of all papers, but rather a select set of literature that focus on issues pertinent to junior doctors preparedness to manage critically ill children as the title indicates. This section will expound common themes as well as highlight dissenting views, within which the researchable questions will be directly linked to evidenced literatures. This literature review encompasses articles of different epistemological positions and paradigms to shed light on contributions of evidence base of medical education on junior doctors' preparedness for managing acute emergencies. Within the educational backdrop each article used different methods and methodology to add transparency to the evidence base related to junior doctors' experiences in acute emergencies. There is vast amount of literature contribute to the based evidence of medical education, however it will be difficult to address all articles in this piece of work, as it is beyond the scope of the project's intention.

The Ideological commonality of the selected papers brings them together as they shared the aim to enhance medical education productivity. At their core is the appreciation of the positive impact of creating opportunistic learning to enhance junior doctors' skills and performance in managing acute emergencies.

This literature review will discuss papers of different epistemological positions and will be grouped and linked to each researchable question.

**The first research question is: How do junior doctors experience management of critical ill children on their own?**

A study carried out by Eppich et al (2006) highlighted that paediatrics trainees receive insufficient training to manage paediatrics emergencies. The authors added that the use of simulation can enhance junior doctors' skills in paediatrics resuscitations and suggested to integrate simulation in paediatrics training curriculum. This study adopted a critical theory paradigm as it aimed to examine under-researched area related to evaluation of paediatrics training and to address trainees' experiences in managing acute emergencies.

Similarly, Tallentire et al. (2012) carried out a recent systematic review and highlighted that junior doctors were least prepared to manage acute emergencies. Moreover, the assimilation of evidence in this review suggested that acute care management is one of the areas needs improvement where inadequate performance was identified by both junior doctors and their supervisors. The authors argued that recent changes in UK training system have neglected the acute care while improving in other areas and the competency in this domain has been declining over time.

One of the junior doctors' anxieties is feeling underprepared to deal with acute medical emergencies, in particularly during the transitional period from undergraduate to first clinical practice which often require a plethora of changes. S. Kliminster et al. (2010) highlighted the necessity of the organisations to acknowledge any transition as a critical learning period and provide support to junior doctors during these periods. Similarly, Evans et al. (2004) acknowledged the psychological upheaval included in the transitions of junior doctors and the negative implications on patients' care. It was highlighted in all papers studied that the main catalyst of induction program creation is to ensure the welfare of the new doctors during these transitions. Although, there is nuances in the way of induction programs delivery by different institutions, but their importance in alleviating the stress of transitional periods is universally accepted.

There were few studies undertaken to find out the implications of transitions on patients care outcomes. In the UK, a quantitative study was undertaken by Jen et al. (2009), included two retrospective cohorts of all emergencies in the last week of July and first week of August in the period between 2000 and 2008. The authors reported "6% higher mortality rates" in patients admitted on the first Wednesday in August which is the first day newly qualified doctors begin work. There is a comparable study in the United State which showed similar disturbing findings, known as "July effect" (Young et al. 2011). On the other hand, previous study carried out by Aylin et al. (1994) showed little evidence of increase mortality when newly qualified doctors join in the first week of August. However, this study only examined number of deaths rather than the mortality rates and this reduces the validity and reliability of this study.

Findlay et al. (2012) stated in the recent national Enquiry into Patient Outcome or Death report "38% of cardiac arrests could be avoided" and concluded that the reason of these avoidable arrests was mainly due to failures of initial basic management and escalation of care. Similarly, McGloin et al. (1998) and Mcquillan et al. (1998) explained that failure of basic management and timely escalation of care can have negative implications on vulnerable patients' lives and lead to avoidable patient morbidity and mortality. In line with this Goldacre et al. (2008) reported that over 40% of UK newly graduate doctors did not feel prepared for their new roles and dealing with acute calls. Similarly, Bradley (2006) highlighted that junior doctors are deficient in range of skills and they have been underprepared to workplace environment. Langdale, et al. (2003) added that the problem is not unique to the UK, but there are similar findings within US graduates.

The above literature highlighted that junior doctors are under-prepared for the intensity of acute medicine and the negative implications on patients' care outcomes.

**The second research question is: What were the main barriers that interfered with junior doctors' participation in acute emergencies?**

A systematic review carried out by Christopher M. et al. (2007) identified that junior doctors lack the confidence, competence and knowledge in most aspects of acute emergencies. The authors also, highlighted that training of junior doctors is suboptimal in basic tasks such as recognition, basic management of acutely ill patient and escalation of care, which add to patients' risk. They attributed that to the limited amount of teaching provided on this domain and suggested to integrate acute care teaching and basic life support to undergraduate curriculum.

One of the challenges junior doctors encounter, is that they often move to unfamiliar teams and new environments and they must be always prepared to manage patients with acute illness and instigate resuscitative measures. Brown et al (2007) conducted a multi-centre case study to gather the views of both learners and teachers and concluded that seniors support to junior doctors in the first few days in employment are directly linked to their positive experiences and performance. The findings of this study demonstrate that a lack of support from senior colleagues not only leaves junior doctors feeling lack of recognition but also undervalued and redundant. Moreover, the paper suggested that educators should consider systematic training for supervisors to provide a portable educational

package to help juniors to enter unfamiliar environments. This study adopted a paradigm which overlaps between positivism and post-positivism, in the sense that the authors stablished a probable truth and adapted a concept to be used in the future practice. Being a multi-center case study adds strength to this paper as it is valuable in addressing the training program issue rather than a single institution's problem.

Tensions in the workplace and increasing service demands often interfere with junior doctors' participation in management of acute emergencies as patient care is always paramount and comes first. Illing et al (2013) conducted a multi-centre qualitative study to evaluate medical graduates' preparedness for practice, and concluded that there were particular concerns about acute on calls and dealing with acutely ill patients.  Some institutions are better than others at facilitating and maximising junior doctors' exposure to the clinical environment and allow them to be involved in emergencies calls. The important role of working environment were highlighted by Luther et al. (2004) who argued that the poor support and education provided by supervisors in some institutions is directly interlinked with negative implications on junior doctors' performance and patient care outcomes. S. Kilminister et al. (2010) took it further and stressed the importance of supervisors' roles on junior doctors' learning process during transitions, especially for doctors started the transitional period working on call.  Lack of support from seniors and absence of effective supervision can add to the tensions at workplace and contribute to juniors' poor performance. This is an invaluable caveat in this study as authors urge the need for careful supervision in particular during the transitional periods and argued that seniors' supervision not only benefits junior doctors but also, improve patients' outcomes.

A Canadian qualitative study carried out by Lieberman et.al. (2006) to evaluate the paediatrics training program on junior doctors' future clinical practice. This study adopted a critical theory paradigm as it examined under-researched area, to address paediatrics residents' preparedness to take more responsibility at the end of the training period. The findings showed concerns about service work taking priority over the trainees' learning needs and described the paediatrics training program as inflexible. The authors recommended regular program assessment to improve and enhance education and training of future paediatricians. Similar concerns were highlighted in the UK and Europe. There was proposal of shortening the training program to be more focused and flexible to meet training and career goals.  Although, there is valuable information in this study, however, this

study was undertaken by outsider researchers. One of the disadvantages of being an outsider researcher is the unfamiliarity of the situation and the limited access to the community as they enter the setting on a temporary basis for the sake for conducting a research (Bartunek et al.1996).

Study of academic literature has shown the evident need for rethink of the existent barriers to learning and junior doctors learning needs. Despite all junior doctors have generic curriculum to follow, it is not always applicable in the busy workplaces and as a result learning opportunities are easily missed. The learning opportunities need to be harnessed in order to meet junior doctors learning needs.

**The third research question is: What else would junior doctor like in order to prepare them better for managing acute emergencies in children?**

The fundamental importance of simulation as an essential activity for junior doctors is a matter of fact in developing new skills without endangering patients' life. If emergencies can be difficult to learn about in real life, simulation based education can be a warranted teaching tool, and can be used as important training modality for teaching essential skills. The need of structured curriculum for simulation based learning is well recognised in the medical field to provide necessary training and offer opportunity for safe practice. Kassab et al (2012) highlighted the beneficial role of simulation teaching in enhancing junior surgeons' confidence and enriching their learning experiences prior to practicing in real life. Okuda et al (2009) acknowledged the valuable role of simulation teaching in refreshing clinical knowledge as well as enhancing clinical skills and argued that it can be used alongside traditional teaching for a greater productivity.

Furthermore, Gordon and Pawlowski (2002) asserted that simulation sessions provide junior doctors with valuable learning experience and increase the productivity in working environment. This paper suggested that teaching via simulation sessions is effective in refreshing clinical knowledge as well as enhancing other skills. The focus on structure of simulation teaching sessions was taken up later by Savodell et al (2006) who highlighted the prominence of debriefing component of the simulation session as a crucial part of the session and the learning process to close gaps in education and provide insights for future plans.

Douglas et al (2009) took it further and conducted a qualitative study on high fidelity simulators to examine the effect of high-tech simulators on trainees' learning and performance. The authors were able to demonstrate why simulators with high technology are important in teaching acute emergencies such as neonatal resuscitation. The authors explained that the use of high fidelity simulators was more transferrable to real patients because of context similarity and suggested that it should be used as part of the educational program. One of the limitations of this study is that it focused only on the high fidelity simulators without paying attention to the authenticity of the simulation environment which is important for immersive learning in acute medicine. The findings of this study were at odds with the consensus and the tone of this paper was starker than those written by other academics. For example, Smith (1987) highlighted that authenticity of the environment is of more importance than physical fidelity as it enhances a cognitive realism. It was explained more by Maran et al (2003) that the role of the psychological fidelity where the simulator contains accurate simulations of critical elements to complete the task is more important than the engineering fidelity in teaching.

Another qualitative study was carried out in New Zealand by J. Weller et al. (2004) to evaluate the role of simulation based training on enhancing acute care skills in medical undergraduates. The study highlighted the beneficial role of simulation workshop to overcome barriers of learning in acute emergencies. The main argument of this study is enriched with pedagogic framework and paradigm shift to competency based education. The authors argued that simulation not only, enhances junior doctors' experiences but also, can overcome barriers at workplace such as ethical dilemma of involving junior doctors to participate in acute emergencies. The authors concluded that simulation teaching helps learners to develop critical thinking, and enhance a systematic approach which is essential in managing acute emergencies. Similarly Khan et al. (2011) had further explanation with regard to simulation based education and stated that simulation teaching has invaluable role in enhancing patient safety through practicing in a controlled safe environment.

Induction to the National Health Service is considered as a rite of passage to the junior doctors starting new jobs and a valuable opportunity to develop insight into the new institutions. One of the topics junior doctors wished to be covered in the induction program is rehearsal of common acute emergencies management. Nathavitharana (2011) reiterated the importance of having an efficient standardised induction program for a better structured learning and advocated multi professional

collaboration to develop an e-learning generic induction package. Berridge et al (2007) conducted a qualitative study to test the effect of induction period on junior doctors' skills and confidence. The authors highlighted that prior to embarking on induction program; junior doctors were anxious and had negative perception with regard to their clinical skills. The authors succinctly concluded that following the induction period, fears were alleviated and confidences were promoted. The conclusion of this study was emphatic validation of the consensus on the implementation of an effective induction programs to enhance trainees' clinical skills and boost their confidences. From theoretical stance this study could be interpreted as "legitimate peripheral participation", induction can be made relevant to the new role junior doctors about to take so as they can feel part of the team. Lave and Wenger (1991) acknowledged the difficulties involved in working in unfamiliar workplaces and highlighted the importance of induction and shadowing period for the newly qualified doctors.

Donaghy's (2008) evaluated a standardised, comprehensive induction program for junior doctors, through conducting a survey. The data obtained from trainees highlighted the importance of having standardised robust induction program as guidance in how to deal with challenges in the future. From critical stance, a lens of interpretivism could be more useful in conducting research on this area, by using modified methodology and employing multiple methods in order to add strength to the study and reflect different aspects of the issue.

Workplace is a potential educational beacon and workplace based teaching is of high prominence to the progress and development of junior doctors. Literature in this area highlighted different methods to create opportunistic situations for learning in the workplace and how to create appropriate learning environments. For example, Walton and Steinhart (2010) suggested that ward rounds can be used as a vehicle for teaching and ideal platform for workplace based learning. The focus on engaging junior doctors in the working environment was examined by Dare et al. (2009) who succinctly concluded that involving juniors in the workplaces has a beneficial role in enhancing the workplace productivity, as incremental responsibilities adds benefit to the whole team. Furthermore, Okuda et al (2009) added that delivering teaching program relevant to the juniors' learning needs in the workplace will make them feel part of the team and prepare them to take new responsibilities.

Hutchinson (2003) highlighted the prominence of creating positive learning environment and the difficulty of establishing teaching rules that fit each situation. The paper illustrates that the role of

the educators is to enable learning by providing the opportunities and conditions to allow learning new skills and acquisition of new knowledge. Examples of such situations include; finding out more about learners background, skills and experiences, identifying their need and setting up objectives to learn in a positive environment. Furthermore, Morris (2003) advocated the use of "observation guides" in which purposeful observation can be used to guide learning in opportunistic settings and situations must be found to facilitate purposeful observation. The paper describes the importance of the learners' observation to bring the existing knowledge to the fore in order to facilitate further learning which is an important step in assisting learner's transition. These two studies advocate the educators to foster and create appropriate situations of teaching and learning. Learning can arise from engagement in the workplace; opportunity for learning of cohorts of individuals is a product of situational factors and cultural practices in the workplace.

Analysis of adverse events within hospitals has highlighted the negative implications of poor technical and non-technical skills on patients' safety. There is encouraging evidence to suggest that essential skills required in management of acute emergencies can be trained and this may be linked to improvement in patient outcomes. For example, (McCulloch et al. 2009 and Mishra et al. 2008, Savoldelli et al. 2006) highlighted that there is a link between enhanced technical and non-technical skills of surgical teams and a reduction in number of medical errors and these skills can be improved through training

The literature review highlights relevant contributions to this project; however, the evidence base of medical education related to junior doctors' preparedness for managing acute paediatrics emergencies is still limited. Clearly, there is mixed opinions and gaps in the studies that need more clarification and further research need to be conducted to bridge these gaps in order to boost the learning efficacy.

This literature will be used later as a reference in the discussion section. The ethical consideration of this research will be discussed in the next chapter.

# Chapter 4
## Ethical and Professional Conduct

This research project draws on qualitative methods and builds on multiple educational ethnography perspectives. A case study carried out to explore junior doctors' insights and experiences in managing acute paediatrics emergencies. Junior trainees share communality with myself the researcher as I worked as junior trainee in paediatrics department and now became a senior paediatrics specialist. I experienced difficulties with my first hand exposure to acute emergencies and continuously witness the anxieties of junior doctors on their early exposures to acute emergencies. I wanted to have further exploration of junior doctors' preparedness for managing acutely ill children and identify potential barriers and possible ways for improvement in the future. Bligh et al. (2008) highlighted that methods and paradigms should be carefully used to ensure that it is not dismissed by academic community and researchers.

The ethical implication of this project related to my dual role as staff member and insider researcher. This section highlights my professional responsibility to ensure the safety of the participants while undertaking this project. It was highlighted by Delyser (2007) and Mercer (2007) that distortion related to insider research's position due to the role of duality can affect the professional relationship with colleagues participate in the project. I had considered carefully my professional and personal responsibility as a staff member in the same specialty. Delyser (2007) highlighted the difficulties of being an insider researcher and being so immersed in the practice culture which often lead to lack of objectivity and loss of research agenda.

My priority was to be extra vigilant throughout the project timeline to ensure junior doctors' views are considered and colleagues not pressured to provide information in order not to risk their career progress. Easterby-Smith et al. (2002) stated that ethical issues can often arise as a result of clashes between personal and professional interests. Participants who voluntary consented were included in the study and all data collected were anonymised. Punch (2009) explained the major implication in research that can result from ethical issues if precautions not considered carefully. Adequate information about the aim of the research provided to all participants in a designed information sheet (Annex4).

It is important to highlight that patients were not involved at any stage and patient care delivery was not compromised or altered at any time. Upon discussion with senior clinicians it was agreed that this project is not primary research requiring approval from an NHS ethics committee due to being educational research project, University of Bedfordshire's ethical approval was already granted and most importantly there was no patients are involved in the project. Due to time constraints at the workplace and in order not to alter patient care delivery, this project was discussed with junior doctors outside the working hours, during paediatrics educational seminars and conferences where junior doctors from different workplaces gather for teaching and sharing individual experiences. Meeting participants who share a common interest in paediatrics and working in different working environments not only, enabled me to explore the bigger picture of junior doctors experiences and identify the common learning needs but also, to overcome the over-familiarity of the situation. Delyser (2007) explained that one of the risks of being insider researcher is the over-familiarity with the situation which often acts as constraint that limits insider researcher from seeing the bigger picture while gathering information from participants.

Being an insider researcher, I expected a resistance from participants to reveal their experiences and express their frustrations. However, I did not encounter major difficulties in gathering information required for the purpose of the research from the participants. I prepared briefing session prior to conducting interviews to explain the rationales and objectivity of the project and stressed the anonymity of the participants. Such explanations enabled me to establish good rapport, build mutual trust with participants and facilitated smooth process of conducting interviews and gaining the required information. I customised consent form for participants (Annex 5) and invited them to voluntary sign the consent form prior participating in interviews and emphasise anonymity when applicable. Trowler (2011) suggested that researchers should make all the effort to keep the anonymity of the participants not to be identifiable by the readers. Furthermore, Clandinin (2000) highlighted that researchers should protect their participants by acting cautiously at all the times.

All data were anonymised, analysed and evaluated on evidence based criteria without prejudice to minimise the risk of bias which is a well-known challenge can be encountered by insider researchers in the course of generating findings (Smyth and Holian, 2008). I kept participants updated with the progress of the research project and all feedback were anonymised. Participants were encouraged to contact me the researcher should they wish to withdraw or for further information related to the research. The important role of insider researchers' moral and integrity was highlighted by Pring (2001) and Patton (2002) as cautions should be taken for any issues might arose during the research process and upon completion. All data were anonymised and kept on a password protected device and locked in a safe place to be accessible only by myself the researcher. Upon completion of the project the data will be kept in an electronic form on a password protected files on password protected device for future research. No information or data were stored on the internet.

The above ethical issues are the main personal and professional ethical considerations that I had to consider prior undertaking the research project and it will be considered after completion this project.

The methodology and methods sections will follow this chapter. Then move onto the study's findings, discussion, recommendations, and finally a conclusion.

# Chapter 5
## <u>Methodology</u>

**Research Question in context**

Having highlighted junior doctors' experiences in managing acute emergencies and reviewed many relevant publications in the literature review section the main research questions arose were:

• How do junior doctors experience management of critical ill children on their own?

• What are the main barriers that interfered with junior doctors' participation in acute emergencies?

• How have junior doctors arrived at their current way of managing acute emergencies?

• What else would junior doctor like in order to prepare them better for managing acute emergencies in children?

The project started with no strong preconceived particular theory in my mind but this later developed from pre-existing theories which are relevant to the findings. The above literature review provides crucial information about lack of preparedness of junior doctors for managing acute emergencies. Clearly, barriers of learning in this domain do exist and can jeopardise patient lives. The literature also, highlights the beneficial role of positive working environment and the role of educators in fostering and creating situations for teaching. The grounded theory that emerged from the above literature review is that simulation teaching is more beneficial than traditional classroom teaching in particular in enhancing the essential skills for acute emergencies. It also, suggests that active participation of juniors under supervision is paramount and more useful than passive exposure.

The literature provides valuable information; however, the evidence base of medical education related to junior doctors' preparedness for managing acute emergencies in paediatrics is still limited. The main aim of theses researchable questions is to explore junior doctors' experiences in managing acute paediatrics emergencies and bridge gaps in the literature in order to boost medical education efficacy.

**Project strategy**

The conceptual framework of the project was inspired from the literature reviewed, and conducted using grounded theory approach. Systematic methodology was used to construct concepts and extract a theory from the collected data and pre-existing theories which are relevant to the discerning findings. The motivations and overarching aims of this project were driven by theoretical and philosophical underpinnings of the research. Various philosophies were searched and considered prior to embarking to select methods which is most relevant to this project objectives and rationales. The methods were based on the aims of the project and influenced by key factors of relevant theoretical perspectives and research in medical education. Strauss and Corbin (1998) explained that constructive grounded theory places priority on phenomena of the study as it relies on generating theory and doing social research in the same process. Therefore the resulting theory is an interpretation of shared experiences with participants.

The project relates to modified methodology to capture junior doctors' real perceptions, and lived experiences. Qualitative approaches were used as a way to conduct this research project and to describe implicitly the purpose of this research. One of the main qualitative approaches used is ethnographic approach, to study the culture of a defined group "junior doctors". My role as an insider researcher and being immersed in the researched culture enabled me to collect valuable ethnographic data.

The project was planned to be conducted in an appropriate ethical and professional manner, and ensured not to be time consuming. This research project was conducted, initially by observations and informal discussions with various junior colleagues about challenges they encounter in dealing with acute emergencies in paediatrics. These informal discussions were valuable in the sense that it helped me to develop a conceptual framework for this project and formulate researchable questions before conducting formal individual interviews.

The theory of Lave and Wenger (1991) is of high relevance to these project findings as it highlights the importance of apprenticeship and creating supportive learning environment in the workplace. The idea of learning on the job by observation with legitimate peripheral access and then later by active participation has relevance to how junior doctors learn in the clinical settings.

**Epistemology**

The design philosophy of this project is best suited to a lens of interpretivism which is based on subjective epistemology. There was knowledge prior to undertaking this project and a clear link between myself the researcher and the research subject "subjective epistemology", however, there was a strong believe that significant amount of information still to be revealed from collecting and analysing data "interpretivism".  Having experienced difficulty to get the confidence to manage acute paediatrics emergencies and continuously witness junior doctors' anxieties in managing acutely ill children, were the main motivations to conduct this project.  Illing (2007) highlighted that interpretivist researchers believe that there is truth out there to be discovered and therefore there is facts can be collected from the social world. This research project applies knowledge from social theory in medical education and social science via reflective assessments.  Illing (2007) highlighted that the influence of the epistemological stance and theoretical perspectives is often explained within the social science research, and this means the framework of this process includes discussing various concepts of different epistemology "the theory of knowledge" and ontology "subjective reality".

A constructivism ontology and interpretivism epistemology was chosen for the design of this project along with application of qualitative methods to collect and analyse data. Bunnis and Kelly (2010) stated "different methodological approaches deliberately include and exclude different types of data". In this case the chosen methods are invaluable for this project.

The paradigm of critical theory is followed in this the project as it aimed to study an under-researched area related to junior doctors' preparedness to manage acute paediatrics emergencies. The current evidence base of medical education related to junior doctors' preparedness for managing acute emergencies in paediatrics is still limited. The overarching aim of this project is to identify potential barriers to learning and areas for improvement which is important part of medical education research (McGahie et al. 2010).

**Participants Recruitment**

Participants were junior doctors within a period of generic training in paediatrics. The chosen category for this project is from senior house officer at the first and second year of training(ST1 and ST2), as this category are the doctors who are often the first to the scene and required to begin initial resuscitative measures and escalate care when required.

Junior doctors were offered to participate in individual interviews after receiving full detailed explanation of the project intention and the project information sheet. They were allowed to take time to think and decide whether they wanted to participate with their views after voluntary signing a consent form. Due to service demands, time constraints at the workplace and in order not to compromise patient care delivery, this project was discussed with junior doctors outside the working hours, during paediatrics educational seminars and conferences where junior doctors gather for teaching and sharing individual experiences. Interviews were undertaken in private and appropriate places so as not to be disturbed, overheard or disseminated. Participants were encouraged to contact me the researcher should they wish to withdraw or for further information related to the research. Anonymised recording interviews were obtained for data collection and aimed at probing ideas from participants about the phenomenon of their experiences in managing acute emergencies.

# Chapter 6

# <u>Methods</u>

## Sampling and data collection

Careful consideration was taken to conduct the methods of this project with a workable sample size. Various research methodologies were explored to design and implement this educational research project. The research sample was from junior doctors at early stage of training in paediatrics, vital information and data collected through observations, informal discussion and individual interviews. The sample size was workable and specific for the purpose of the project aim, only subgroup data was gathered to ensure alignment with the project intention (Saunders et al. 2007).

The idea behind conducting qualitative research rather than quantitative research is primarily to explore opinions and dive deeper into the problem to get insights and understand underlying motivations from a small sample. Being an insider researcher and subjectively immersed in the searched subject was advantage in the sense that it helped me in establishing credibility from prolonged engagement in the culture. This qualitative research will help in developing initial understanding of the problem and generate hypotheses. These hypotheses can be used later for further quantitive research to establish validity through replicable results, so results can be generalised in order to establish future plans.

Two main methods were used for data collection in order to get realistic findings that can represent accurate experiences in the workplace; the recording of semi-structured individual interviews and personal project diary notes of ethnographic data which were collected from informal discussions and observations during the project timeline. Face to face interviews method was chosen in order to scope for accurate information, keep interviewees focused on the subject, capture verbal and non-verbal cues and to ensure conducting interviews at convenient time of the respondents.

The researchable questions were used to guide the discussions during the interview process. Upon careful consideration about what methods are suitable for this qualitative research, a questionnaire was not chosen to be part of this research method. The main reasons for that were to make sure that all questions will be answered by the respondents and to get the accurate and reliable information from participants without misinterpreting questions. As an insider researcher I decided not to use questionnaires to avoid making my own assumptions and decisions as to what is and is not important.

Atkinson and Pugsley (2005) highlighted that using various methods for example interviews, participants' observation and ethnographic data are invaluable in adding strength to the study for more accurate and realistic findings for the educational research. Furthermore, Barbour (2005) and Bleakly (2005) added that this modified methodology enables readers to gain an insider's narrative.

**Relevance to project**

Strategies used in collecting ethnographic data were direct observation and record extensive field notes through direct observation of certain situations when juniors were involved in managing acute emergencies. I strived to be unobtrusive in order not to bias observations.  A critical incident technique was utilised where participants were requested to recall a challenging situations in which they were involved in acute emergency. Phenomenology approach was also used through focusing on junior doctors' experiences and their individual interpretations of some events to understand how they perceive such experiences.  Other data collected through conducting informal discussion by direct interaction with junior doctors where they were free to move the conversation in any direction they preferred to explore the topic more broadly.

The methods and data collection were relevant to the project topic and research questions. It allowed direct contact with junior doctors and provided an invaluable opportunity to reflect on their experiences. It also, enabled them to express their frustrations and anxieties related to the early exposure to acute emergencies and managing acutely ill children. Feedback related to barriers to learning in the working environment as well as helpful teaching tools were identified. This is not only relevant to the research question and project topic but also added invaluable information to the under researched area of evidence base of medical education.

## Unanticipated Occurrences

Unanticipated occurrences were considered on starting this project but not hugely expected. The potential for interviews to harm participants emotionally is noted in few occasions with junior doctors during undertaking this research project. Some junior doctors were apprehensive with the idea of recording the interviews and decided to decline after the debriefing session prior to the interview and they were averse to discussing their experiences in dealing with acute emergencies. At the outset, some participants felt obliged to take part in the research, therefore, I had to use my intuition and stop the interview to minimise exploitation of the participant. During the progress of this research project I developed a strategy to bolster participants' self-esteem; I put a positive interpretation on any described experiences and engaged in ongoing reflectivity whilst responding sensitively to participants. This strategy enabled me to avoid potential harm to participants and to obtain good quality interview material. Due to time constraints at the workplace and high service demands, it was difficult to conduct interviews during the working hours. This project was discussed with junior doctors outside the working hours to ensure that patient care delivery was not compromised.

This section highlighted the main methods were used for data collection of this project; analysis of the main key findings will be discussed in the next chapter.

# Chapter 7

## <u>Project Findings</u>

The methods used in this project have proven to be highly successful in producing honest, open and rich accounts of junior doctors. Over the course of this project, there were findings at various stages which contributed to the project aims and research question. This perspective means that research findings are the result of direct relationship between myself the researcher and the object of the study. Through various discussions there was several areas of concerns were revealed that are particularly pertinent for junior doctors preparedness for managing acute paediatrics emergencies.

Eight junior doctors approached for interviews, however, 3 juniors declined the interviews and five interviews were conducted successfully; 4 participants were senior house officers at the first year of training (ST1) and one participant was senior house officer at the beginning of the second year of training (ST2). Coded interviews were transcribed using Dragon software and grouped into themes and sub-themes to ensure theoretical saturation where no new themes were emerging.

The research questions were utilised to guide the direction of the conversation during the interview process in order to solicit comparable responses. Also, a critical incident technique was used where participants were requested to recall a challenging situation in which they were involved in acute calls. I strived to develop the art of listening in order to obtain the best information. Phenomenology approach was also used through focusing on junior doctors' individual interpretations of some events to understand how they perceive such experiences.

The key findings related to junior doctors' experiences will be detailed in this section. In the next chapter "the discussion section" of this report the key findings will be correlated to the project aims, research question and literatures.

# Results

This section will highlight the relevant findings both from informal discussions and recording interviews (Annex 6). Theoretical sampling was used in data collection and analysis, which includes developing tentative ideas about the data and examining these ideas through empirical question. This chapter will identify the key themes and explain how they relate to each research question.

**The first research question is: How do junior doctors experience management of critical ill children on their own?**

"but I'd be lacking in confidence with decision-making during that if I was left on my own, a reason for that is because I haven't had enough experience with emergencies"

"Suddenly I have to be the one to make decisions instead of just being an observer, it is something that I don't do very often, feel a bit scared about approaching emergencies in my own"

"I have had difficulty with being the first person in an acute situation, where I have to make decisions and initiate basic management"

"I am quite nervous about attending paediatrics emergencies calls, because, I have done only 3 months of paeds and I have not been in one since I started"

"so I think there are skills like cannulation that are actually still not feel quite confident with, especially with the children, despite I attempted on mannequins"

"Practical skills, I think that's one of the most important skills in dealing with sick patients and scariest part of acute emergencies, especially with the ill children"

**The second research question is: What were the main barriers that interfered with junior doctors' participation in acute emergencies?**

"I do not mind to do all the paperwork which is part of my job and other work like taking blood samples and stuff, as long as I will be given the opportunity to participate in managing acute emergencies"

"However on the wards mainly doing a lot of admin work which is my job really, but I don't feel as it is all what I need doing"

"Hmm, acute emergencies in paediatrics is very unpredictable to happen"

"Well there are lots of unfamiliar verbal and written abbreviations which make me lose track sometimes"

"advanced nurse practitioners are always given priority to be involved in resuscitation of unwell babies, and they are favoured with learning opportunities more than junior doctors"

"I think starting by doing on call at night is really tough, that is the most scary part, I felt most exposed when a senior is not present"

"they always say that juniors are given the opportunity to participate in managing unwell children and they are part of the team but this is not always true"

"In real time scenario, hmm, well, there is barriers coz mainly is the senior doctor will take over the care"

"Not really umm, not actively participating in terms of resuscitation process, but you are there in terms of supporting the senior staff in terms of only documentation"

**The third research question is: What else would junior doctor like in order to prepare them better for managing acute emergencies in children?**

"I think it was beneficial that I have been on the children's assessment unit where patients can become quite sick very quickly, I observed and helped the registrars doing resuscitation, which was really useful to me"

"When I do clinical tasks like sampling, cannulas, I feel like I am a doctor"

"It was nice to see such simulation session ran by the anaesthetists in an interactive way, you know, that would help if it was compulsory for me to attend and are being educated about resuscitation experience as well, I thoroughly enjoyed it "

"I had simulation training course and helped to be more prepared and expected to make mistakes in a mannequin as opposed to making mistakes on a real person to redo it again"

"I think teaching and the old tradition of apprentice are useful ways, I think in particular to learn how to manage acute paediatrics emergencies"

"I think education comes with experience as well"

"Initially I had a paediatric resuscitation course which lasted three hours during my induction, umm and it went into depth demonstration what to do initially if there is arrest situation"

"it is quite hectic really that emergency situation, so shadowing will be good, and teaching will be really good, I think maybe I should do some reading too"

**Analysis**

The information gathered was approached from objective and subjective views and the findings were analysed after collating all the commonalities. Themes were analysed using a lens of inter-previtism stance for processing the main findings. The analysis was conducted using constructive grounded theory to develop theory from data, and a new concept was adopted based on relevant consensus within the data. The main aim of using grounded theory in analysing data is to generate a central category that can pull other categories into a larger explanatory theoretical theme. The core category that emerged from the analysed data was "Learning on the job". From analysis of the key findings, it became evident that this central category is linking data to preparedness of junior doctors for acute medicine.

The analysis of the data led to the generation of the following major categories:-

• Clinical skills

• Shadowing

• Opportunistic learning

• Learning environment

• Simulations of acute emergencies

• Technical skills

<u>Clinical skills</u>

Junior doctors overall highlighted that they were minimally involved in clinical care delivery, in particularly in managing acutely ill children. From the interviews, it can be seen that junior doctors have some knowledge and prepared for some aspects of their role within the team, however, they lack confidence in decision making or initiating resuscitation of actually ill children in their own. Majority of juniors valued the shadowing period and observing senior trainees during managing acute emergencies before active participation.

There was confusion about their role and how they relate to the multi-disciplinary team if they had a chance to participate in managing acute emergencies. Working as part of the team and active participation in clinical work was generally a positive experience rather than passive observation. However, some teams provided juniors with more chances, guidance and support more than others. Lave and Wenger (1991) highlighted that the important role of peripheral participation and apprenticeship in helping newcomers to move from the periphery towards the centre of the activity and take more responsibility.

Shadowing

There were suggestions of having a longer shadowing period to gain more understanding of the clinical environment and community language without much responsibility. Shadowing were perceived by majority of junior doctors as a safety net in particularly for those who were hesitant to actively participate to encourage them to engage with the new environment. Allowing junior doctors to shadow and participate in clinical work not only, make them feel they were part of the team but also, that their role was worthwhile. They thrived when given responsibility to do tasks. Recognising their role within the team and gave them ownership over patient care, made them feel more satisfied and fulfilled their desire to treat patients rather than undertaking only clerical tasks.

Another area of concerns was starting work with night shifts without enough period of shadowing, which means that they had to make decisions on their own with less available immediate support from seniors. Junior doctors are expected to call for help appropriately over night with an added consideration that they might be disturbing seniors unnecessarily. In addition, there were also some situations that require them to act before help arrives.
S. Kilminister et al. (2010) explained the difficulty encountered by junior doctors started the transitional period working on call and stressed the important role of supervisors during these transitions.

Unique terms and unfamiliar abbreviations use is common in paediatric department on a daily basis which can leave gaps in knowledge if not understood. Most of the junior doctors were not aware of these unique terms unless they have rotated in paediatric department previously. Shadowing period gave junior doctors the opportunity to ask and learn the unique language of this specialty which facilitated their engagement within the team and prepared them to be part of this community of practice. Learning the language of the community is a key necessity for positive and effective communication within the team and to become a legitimate member of the community (Lave and Wenger, 1991).

Opportunistic learning/learning environment

From various discussions it can be seen that learning experiences were mainly gained when senior clinicians involved junior doctors in decision making tasks which provided them with ample opportunities of learning and encouraged them to read and ask questions. They also found that it was useful when there were opportunistic learning in the clinical environment and in particularly when they were given the chance to participate in managing acute medicine. Satisfied junior doctors were more confident to apply their learning experience to future practice to improve patient care. It was also found that experiential learning and on the-job-learning was perceived by junior doctors as the most preferable methods of learning in this domain.

In addition, there were concerns about the amount of support to junior doctors in the workplaces; some institution is better and more supportive than others. Even within the same workplace juniors were not always offered equal opportunities to do more than observe, as not all the seniors were supportive and gave a fair chance to juniors to participate in managing ill patients. Some juniors who have more assertive personalities had better opportunities, as they were able to ask to perform clinical tasks and procedures.

Particular concerns were expressed about taking immediate steps with acutely ill patients and being the first doctor to deal with a sick patient, in particular sick children. Some juniors expressed their desires to have extensive exposure to acute paediatrics emergencies as undergraduates for a better preparedness to the clinical environment. They also, indicated the need to move from being just observers to the centre of activity and become active participants to enhance their skills.

Simulation of acute emergencies

The findings also highlighted that majority of junior doctors perceived simulation as a powerful tool of teaching where the common real life scenarios of acute emergencies will be replicated and rehearsed. They believed that simulation not only helped them in approaching acute emergencies in structured approach, but also in developing a critical thinking and maximising their learning in a safe interactive environment. From various discussions, it was found that simulation was a golden opportunity to some juniors to practice technical skills which is an important part in acute emergencies, and they felt safer to practice on manikins before attempting on patients. It can also be seen that simulation alleviated part of their anxiety as they learnt from their mistakes on manikins. In addition, it helped them to enhance their confidence to practice on real patients and to become safer practitioners.

Majority of junior doctors considered simulation based education as a valuable part of teaching as it helped them to bridge the gap between theory and practice. Simulation sessions not only helped them to refresh their knowledge but also, equipped them with other generic skills such as teamwork, communication skills, and decision making skills.

Technical skills

Most of junior doctors expressed their concerns about lack of experience and practice in performing practical procedures as they trained on mannequins only. Attempt practical procurers on simulators helped them to know the technique of the procedures but practice in real patients was much more difficult experience, in particular with small children. It was felt that simulators intended for basic technical skills and enriching educational experiences for trainees, however, the real life scenarios were different experiences. They felt that they would be better prepared if they had the opportunity to spend more time in clinical practice with patients under senior clinicians' supervision.

The key findings related to junior doctors' experiences showed that junior doctors have various feelings about training satisfaction and preparedness for managing acute emergencies. Significant opinions and concerns were explored by junior doctors with regard to their experiences in acute paediatrics emergencies. The main reason for their lack of preparedness for dealing with acute emergencies was their lack of the clinical and technical skills experiences. Various factors influenced their experiences and preparedness such as; individual learning experiences, specific courses, inspiring colleagues, and relevant simulation sessions

In the next chapter "the discussion section" of this report the key findings will be correlated to the project aims, research question and literatures.

# Chapter 8
## <u>Discussion</u>

This section will summarise findings and ensure to evaluate its professional and educational impact. This will be done by linking it to the project aim, research question, published literatures and relevant theories. The project findings showed that junior doctors are not confident to be the first to respond to acute emergencies and provide basic management. The main key barriers will be explained in this discussion.

The key findings indicate that learning on the job was a crucial factor in preparing junior doctors for managing acute emergencies. Illing et al. (2008) supported the theory of experiential learning and highlighted that it is the best way for doctors' learning. Junior doctors believe that working environment has a significant impact on their learning experiences in the workplace. Identifying their role and integrating them into the team enabled them to be engaged in supervised clinical situations and facilitated their learning "I think education comes with the experience". The impact of the working environment on junior doctors' learning experiences was highlighted by Luthy et al. (2004) who stated that positive learning experiences at workplaces is directly linked to the support junior doctors have at their first entry to the practice. The attitude of juniors may change if they were made aware that learning in the workplace is opportunistic. In educational context, engaging junior doctors in clinical environment have a significant impact on improving learning experiences and encourage workplace re-contextualization (Evans, 2006).

The data analysis identified a central category "learning on the job" that pulled and linked varieties of other categories. Exposure to the complexity of the clinical environment and the crowdedness of the real practice in the workplace had its educational impact on junior doctors' learning and preparedness. One of the key findings of this project indicated that integrating juniors into the team is crucial for enhancing their learning experience and makes them feel they are part of the team. The literature agrees with this key finding, Gray and Aspland (2011) highlighted that the more the opportunities offered and tailored to junior doctors needs in the clinical environment, the greater the learning experience will be gained.

A key barrier to junior doctors learning is related to the administrative and clerical tasks that interfere with their clinical activities. Haller et al. (2009) highlighted that junior doctors thrive in the clinical environment if they were given the opportunity and clinical responsibility which enable them to apply knowledge into practice. Furthermore, junior doctors felt that their exposure to the clinical environment was compromised as the advanced nurse practitioners were favoured with more learning opportunities than them. Literature agrees with the project findings, as highlighted by Billet (2001) that there is unequal workplace learning affordances to the learners.

The literature highlighted the importance of simulation as an ideal platform for workplace based teaching and a vehicle for clinical skills acquisition. The resounding acceptance of simulation teaching is a validation of this particular teaching method for junior doctors to enrich their learning experiences. There is an assumption that some tasks can be learnt effectively away from the clinical environment, for instance by simulation or classroom teaching. However, the project findings showed that simulation teaching of common acute emergencies facilitated juniors learning but did not replace the learning experiences in the real clinical environment. For example learning of technical procedures on mannequins helps learning the techniques, however it was not equivalent to practice on real patients, "Still not feel quite confident with practical procedures, especially with the children, despite I attempted on mannequins". Better preparedness for practice and in particularly acute emergencies is achieved from more exposure to the diversity of the clinical practice and the richness of the clinical environment which involves supervised practice.

This project also found that junior doctors appreciate to be involved in patient care and given responsibilities, as it is not only maximises their experiences but also, makes them feel part of the team "when I do clinical tasks ....I feel like I am a doctor". This key finding has been evident in the literature, Tucker et al. (2003) suggested that improving learning opportunities have a direct effect on juniors' morale, job satisfaction and patient care outcomes. Another key finding was juniors appreciate seniors' support and guidance by making teaching relevant to their learning needs. "It was nice to see such simulation session ran by the anaesthetists in an interactive way, that would help if it was compulsory for me to attend". The project findings can be linked to the social theory of Lave and Wenger (1991) and put into context for junior doctors' learning in the workplace. Junior doctors were not given the chance to access and participate in acute emergencies, with the main drivers being a concern with patient safety. The community of practice and "legitimate peripheral

participation" theory was explained by Lave and Wenger. "Peripherality" should be used as a way of learning for the novice and a way to protect the individual by limiting exposures to what is relevant at the time, however, it should be used in a positive way so that one can be more involved and move forward with increase competency.  At present, most of junior doctors do not have fair opportunities to participate in acute emergencies and continued as observers rather than actively involved in a supervised practice "Well, there is barriers coz mainly is the senior doctor will take over the care".

Another key finding was that junior doctors appreciate to be given more legitimate tasks in the workplace to be able to manage acute emergencies in their own. Junior doctors do not actively participate in the workplace unless learning opportunities made explicit to them. Lave and Wenger (1991) explained that knowledge is situational and learning mainly takes place opportunistically within the workplace.  A study carried out on medical students in three medical schools by Illini et al. (2013) highlighted that there was no significant differences in the lack of preparedness of medical students in the three medical schools, however, the overall missing element was active engagement and participatory learning opportunities in the workplace.

A key barrier found to do with lack of recognition of the role of junior doctors in the workplace "advanced nurse practitioners are always given priority to be involved in resuscitation". Lave and Wenger (1991) explained that the role of junior doctors need to be recognised by giving them "identity and membership" to enable them to join and enjoy the community of practice. Lave and Wenger described three dimensions of successful practice: mutual engagement, a shared repertoire and joint enterprise. Mutual engagement requires team competences that are able to negotiate a shared agenda and activities which is often challenging if less opportunities are provided within the job.  A successful community of practice relies on clarity of all individuals on their responsibilities and roles within the community.  However, one of the problems encountered by junior doctors is lack of clear roles within the workplace "but you are there in terms of only documentation". Wenger stated "being included in what matters is a requirement for being engaged in a community's practice" that means there is a need for engagement with the process rather than just participation in practice. Literature agrees with this key barrier, Gray and Aspland (2011) stated that junior doctors are more likely to be more enthusiastic to work in the workplace if they have the learning opportunities that tailored to their needs.

Paediatrics department is an environment where there are many abbreviations and unique terms often used on a daily basis. Project findings showed that these unfamiliar terms compromised junior doctors learning and left gaps in their knowledge "there are lots of unfamiliar verbal and written abbreviations which make me lose track". Shadowing period gave junior doctors the opportunity to ask and learn the unique language and prepared them to be part of this community of practice. Lave and Wenger (1991) explained the importance of learning the language of the community in the workplace to enable the newcomers to be able to communicate within the community in which they are practicing in order to become legitimate members of that community.

The project findings showed that junior doctors appreciate learning through apprenticeship in particular in acute emergencies. Apprenticeship learning was further supported by Eraut (2000 and 2007) who highlighted the importance of working alongside others and seeking learning opportunities to help gaining tacit knowledge and maximising experiences. This was also, supported by Boor et al. (2008) who explained the significant role of working environment in providing junior doctors with positive learning experiences. Learning in practice and the transition from novice to expert were further illustrated in the five stage model by Dreyfus and Dreyfus (1986). The five stage model explained that newcomer starts with little experience and with increased exposure their tacit knowledge, situational judgment and experience will be enhanced.

The project findings supported by the medical education literature directly relate to the main research aim and question. The theories of Lave and Wenger related to "community of practice" and "legitimate peripheral participation" is very appropriate to the research project. Create a positive learning environment has a significant impact on junior doctors learning experience in the workplace.

The main aim of this project was to allow junior doctors to have an open forum to discuss barriers to learning in the workplace, reflect on the challenges they encounter and suggest solutions to overcome these barriers. The project has found and supported by literatures that junior doctors feel underprepared to manage acute paediatrics emergencies and highlighted barriers to learning in the workplace. Recommendations will be listed in the next chapter this will be followed by limitations of the project and finally a conclusion.

# Chapter 9

**Recommendations**

Our findings indicate there is a need to create opportunistic learning within the clinical environment to maximise junior doctors learning. Junior doctors' preparedness for acute emergencies should be enhanced by providing them with more supervised learning opportunities. Apprenticeship and experiential learning is the cornerstone in preparing junior doctors to be more competent in managing acutely ill children in their own. Junior doctors' role needs to be more recognised within the team to ensure their integration within the working environment and learning opportunities should be made more explicit and tailored to their learning needs. Simulation sessions of the common acute emergencies should be provided during the induction period and as refreshing courses to enhance junior doctors' technical and non-technical skills. Senior doctors should recognise barriers to junior doctors' learning in the workplace and work in partnership with them to overcome these barriers and enhance their learning experiences.

**Limitations**

The project highlights many key findings which possibly would not have been explored if this research project was not undertaken. However, there were still some limitations that affected the project findings. The methods used during this project were limited in the number of participants who took part of the interviews. However, collecting data from informal discussions and observations added invaluable information and strength to these project findings. The other limitation is that this study has focused mainly on the perceptions of junior doctors and did not use an external objective to measure junior doctors' preparedness for cute emergencies. However, junior doctors' opinions and views are important and can be used as a guidance to understand the impact of level of confidence on the job performance.

Further work still need to be done to find out the impact of experiential learning on juniors learning experiences. Perhaps further quantitative research would be useful to generalise result from a larger sample and transform numerical data into useable statistics to help establishing universal truths and shaping future practice nationally depends on the future findings.

# Chapter 10

## <u>Conclusion</u>

Although, there is lot of research conducted on junior doctors preparedness for clinical practice, there is paucity of research described junior doctors' preparedness for managing acute paediatrics emergencies. Preparedness of junior doctors for acute emergencies is under-researched area. Dealing with acute paediatrics emergencies is a complex task and requires special skills which can be very challenging for junior doctors. Data from this project findings indicated that junior doctors are under-prepared to manage acute paediatrics emergencies and their performance is influenced by the complexity of the clinical environments of the workplace. Some of these influences can have negative implications on junior doctors' learning, and in particular in managing actually ill children. Junior doctors have less time in clinical practice and often overwhelmed with clerical and administrative tasks rather than involvement in day-to-day practice. The valuable work of Lave and Wenger (1991) has provided a conceptual lens that helped highlighting barriers to learning in the workplace. Institutions vary in providing learning opportunities and support in the workplace to maximise juniors' learning.

The framework developed by this research indicated that learning opportunities should be made more explicit and opportunistic learning should be facilitated by seniors to enhance junior doctors' learning to improve patient safety. Our project findings indicate that Junior doctors' learning experiences were related to multiple factors which include; experiential learning, apprenticeship and inspiring simulation teaching sessions. If these tools can be integrated into clinical training then it may actively encourage safe practice. Workplace needs to recognise barriers to junior doctors learning and work in partnership with them to improve workplace based learning. Further quantitive research need to be conducted on junior doctors' preparedness for managing acute paediatrics emergencies to generalise result and shape future practice nationally.

# **<u>Acknowledgments</u>**

There are many people I would like to thank who have assisted and contributed to shape this project in some way and gave me assistance during this journey, including all junior doctors who took time to participate with their views. I am so grateful to Dr Wilf Kelsall , the Head of School of Paediatrics, at Health Education East of England;  who gave me a support during this phase of my life, nurtured my enthusiasm and approved the funding for this project. I was fortunate to have Mr. Anthony Farrant as my project supervisor and Dr. Imogen Davis as a tutor throughout this research project. I am so grateful for their fruitful thoughts and valuable feedback throughout the whole research project, and for encouraging me to complete and publish this project  I would like to thank Dr. Helen smith, for her help and valuable suggestions and support when I started this project, which helped me to get the ethical approval of this project without any amendments.  I am so grateful for  the assistance and support I got from all administrative team at all sites.

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**Annex 1 - UOB Ethical Approval Form**
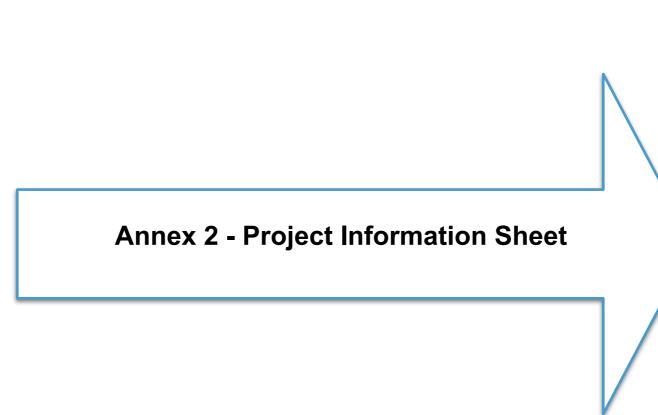
10 February 2016

Dear Therese Mary William

**Project Title: How do junior doctors experience management of critically ill children?**

The Ethics Committee of the Institute for Health Research has considered your revised application and has decided that the proposed research project should be approved with no further amendments.

Please note that if it becomes necessary to make any substantive change to the research design, the sampling approach or the data collection methods a further application will be required.

Yours sincerely

Dr Yannis Pappas
Head of PhD School, Institute for Health Research
Chair of Institute for Health Research Ethics Committee

**Annex 2 - Project Information Sheet**

**Participant information sheet**

A case study of a medical education research project to explore preparedness of junior doctors to

deal with acute emergencies

You are invited to participate in an educational research study. Before you decide whether you wish

to participate, it is important to understand what the research entails and why it is carried out. Please

take a few minutes to read this information leaflet carefully. Please do not hesitate to contact me if

you need further information.

**What is the purpose of this study?**

This study aims to; 1) to explore junior doctor's perceptions related to their experiences in man-

agement of critical ill children on their own. 2) identify what else would junior doctors prefer in or-

der to prepare them better for managing acute emergencies in children. 3) to increase awareness of

the importance of preparing junior doctors to participate in acute emergencies in the early stage of

training under supervision before dealing with these stressful emergencies in their own. 4) identify

what facilitations as well as barriers of learning related to acute paediatrics emergencies

**Who is conducting the research?**

This study is being undertaken by me Dr Therese Mary William as part of my Masters in Medical

Education at the University of Bedfordshire. I will be supervised by Dr Helen Smith.

**Why have you been approached?**

You have been approached as you are a member of paediatric team and working as a junior doctors

in a paediatric department.

**What do I have to do?**

Should you agree to take part in this project, you will be kindly asked to complete an anonymised questionnaire form or take part of anonymised recoded informal discussion to explore your opinion with regard your preparedness to deal with acute emergencies in paediatric department. This will be arranged in a mutual convenient time, during breaks or out of hours, within the hospital premises. Informal notes may be taken to lead to more research related to this project.

**Will my taking part be confidential?**

The completed questionnaires, transcripts or audio-taped interviews will be anonymised. A file containing your name and corresponding number will only be accessible to me and will be kept securely in a password-protected file. It will be completely anonymised, neither your name or any identifying details will be recorded on any data collected. This will be destroyed upon completion of the project dissertation. Any paper copies or numeric audio files will be kept in a password protected file on researcher's computer and other data will be e stored in locked filing cabinet at the researcher's office.

**What will happen to the information that I give?**

The completed questionnaires or audio-taped interviews will be kept securely as described in the previous section. An analysis of the anonymised data will form part of my dissertation data and so anonymised data will be shared with medical education staff at the University of Bedfordshire and also with external examiners to fulfil the requirements of the masters course. Occasionally, external examiners may request to view the primary data (i.e.hard copies of questionnaires or audio-tapes), although no names will be attached to any primary data. The anonymised data form this study may be published in a peer-reviewed Journal. You are welcome to see a copy of the dissertation or articles prior to publication.

The data will be mainly qualitative data, with opportunities for freedom response, which will facilitate more open feedback and engaging discussion for trainees.

Data will be collected from:

- Recorded individual or focused group discussion with junior doctors
- Supplemented data from informal discussions with junior doctors
- Ethnographic data noted during project process

Participating in this project will give you the opportunity to express your perceptions and experiences related to management of critical ill children. It will provide us with invaluable insight into the learning barriers and identify whether there is any scope for improvement. There is no particular disadvantages in participating in this project, however some people might not be comfortable for being recorded. At the end of the project, the researcher will invite all participants to a feedback session to discuss the main findings of the project.

**What if I wish to withdraw?**

Your participation in the course is entirely voluntary and you can withdraw at any time you wish without providing a reason. If you decided to withdraw from the course after data has been collected and anonymised it may not be possible to remove your data from the study. Certainly, there is no obligations to take part in this project, it is up to you to decide whether or not to take part. Should you decided not to take part, please let the researcher know as early as possible. The researcher will confirm your decision prior taking part of any discussion if you still willing to participate and you will be asked to sign a consent form.

**Expenses**

There is no fee required for your participation in this course.

**Independent contacts**

Should you have any queries that you wish to raise with a third party please consider the following two options:

Dr Helen Smith

Project Supervisor

University of Bedfordshire

Tel: 01582489074

**Or you can contact the University of Bedfordshire Research and Ethics committee via:**

Ms Andrea Mondokova
Departmental Administrative Assistant
HSS Registry
University of Bedfordshire
Room B203
Park Square
Luton
LU1 3JU
e-mail: EthicsIHR@beds.ac.uk
Tel: 01582 489783

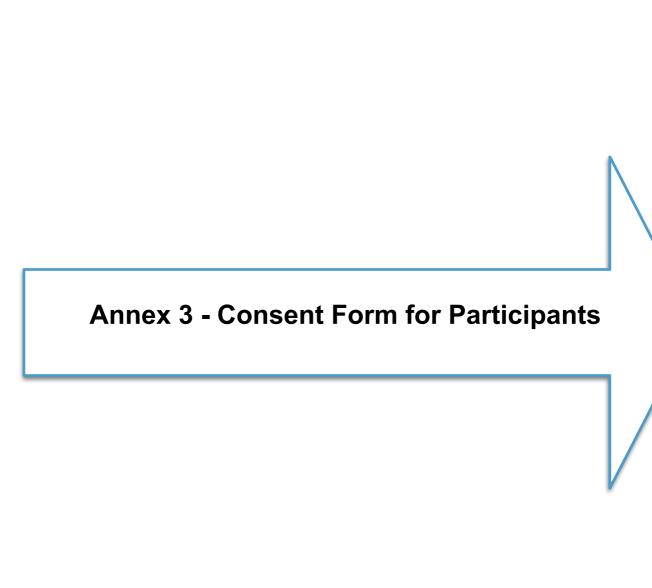**If you have any questions about the study please contact me:**

Therese Mary William
Paediatrics STR and Lead Researcher
Email: theresmarywilliamm@yahoo.com

Thank you for taking the time to read this sheet

Therese Mary William

# Annex 3 - Consent Form for Participants

University of
Bedfordshire

**Title of Project:** A case study of a medical education research project to explore junior doctors' preparedness to deal with acute emergencies.

**CONSENT FORM**

University of Bedfordshire Research Ethics committee approval number:

Lead researcher: Dr Therese Mary William

Participant Identification Number: ()

**Please
initial box**

1. I confirm that I have read and understand the information sheet dated December 2015, for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that this study is to explore junior doctors' preparedness to deal with acute emergencies

3. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my training or legal rights being affected.

4. I consent to use of audio/video-taping and I agree that anonymised verbatim quotations may be used in the final written dissertation which will be available in the University library.

5. I agree to take part in the above study

................................................    ................................................    ................................................

Name of participant                    Date                        Signature

................................................    ................................................    ................................................

Name of Person                         Date                        Signature
taking consent

When completed: 1 for participant; 1 for researcher site file; 1 (original) to be kept in medical notes.

**Annex 4 - Interview sample (Text Summary)**

**<u>Interview sample (Text Summary)</u>**

The research questions were utilised to guide the direction of the conversation during the interview process in order to solicit comparable responses. Also, a critical incident technique was used where participants were requested to recall a challenging situation in which they were involved in acute calls. I strived developing the art of listening in order to obtain the best information. Phenomenology approach was also used through focusing on junior doctors' individual interpretations of some events to understand how they perceive such situations.

These are the main questions used during the semi-structured interviews and discussions:

• How do you feel about dealing with acute paediatric emergencies in your own?

• Can you recall an acute emergency where you have been called to manage acutely ill child and your registrar was not available?

• What if you had a resuscitation call and there was no senior around?

• What was the most positive experience that you had in acute emergencies, and why?

• What did help you to learn how to manage acute paediatric emergencies?

• How often have you been encouraged by seniors to participate in acute emergencies?

• What was your role during these acute emergencies?

• Did you have any relevant teaching related to acute emergencies management in your current placement?

• What else would you like in order to be better prepared for managing acute emergencies?

**How do you feel about dealing with acute paediatric emergencies in your own?**

Obviously it is quite difficult because I came from adult world, hmm so it is sort of changes in term of paediatric, everything is age related and dose related, and I have not really exposed to paediatric in my previous rotations, I only done paediatric as part of GP and obviously medical school, but it was relatively well patients, so it is not really acute cases, so obviously it is quite challenging, because the protocols slightly change, and umm when it comes to practical skills, I think that the most scary part for most of junior doctors , they I think are afraid of, like cannulation or giving fluid, so those are skills obviously I still not feel confident dealing with if I am called in an acute call like an emergency case.

**What else would you like in order to be better prepared for managing acute emergencies?**

Obviously sticking to the whole algorithm, ABC algorithm is like a NICE reference guide, and obviously having done paeds now, I am shadowing people in terms of what they are doing, so I can apply what I learnt, but I am still sort of lack of practical skills experience, so I need to practice. In terms of courses, I am trying to do APLS course, but I have not done it yet, but I am trying to do it as soon as possible, so I booked mine. I have not had simulation before I think it would be quite nice just like to do some kind of simulation,  in terms of taking cannulation in children coz those are I think the most challenging ones we juniors are requested to do on daily bases.

**How often have you been encouraged by seniors to participate in acute emergencies?**

In real time scenario, hmm, well, there is barriers coz mainly is the senior doctor will take over the care, so you sort of end up prescribing only, so you do not really umm, not actively participating in terms of resuscitation process, but you are there in terms of supporting the senior staff in terms of documentation so I think that's the only thing I can do, in terms of acute cases.