UNIVERSITY OF SOUTHAMPTON

FACULTY OF HEALTH SCIENCES

Nursing

An exploration of consultant doctors' hand hygiene: practice and perspectives

by

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Thesis for the degree of Doctor of Clinical Practice

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ABSTRACT

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Hand hygiene is considered the cornerstone of infection prevention practice, but previous studies demonstrate one group of healthcare professionals, doctors, have not achieved good levels of compliance in comparison to other staff groups. The aim of the research was to examine consultant doctors' practice and perspectives of hand hygiene, exploring their perceptions as leaders and role models, so as to identify strategies to improve compliance.

The study design was based on naturalistic inquiry, focussing on the social constructions of participants. Nineteen consultant doctors were observed during hospital ward rounds using both a national audit tool to assess hand hygiene compliance and recording of field notes. These same consultants, plus a further two, were interviewed individually to elicit their views. Data from the 21 interviews and field notes were analysed qualitatively using thematic content analysis.

Observations demonstrated high levels of hand hygiene compliance for high risk and medium risk activities, with low levels of compliance for low risk activities. Thematic content analysis revealed a strong belief by consultant doctors in the value of hand hygiene. However, a perceived conflict between political and scientific drivers of hand hygiene promotion gave rise to confusion, frustration and a lack of engagement that created barriers to leadership and acting as a role model. Differing guidelines and audit tools that did not address levels of risk compounded the matter. However, consultant doctors offered various recommendations to resolve the issues.

Compliance with hand hygiene by consultant doctors is dependant on perceived levels of risk. To promote leadership and role modelling it is critical to engage consultant doctors, understand their views, employ their recommendations and recognise they are motivated by evidence-based rationales for practice rather than political mandates.

The findings, conclusion and recommendations of the research study have significant implications for addressing the shortfalls of the hand hygiene agenda in clinical practice and for the engagement of consultant doctors.

LIST OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

AUTHOR'S DECLARATION

I, Janice Ann Westbury declare that the thesis entitled

An exploration of consultant doctors' hand hygiene: practice and perspectives

and the work presented in the thesis are both my own, and have been generated by me as the result of my own original research. I confirm that:

- this work was done wholly or mainly while in candidature for a research degree at this University;
- where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
- where I have consulted the published work of others, this is always clearly attributed;
- where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
- I have acknowledged all main sources of help;
- where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
- parts of this work have been published as:

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Signed: ……..

Date:……

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ABBREVIATIONS

DARE	Database of Reviews of Effect
DH	Department of Health
GPs	General Practitioners
HCAI	Healthcare Associated Infection
HTA	Health Technology Assessment Database
MRSA	Meticillin Resistant *Staphylococcus aureus*
NICE	National Institute for Clinical Effectiveness
NHS	National Health Service
NHS EED	National Health Service Economic Evaluation Database
NPSA	National Patient Safety Agency
PCT	Primary Care Trust
RCTs	Randomised Controlled Trials
SHA	Strategic Health Authority
UK	United Kingdom
USA	United States of America
WHO	World Health Organization

Chapter One

1 INTRODUCTION

1.1 Overview and aim of the research

This research was undertaken in a National Health Service (NHS) acute teaching hospital, where I had previously worked as a senior infection practitioner. The aim of the study was to explore the skills, attitude and beliefs of consultant doctors in relation to their hand hygiene compliance. Furthermore, how they related this to their practice, what influenced their thinking and how influential they may be as role models within the clinical practice setting? Hand hygiene is a pivotal strategy in reducing hospital acquired infections and the involvement of consultant doctors has previously been under researched.

The introductory chapter explains the rationale for the study; why healthcare associated infection and the hand hygiene agenda are considered inextricably linked; it provides an historical perspective of the development of hand hygiene; identifies my personal motivation for the research and finally, provides an insight into what the chapters of this thesis will focus upon.

1.2 Rationale for the study

Compliance with hand hygiene by clinical staff in healthcare settings is considered a cornerstone of good infection control and often cited as the major activity to prevent infection in patients (Pratt et al. 2001). However, many observational studies have demonstrated poor adherence (Weinstein 2004), (World Health Organization (WHO) 2009); my personal experience as a consultant nurse in infection prevention and control supports this finding.

1.3 The healthcare associated infection and hand hygiene agenda

Healthcare associated infection and hand hygiene are considered inextricably linked. The last national prevalence survey undertaken in acute trusts in England found 1:8 patients to have developed a healthcare associated infection (Smyth et al. 2008) of which 30% is considered by experts as preventable (NHS Executive 1995, National Audit Office 2004). More recently it has been claimed that certain healthcare associated infections, in particular central venous-catheter related bloodstream infections, could potentially be eliminated (Pronovost et al. 2006) and

a culture of 'zero tolerance' is emerging. This is also an international problem with the USA reporting a ratio of 1:10 (Biddle 2009) and Australia estimating an annual 177,000 potentially preventable healthcare associated infections (Ferguson 2009). In 2004 the WHO launched World Alliance for Patient Safety and the first topic chosen for 2005/6 was infection, in recognition that "treatment and care of hundreds of millions of patients worldwide is complicated by infections acquired during healthcare" (Pittet et al. 2006, p419). Hand hygiene was identified in the annual report by the Chief Medical Officer, Department of Health (DH) for England as one of the two main public health priorities (DH 2007a). He describes the poor levels of percentage compliance of hand hygiene practice by healthcare staff. Furthermore, in a climate of reducing healthcare budgets and rising costs, the need to reduce avoidable infections is significant.

The impact of healthcare associated infection contributes to increasing morbidity and mortality with costs to the NHS estimated to be around one billion pounds a year (Plowman et al. 1999). Not surprisingly this has resulted in political and media attention with users of the health service questioning why this is happening and what action is being taken. An initiative by the DH at the end of the 1990s was to address clinical practice to prevent healthcare acquired infections. They commissioned a team of researchers to produce evidence-based guidelines, which included hand hygiene; use of personal protective equipment; safe use and disposal of sharps; preventing infections associated with the use of short-term indwelling urethral catheters and central venous catheters (Pratt et al. 2001). These national guidelines, termed the 'epic' guidelines were published in 2001 and updated in 2007 (Pratt et al. 2007).

The issue of healthcare associated infection is considered complex and a myriad of actions have been recommended nationally which has included reviewing organisational structure, policies, audit, surveillance, prudent anti-microbial prescribing, environmental standards, occupational health provision and training. Consequently, during the past decade there has been increasing governmental level initiatives introduced to address healthcare associated infections nationally. These have included an annual Patient Environmental Action Team inspection of NHS hospitals to tackle a number of issues with a focus on cleanliness. Reduction of healthcare associated infection and cleanliness have been listed as the first of the top five priorities for the NHS in the NHS Operating Plan (DH 2009a) together

with ongoing targets to reduce MRSA bacteraemia and *Clostridium difficile* infections. The House of Commons Select Committee Report (Public Accounts Committee 2009) commended the NHS for the reduction in these two particular infections from previous years, but questioned why there had not been more progress in respect of even further reductions. In addition, a major piece of legislation was introduced in 2006 and at the time of the literature review for this study the latest version published was The Health and Social Care Act (2008): The Code of Practice for Preventing and Controlling Health Care Associated Infection (DH 2009b). This required NHS organisations in 2009 to declare their compliance with the nine criteria and extensive guidance to address the prevention and control of infection in order to register as a health care organisation with the Care Quality Commission (CQC). The CQC is the independent regulator of all health and social care services in England and have statutory powers to issue fines or warnings, stop admissions into a care service or suspend or cancel a care service's registration when standards are not being met. Both government and healthcare organisations therefore take tackling healthcare associated infections very seriously.

Many factors are involved in reducing healthcare associated infections such as good anti-microbial stewardship to treat infections appropriately and in an endeavour to control the rise of multi resistant micro-organisms, appropriate patient location to reduce risk of transmission, environmental cleanliness and adherence to aseptic techniques. However, hand hygiene is the most often cited intervention to prevent infection, together with the ethos that it is the cornerstone of good infection control. The importance of hand hygiene has been well recognised by infection prevention and control teams for many years with numerous education and training strategies implemented. However, focus on the lack of compliance in clinical practice has emerged over the past forty years with numerous studies citing poor adherence to what appears a simple measure (Taylor 1978, Preston et al. 1981, Gould 1994, Weinstein 2004 and McLaws et al. 2009). Rollins (2008) describes hand hygiene compliance as a goal unrealised in curbing healthcare associated infection. Before considering this issue further, a short historical perspective is produced, which provides important insights into the development of current hand hygiene practice.

1.4 The historical context of hand hygiene

The Romans have been credited as early implementers of hand hygiene, but Newsome (2009) considered this practice was more in relation to pleasure and the health benefits of bathing overall. It was centuries later before there was recognition that hand hygiene was a procedure that played a part in preventing transmission of infection. Professor Ignaz Semmelweis, a Hungarian obstetrician practising in Austria in the 1800s, is recognised as one of the early investigators to demonstrate the significance of hand hygiene in the reduction of infection. At this time micro-organisms had not been identified, but Semmelweiss recognised that the maternal mortality rate for puerperal sepsis was higher for women when cared for by medical staff rather than midwives. He ascertained the only difference appeared to be that medical staff always visited the wards following autopsies. By introducing chlorine washing of the clinicians' hands before entering the maternity wards in 1847, the mortality rate fell dramatically. However, it rose again after Semmelweis left Vienna in 1850. His medical colleagues did not judge the evidence as credible, thought to be due to his poor presentation of data and therefore his hand hygiene initiative did not continue after his departure. Unfortunately Semmelweis himself died of an infection aged 47 and his work went unrecognised until the 20th century (Noakes et al. 2008). In the late 1800s, pioneers such as Lister, Pasteur and Koch, through their scientific discoveries of micro-organisms, influenced medicine and clinical practice (Newsome 2009). It was from this work that understanding of the transmission of micro-organisms emerged and the importance of hand washing particularly before surgical procedures developed.

1.5 Hand hygiene in the 20th century and the new millennium

In the early part of the 20th century there appears to have been little focus on hand hygiene in practice, although it is referred to within procedural guidance and specifically recommended before patient contact. One of the early studies was undertaken by Mortimer et al. (1962) in a hospital nursery where half the nurses did not wash their hands between contact with the babies and the other half did. Their results demonstrated that the babies cared for by the nurses who did not wash their hands were statistically significantly at risk of acquiring the micro-organism *Staphylococcus aureus* than the babies cared for by the nurses who had washed their hands. It is due to the questionable ethics of the Mortimer et al. (1962) study that further trials of this type have not been undertaken.

In the USA, Fox et al. (1974) reported a lack of hand washing and poor technique by nurses and their aides. Early work in the UK focused on technique, demonstrating that staff missed key areas of the hands during hand washing (Taylor 1978, Ayliffe et al. 1978). By the 1980s studies were emerging that demonstrated inadequate compliance and there was an evolution of concepts of hand hygiene in healthcare, resulting in the development of guidelines in the USA (Garner et al. 1986), later followed in the UK by the Infection Control Nurses Association (2002). However, despite the significant numbers of guidelines they do not appear to have made a difference, as Larson et al. (2007) identified in their study, dissemination of guidelines was not sufficient to change practice. More recently, an evaluation of 21 international guidelines by Cookson et al. (2009) found they all differed and there was a lack of consistency.

The carriage of microbiological flora found on the hands was first described as resident or transient flora in the 1930s and is now thought to provide a protective function against pathogenic micro-organisms (WHO 2009). Resident flora is found under the superficial tissues of the hands, whereas the transient flora is found on and within the superficial tissues. The transient flora can be easily removed by hand hygiene, but is also easily transferred to inanimate objects or people through touch. It is within the everyday personal hygiene activities and clinical practice that the concept of performing hand hygiene is related to the removal of this transient flora. This is considered to have an important role in breaking the chain of transmission of micro-organisms at an early stage and ultimately preventing infection.

By the 1990s the focus was on removing barriers to practice, for example lack of facilities (Larson & Kretzer 1995), poor quality of paper towels (Gould 1995) and lack of time (Voss & Widmer 1997). In an endeavour to facilitate hand hygiene, products were reviewed and the introduction of alcohol hand gel in the UK emerged, promoted by the UK Hand-washing Initiative (Teare et al. 1999). Although alcohol gel was used in Europe for many years this was considered a major breakthrough for hand hygiene compliance as it was readily available and quick to use. Practitioners viewed the product favourably in terms of speed, but ultimately it did not achieve the compliance anticipated. A multitude of approaches have been tried to overcome barriers but there is little evidence so far

of success in bringing about behavioural change in the 21st century and compliance remains low (Jenner et al. 2002). This is evidenced by numerous reports both nationally and internationally. A European study reported hand hygiene procedures were sub standard in a third of the 169 acute hospitals surveyed (Struelens et al. 2006).

1.6 Drivers of hand hygiene in the 21st century

Towards the end of the 20th century and into the new millennium creative ideas developed that ranged from educational strategies, imaginative poster campaigns, voice activated reminders, behavioural modification, social marketing, and the use of patient observers to enforcement through disciplinary action. However, threaded throughout this was the perception of a lack of scientific evidence for practitioners to be convinced that hand hygiene actually reduced infections (Pittet 2001). This is familiar rhetoric to that of the medical colleagues of Semmelweiss in the 1800s. Nationally this was not unnoticed and the DH took a leading role by setting the agenda. This was achieved through several initiatives which included observations of practice through a 'Saving Lives' programme (DH 2006) that later formed part of contractual performance monitoring and a bare-below-the-elbows directive, designed to promote hand hygiene practice (DH 2007b).

Internationally the WHO, as part of their First Global Patient Safety Challenge, adopted a hand hygiene improvement strategy that developed draft guidelines in 2004 that were finally published in 2009 (WHO 2009). As part of this work, Sax et al. (2007a) developed the concept of 'my five moments for hand hygiene', whereby the fundamental reference points were identified. Four moments are related to patient contact/care that has been considered accepted standard practice for many years. However, the fifth moment requires hand hygiene following contact with the environment. This was previously only required for the environment where patients are cared for in isolation facilities for a specific infective risk. The challenge is to justify to practitioners that contact with the environment is equally as important as performing an aseptic procedure. The concept was claimed to aid practitioners as a simple aide memoir, but the change in practice requirements was not found to be as simple to introduce or indeed for practitioners to understand.

Although this concept has been launched both nationally and internationally, and claimed to have been tested, the methods have not been presented in the conventional style expected within an academic paper and as a result it is not possible to fully scrutinise the authors' claims. Moreover, it is not clear whether implementation has led to improved hand hygiene practice and reduced infection. Of note is that Canada has chosen 'four moments', combining two of the actions required, and therefore international consensus is at variance. If experts cannot agree it is difficult to translate into practice, especially when there is no published evidence base.

The WHO (2009) guidelines were led by Professor Didier Pittet who through extensive work on hand hygiene is acknowledged worldwide as a leading expert. He achieved some success in 1995 when he introduced a multi-modal approach to hand hygiene in a hospital in Geneva which involved the introduction of alcohol based hand rub, an extensive poster campaign and engagement of healthcare staff at all levels of the organisation (Pittet et al. 2000). Much of the literature on hand hygiene refers to this work and the current National Patient Safety Agency (NPSA) 'Clean-your-Hands' campaign by the (NPSA 2004a); International Save Lives: Clean Your Hands annual campaign that commenced in 2009 (WHO 2010) and guidance from the United States of America (Center for Disease Control 2002) are all based on this. However, Gould et al. (2007) were highly critical of the multi-modal approach, which they considered a customised intervention, unlikely to be effective when transferred to another country, placing emphasis on hand hygiene as a quick fix solution to healthcare associated infection. There is also superficial acknowledgement of the failures of the approach. Although there was an overall improvement in hand hygiene compliance through the multi-modal approach, this did not apply to one professional group, medical doctors. Further work undertaken by Pittet et al. (2004) confirmed this. The evaluation of the initial pilot study from the national 'Clean-your-Hands' campaign demonstrated some success but also highlighted a lack of medical engagement (NPSA 2004b). This was also reflected in the more recent campaign in Australia (Ferguson et al. 2009). Poor medical compliance with hand hygiene has been well documented (e.g. Albert & Condie 1981, Tibballs 1996, Wendt et al. 2004, O'Malley et al. 2005, Pantle et al. 2009) with consultant doctors identified in their publication title "as the worst culprits" (Araf et al. 1999).

1.7 Personal motivation for the research

As a consultant nurse and experienced infection prevention and control practitioner, I realised that hand hygiene is an important clinical activity and a pivotal strategy in reducing infections. In recent years high profile campaigns, media and international attention together with national policy directives have been introduced in an endeavour to improve compliance with this seemingly simple activity. Personal experience, particularly from observing staff in practice within the NHS and the private sector in both acute and community clinical settings, supported the need for further action. Consequently this research study in relation to hand hygiene with consultant doctors was proposed.

1.8 The content of the thesis

The literature review at Chapter Two identifies a gap in the studies in relation to hand hygiene compliance with consultant doctors that led to the formulation of the research questions for this thesis. This informed the design of the study and methods of observation, field notes and semi-structured interviews. Chapter Three provides the justification of the research methods used and the theoretical framework together with details of the research design and the clinical setting for the research. Detailed findings from observations of hand hygiene practice together with thematic content analysis of interviews and field notes are presented at Chapter Four, which are then discussed in Chapter Five. Finally at Chapter Six, conclusions, implications for clinical practice, recommendations, together with the strengths and weaknesses of the research study and my personal reflections are produced.

Chapter Two

2 LITERATURE REVIEW

2.1 Introduction

The overview to the thesis together with the background and context to the hand hygiene agenda were introduced in Chapter One. The purpose of Chapter Two is to present the literature review, demonstrating a gap in the previous studies undertaken and thereby provide the rationale and justification for selecting consultant doctors as a focus for hand hygiene research in clinical practice.

First, the purpose and aim of the literature review are provided prior to describing the literature search strategy and identification of studies. Research studies specifically in relation to hand hygiene within clinical practice are appraised and their contribution to the body of knowledge assessed. These are reviewed by their theoretical framework and methodology and therefore presented predominantly as surveys, observations and interventions. Detailed critical analysis focuses on a selection of studies, particularly those aimed specifically at doctors.

Through a step-by-step approach the formulation of research questions and a proposed methodology to undertake a research study within clinical practice that focuses on consultant doctors is revealed.

2.2 Purpose and aim of the literature review

Personal experience together with specialist infection practitioner knowledge in relation to hand hygiene indicated a study undertaken in clinical practice with consultant doctors was likely to involve data collection through naturalistic inquiry. Although 'qualitative' researchers have debated the extent that a literature review should be undertaken within the naturalistic paradigm a pragmatic approach was selected to "guide the researcher" to be "open and informed" and therefore cognisant of the literature (Morse & Field 1996, p37). The justification for this was to derive explanations from previous research and build on such "previous research rather than reinvent the wheel" (Silverman 2006, p340). In addition to this, is the broader remit to be knowledgeable in relation to expert opinion and the wider agenda related to the subject of hand hygiene.

The aim of the review of the literature in relation to clinical hand hygiene practice was:

- Cognisance of the literature in relation to the subject and examination of the current evidence base, derived from empirical research and expert opinion, including consensus guidelines.
- Exploration and critical appraisal of the key literature relating particularly to doctors hand hygiene practice and consideration of its contribution to the body of knowledge.
- Identification of the limitations and any gap to formulate research questions.

2.3 Outline of systematic approach and evidence synthesis

The search strategy, described further in the next section, was based on guidance for conducting literature reviews such as that contained in Beecroft et al. (2006) together with local university and NHS guidelines. This facilitated the requirement to systematically select the right resources, identify search terms, utilize journal abstracts appropriately and record references. The main search method incorporated electronic searches of databases through both the university search site and NHS Health Information Resources from 1962 to January 2010. The NHS search site enabled the setting up of an automatic alert message to be generated as further hand hygiene literature was published. In addition, as part of personal professional development a review of key journals continued.

Literature on hand hygiene is extensive and consequently the focus for the final selection of key papers was selected through a process of determining inclusion and exclusion criteria. The inclusion criteria incorporated empirical research published after 2000 but prior to this if considered seminal work; the quality of studies assessed against a methodological codebook as described in section 2.6; papers specifically relevant to doctors and a mix of methodological approaches. The exclusion criteria encompassed studies measuring consumption of products, patient observations, technique and audits as these provided quantitative results only. In addition, studies that researched multiple infection practices were also excluded unless they were considered to be seminal work that provided a detailed focus on hand hygiene.

Evidence was synthesised by grouping the studies together in their type and methods of data collection and critically analysing each paper, as presented from page 14 to 28. This re-analysis of studies led to the identification of a gap in the current knowledge base of consultant doctors' hand hygiene practice and views as summarised in section 2.16.

2.4 Literature search strategy

To achieve the aim, to be cognisant of the literature and examine the current evidence base, a broad-brush approach to amass as many references as possible with the aim of filtering relevant work was used (Burnard 1993). By means of expert personal knowledge, articles, textbooks, information from professional Internet sites such as the Infection Prevention Society (2009) and the National Patient Safety Agency (NPSA) Clean-your-Hands campaign (NPSA 2009) were gathered. However, it became apparent there was a vast array of literature, confirmed by the use of the Internet search engine Google Scholar (2009) that identified over 400,000 hits using the key word "hand hygiene". The initial search strategy proved particularly useful to consolidate the topic and assist in determining the criteria for a structured literature review. For example reading the literature highlighted the differing terminology used for hand hygiene.

The methodology for the literature search centred on electronic searching via the NHS Health Information Resources (2009) Internet site. This was selected for its clinical relevance, quality assurance and that it provided access to books, journals and databases. Journal abstracts are provided with some linked to full text articles. The site has a number of features to facilitate searching, such as the ability to search resources in groups and de-duplicate, which saves much time. Prior to setting key words and limits the search guidance advises the use of the 'home page' for an initial trawl. This revealed 3,199 hits using "hand hygiene" and re-enforced the requirement for an efficient focus.

The key words selected for the search included "hand hygiene", "hand-washing", "hand antisepsis", "hand decontamination" and "hand cleaning/cleanliness" within the section 'title and text'. Truncation was used for the latter, whereby hand clean* could identify both cleaning and cleanliness. However, wildcarding, the technique of ensuring words that contain 's' or 'z', such as hospitalisation was not required.

The following criteria were set for the literature search:

- Open start date to explore developments in studies over time.
- End date January 2010.
- Acute hospital setting related (term 'community hospital' also used in USA).
- National and international work published in the English language.
- Quality journals that are peer reviewed.

Using the criteria set, the first group of databases was searched: Bandolier, Cochrane Library Database of Systematic Reviews, The Database of Reviews of Effects (DARE) Health Technology Assessment Database (HTA), NHS Economic Evaluation Database (NHS EED), UK Database of Uncertainties about the Effects of Treatments. From 11 results only four were specifically related to hospital hand hygiene as others merely referred to these terms.

The second group of databases included: AHMED, BNI, EMBASE, HMIC, PsychINFO, MEDLINE from PubMed, CINAHL and HEALTH BUSINESS ELITE. The search using key words selected continued to produce large numbers of articles, but adding "hospital" filtered out a significant number. "Hand hygiene hospital" identified the largest number of studies (859) mainly in the 21st century, whereas hand washing (169) provided the earliest work from 1969 and hand decontamination (89) predominantly from the 1980 and 1990s. The remaining key words of hand antisepsis and hand cleaning/cleansing (16) tended to be associated with non-English speaking countries. Use of different key words resulted in some duplication.

The abstracts of studies extracted were reviewed and separated into those of interest, review articles and those of empirical research. Articles that were not specifically focussed on the criteria set or focused on other hand hygiene techniques such as the specialist practice of theatre scrubbing prior to invasive surgical procedures were excluded. In addition, only studies that were undertaken in either English speaking countries or where seminal work has been undertaken were included. The leaders for infection prevention and control research, particularly in relation to hand hygiene, are England, Austria, Germany, Switzerland, United States of America and more recently Australia, Canada and the Netherlands. It was evident from the search that in the last few years many

countries around the world are undertaking research in an endeavour to find solutions to improving hand hygiene compliance. From this group of databases 106 journal articles of empirical research were selected for further review.

The third group of databases searched on the NHS site included: the National Library of Guidelines, NICE Guidance, Clinical Knowledge Summaries and International Guidelines, with just two providing additional literature. The international guidelines were from the Centers for Disease Control in the USA ranging from 1962 to the latest in 2002. The WHO (2009) guidelines on hand hygiene did not feature and demonstrates that electronic databases are not failsafe and that using one source has limitations. The UK guidelines produced those from the NPSA (2008) and the equivalent from NHS Quality Improvement Scotland (2005). The individual organisations databases were also searched as they provided additional references.

The final NHS site search was based on three specialists' collections within NHS Evidence that located just two new items from the 'health problems/infections' database. This site located the WHO (2009) guidelines for hand hygiene and USA guidance on measuring hand hygiene (Joint Commission 2009).

Further Internet sites were searched to capture additional literature, guidance and initiatives that included: National Electronic Library for Infection; Department of Health; Geneva Hospital; Infection Prevention Society and The Hospital Infection Society to name a few. The university library intranet site was also utilised, particularly WebCat, the main catalogue of books and journals, for its provision of literature that is not available on the Internet or electronically.

In addition, specific national and international infection control and research journals were selected including the American Journal of Infection Control, Infection Control and Hospital Epidemiology and the Journal of Hospital Infection. Authors, considered experts in their field and known to have produced seminal studies, such as Didier Pittet, Dinah Gould and Elaine Larson were targeted by searching databases and journals by author. To ensure valuable work was not excluded, an 'incremental approach' was implemented whereby reference lists of relevant articles and textbooks were examined (Burnard 1993). This resulted in earlier articles of interest dating back to 1962. Although this resulted in a vast

literature base it ensured that key work was unlikely to have been excluded. Of note is that after the end date of January 2010 numerous articles on hand hygiene continued to be published.

2.5 Selection of the literature

The results of the literature search can be considered as identifying two main categories: the wider literature that provided the background to the subject area and those studies specifically related to empirical research. The literature in relation to the background was used for providing the context to the hand hygiene agenda and both national and international policy drivers as described in the introduction to the thesis at Chapter One. Before discussing the empirical research an explanation of how the quality of the studies was determined and is also justified.

2.6 Determining the quality of studies

Following extraction of the studies of empirical research the study quality was determined. However, assigning 'levels of evidence' as described by Phillips et al. (1998) to judge the quality of research did not aid the final selection because the studies were judged to be at lower levels. Greenhalgh (1997) makes the point that a seven point scale to simply check the design is insufficient and the hierarchy does not apply to naturalistic research. Therefore, in order to select a section of the literature from the numerous studies reviewed, a screening process through the use of a methodological codebook, which assigns numerical weight to assess quality, was used. The codebook originally designed by Rasmussen et al. (2000) was selected for its apparent simplicity of yes/no answers to appraise both quantitative and qualitative data collection methods with one mark awarded to each 'yes'. Although useful, a methodological codebook has to be used with care as valuable studies could be lost by not meeting stringent criteria (Duffy 1985). For example, several studies scored poorly against ethics as observations were carried out without subject consent (Harbarth et al. 2001, Pittet et al. 2003, Lankford et al. 2003, Sladek et al. 2008). They may however be considered valuable as they avoid the issue of behavioural change when being observed and provide a realistic picture of practice. Therefore, the final selection was based on a mix of quality, relevance to practice and seminal work.

Further exclusions included those studies that measured consumption of products, patient observations, technique and surveillance/audits as they provided quantitative results that did not provide insights into understanding hand hygiene practice. A number of studies addressed multiple infection practices and were also excluded unless known to be seminal work (Gould & Chamberlain 1997 and Huang et al. 2002) or of a different methodology (Prieto 2003). The studies reviewed are presented in a summary table at Appendix One.

2.7 Review of studies undertaken

A selection of research studies are considered, drawing on those with a particular focus on medical staff. They are considered according to the methods used and contribution to the body of knowledge. The focus is on studies undertaken in the 21st century. This is based in part on the finding by Gould et al. (2008) in their Cochrane review that more recently published research did not support the findings of an earlier systematic review by Naikoba and Hayward (2001). For example the Naikoba review found that single interventions such as education did not work whereas Gould et al. (2008) suggested they do. Further reasons for focusing on the 21st century are related to the large number of studies and in recognition that contemporary healthcare has changed considerably from the previous century.

2.8 The use of surveys in hand hygiene research

The surveys reviewed used a range of methods, which included hand delivered, postal, or web based questionnaires to diaries and focus group discussions. Most surveys focused on knowledge and attitudes were also used extensively in relation to behavioural theories that identify psychological constructs predictive of hand hygiene behaviour.

Surveys provide useful information through establishing a knowledge base and/or attitudes that can be used for hand hygiene education and training. However, they do not provide insights into practice and responses are restricted to pre-defined response categories. For example a web-based survey specifically aimed at facial plastic surgeons was designed to assess their knowledge of hand hygiene products and indications for use through just three questions (Levanthal et al. 2009). This study was selected for review as it focused on doctors and was published in a peer-reviewed journal. However, the research steps lacked detail

and the findings of surveying 122 surgeons demonstrated a lack of knowledge that led the authors to conclude that hand hygiene practices were sub-optimal. It is difficult to understand how this conclusion can be justified without having observed practice.

Surveys based on social psychology to identify individual factors that provide cognitive explanations into hand hygiene behaviour have become increasingly popular. Sax et al. (2007b) provided interesting insights, whereby social pressure from patients, superiors, colleagues and the person perceived most influential was highly ranked as an influence on hand hygiene practice. These were findings also identified by Whitby et al. (2006). Beliefs in relation to the importance and ease of hand hygiene and adherence were also highly ranked. However, results were assigned 'high ranking' for all questions posed, which could infer responders providing the correct answer. Also, the findings are only useful if intention or belief is actually put into clinical practice.

2.9 Combination of surveys and observation

Surveys have been highly criticised by the eminent researcher Larson (2009, p91) who stated, "surveys I think are worthless; we overestimate how much we do with hand hygiene". Researchers have attempted to address this by using a mixed methods approach, for example combining a survey with observation (Larson et al. 2004, Pittet et al. 2006, Jenner et al. 2006, Sladek et al. 2009) or with semi-structured interviews (Cole 2009). Although Larson et al. (2004) found the observations reflected the self-reports by nurses, she acknowledged measurement time was too short and hand hygiene methods not consistent, which affected validity. Conversely, Jenner et al. (2006) found that observed practice by healthcare professionals was poor and bore no relation to intention and self-reported behaviour. A different method by Cole (2009) studied student nurses by assessing knowledge through questionnaire and semi-structured interviews. The students were found to overestimate their knowledge and skills, suggesting this could prevent barriers to improved performance.

The combined studies of cognitive determinants' and observation by Pittet et al. (2004) and Sladek et al. (2008) warrant more detailed review, as these are two of the few studies specifically undertaken with doctors.

2.10 Studies aimed at doctors

Pittet et al. (2004) designed a cross sectional study of physician hand hygiene practice, beliefs and attitudes through observation and self reported questionnaire within a university teaching hospital in Geneva. This proved to be a challenging publication to critique as the authors constantly refer any detail as 'described elsewhere'. For example the observation is assessed through hand hygiene opportunities and adherence 'described elsewhere' and 'against published guidelines'. Referencing is also used for the design of the self-report questionnaire and without description and justification for validity reduces confidence in the tools used. However, other sections do provide detail in the research steps undertaken and an element of acceptance is required, taking into consideration the limitations of word count for publication.

The study states that from the population of 1266, 163 physicians (including medical students) were observed and 153 completed the self-reports immediately after the observation. The findings demonstrated that the most senior were the least compliant and there were noticeable differences between specialities. For example percentage hand hygiene compliance was just 23.3% in anaesthesiology yet 82.6% in paediatrics. This contrasts with the analysis of the self-reports that suggested there were high levels of intention, motivation and positive attitude. Perhaps this is a result of the research setting having experienced a high profile hand hygiene campaign that started in the 1990s and has continued. However, it does question why cognitive determinants do not accurately predict behaviour or have the desired effect on practice. The lower levels were associated with hand hygiene after glove removal and that only 35% thought they were aware of guidelines. Pocket hand gel was associated with better adherence, but this was perhaps because gel was not always available at the bedside. The authors were surprised to find only 44% of physicians considered they could be role models and play a pivotal role in changing human behaviour. They suggested that re-enforcing the importance of the role model and improving physicians hand hygiene compliance could result in an improvement overall. However, the study did not extend beyond this assumption.

In contrast the study by Sladek et al. (2008) in Australia was smaller as 32 doctors were observed and the survey of self-reported thinking styles addressed different cognitive determinants. The self-reporting tool, 'The Rational Experiential

Inventory', had been administered in a previous study but was unpublished. Although the 32 doctors had been recruited from the original study of 115 doctors the validity of using two separate studies with such a time lag is questionable. The self-report study was implemented from May 2005 to February 2006 whereas the observations commenced later in September 2006. With the Australian focus on the national hand hygiene campaign during this time there is the potential for cognitions to change during the period covered by the overall study.

The observations were undertaken in two Australian teaching hospitals. The participants, although consenting to the study, were unaware their hand hygiene practice was being observed so as to try and avoid the effects on their behaviour. Although the ethics of obtaining consent against a participant sheet that is not faithful to the study is questionable, the Research and Ethics Committee approved it. However, it is of note that the mean compliance rate of only 7.6% perhaps demonstrates the reality of practice. The correlation of greater hand hygiene compliance with self-reports found significant and positive relationships to experiential thinking style, with no relationship to rational thinking style. Therefore, it could be suggested that efforts to improve hand hygiene compliance should focus on experiential learning. Although the authors' findings may aid promotional campaigns or education and training, they acknowledge the findings need to be tested in practice.

The WHO (2009) consider identifying cognitive determinants of hand hygiene practice remains an outstanding research question, however, this is still a limited method. Kretzer and Larson (1998) concur as they reviewed several commonly used constructs (self efficacy, beliefs, perceived health threat, cues, attitudes, subjective norms, perceived behavioural control, intention and the stages of the processes of change) and recommended outcomes needed to be integrated into an intervention to improve practice. Surveys therefore can provide useful insights but it could be suggested they should be considered as a pilot phase to inform further research.

2.11 Observational studies of hand hygiene

Structured observational studies continue to demonstrate that hand hygiene compliance is sub optimal with studies identifying a mean baseline rate ranging from 5% to 89% and with doctors frequently identified as the least compliant (WHO

2009). The majority of studies were undertaken within the positivist paradigm and therefore there is a focus on results, which do not provide the explanations as to why compliance is poor. Certainly some insights are gleaned when particular barriers to hand hygiene are observed such as a lack of access to facilities, products or more positively as Creedon (2005) found where provision of bedside alcohol hand gel improved compliance. Many of the published articles reviewed lacked descriptive detail with regard to the observation in terms of both planning and implementation. Consequently many studies were considered not worthy of inclusion.

The study by Wendt et al. (2004) was descriptive and considered relatively large in terms of 2,138 observations carried out over nine months. Of particular interest was the similarity of the research setting in a university teaching hospital to the setting for my research study, albeit undertaken in Germany. The structured observational tool was also familiar as it is used for audit purposes within local clinical practice and recommended nationally by the NPSA. This protocol for observation is known as the Fulkerson scale whereby 15 typical clinical activities are ranked from clean to dirty. However, German guidelines do not accept hand-washing as acceptable and therefore only the use of alcohol hand rub was considered appropriate. This contrasts with the original tool, based on hand washing (Fox et al. 1974). In addition the criteria used within the tool differ to the guideline for practice. This questions whether it is morally right to judge practitioners' performance against criteria not recommended in practice. The authors have secondary referenced this tool, citing Rotter (1996) who is not the primary source. Jacobson (1992) describes giving full credit to the original developer as an ethical obligation to the scientific and professional community. There does not appear to have been a pilot study to pre-test the tool, which would have established validity and reliability (Waltz et al. 1991).

A sampling strategy was not identified in terms of sample size, number of observations to be recorded or time period as expected in a structured observation (LoBiondo-Wood & Haber 1994). However, a convenience sample appears to have been used, which is appropriate for the purposes of a study undertaken in practice. Forty-one observers were trained in observation using the structured protocol. Although details are not given, such preparation is considered essential to reduce bias (Polgar & Thomas 2000). It could be argued

that the strength of the study is that observers did not enter the setting as researchers, but as participant observers, collecting data during their routine work. Conversely, within the methodology of this research the expectation is that the observer is non-participant so as to remain objective (Rees 2001). There was no description of how the observations were recorded and it is assumed this was covert. If recorded later the extent of recall is questionable and consequently impacts on the quality of data collected. Personal experience of this protocol, as part of audit activity, indicates recall is likely to be unreliable. In addition the authors acknowledged they did not test for inter observer variations as this was not seen as a problem, somewhat surprising with a large group of 41 observers. In striving for objectivity a systematic approach to the activity and checks on accuracy of observation are essential (LoBiondo-Wood & Haber 1994).

An ethical issue with the research was identified as the heads of the departments were informed of the study, but the subjects observed were not. Although this covert approach may be considered to provide a true reflection, this lack of informed consent has been described as bordering on unethical practice (Polgar & Thomas 2000).

The research results were presented with limited reference to descriptive and inferential statistics used. Without this discussion it is difficult to be confident in the analysis, particularly as Gardner et al. (1986) found that most papers submitted for publication contain statistical failings. Notwithstanding this, analysis demonstrated areas of statistical significance between doctors and nurses and also between the 'clean to dirty' ranking. For example, nurses were more compliant than doctors and that hand hygiene was more likely to be undertaken with 'dirty' activities such as contact with patients' secretions. The authors described an unexpected result, as high compliance was found with nurses when in contact with the cleanest activity, touching packaged sterile goods. Observation failed to identify why staff considered some activities more important than others and this would have strengthened the study.

The discussion section of the study compared the data collected against the Fulkerson scale with the German guidelines, which are not as stringent and consequently higher compliance is achieved. This anomaly identifies the need to scrutinise tools, particularly in respect of those used in different countries. Also,

operational definitions may differ. For example Germany describes hand washing in clinical practice as using an antibacterial soap, whereas in the UK a product is not specified (Pittet 2004). These issues could affect generalisability.

The observational study by Wendt et al. (2004) is assessed as having a number of flaws, particularly the controls required of scientific studies. This is not easily achieved in the real world of practice but the studies can be considered high in realism (Polit et al. 2001). However, the study does provide a useful insight into the complexities of undertaking research in a healthcare setting and also identifies doctors as the least compliant healthcare group.

In reviewing observational studies Boyce (2008) is highly critical and cites a lack of standardization of criteria and observation techniques, the Hawthorne effect, that they are time consuming and usually only capture a fraction of what is happening. In the USA the Joint Commission (2009) have produced a monograph to assist organisations on standardising the measurement of hand hygiene and perhaps this may be seen in future studies. Other issues might be addressed through theoretical perspectives from within the naturalistic paradigm whereby the researcher works with participants not only to observe but also to obtain explanations.

2.12 Interventional studies in relation to hand hygiene

Interventional studies and particularly randomised controlled trials (RCTs) are considered the gold standard of research. The Cochrane database, where quality RCTs are stored, revealed a systematic review of studies where interventions to improve hand hygiene have been implemented (Gould et al. 2007). Only two studies from 50 were selected for review; Gould and Chamberlain (1997) a controlled before and after study and Huang et al. (2002) a randomised control trial. Indeed there is limited evidence from RCTs overall in the field of infection prevention as most studies are found to use non-experimental designs (Pratt et al. 2001).

The Gould and Huang studies undertaken in England and China respectively, both used a single intervention based on education. However, hand hygiene was just one aspect aimed at improving practice within the principles of 'universal precautions'. The significance of this is the ability of observers to focus on

multiple tasks, particularly as Huang's study was just 30 minutes for each observation, whereas Gould observed for two hours. The outcomes demonstrated an increase in hand hygiene compliance in the Huang study and conversely no change in compliance in the Gould study. The studies although similar do have numerous differences, not least of which is cultural, and Gould acknowledged problems in controlling the education sessions within her study due to poor attendance. She expected staff to attend a series of five sessions; this could be considered an unrealistic expectation as clinical staff with shift patterns may have difficulty being released. Gould et al. (2007) also identified the flaws within these studies commenting that both were poorly controlled and that there remains a dearth of studies that are methodologically robust.

The drawback with a Cochrane review is that studies that may provide useful insights are excluded because they do not meet strict criteria. It could therefore be argued that as compliance with hand hygiene continues to be sub-optimal, interventional studies have not provided a solution in any case. However, even excluding the strict criteria related to quality, there appears a scarcity of interventional studies aimed specifically at doctors, as they tend to be multidisciplinary. Just one study was found by Salemi et al. (2002) that provided a detailed description and focused on doctors following observations of different groups of healthcare staff. To achieve further understanding, this study was selected for review in greater depth and is explored in the next section.

2.13 Interventional study in relation to doctors

The study by Salemi et al. (2002) is described as an observational and educational study undertaken in a hospital in the USA. Five separate observational studies were undertaken of physicians, nurses and respiratory staff hand-washing compliance in two intensive care units over an 18-month period. However, the observations appear to be audits as there was no recording of observations of individual personnel. The physicians are the focus of the study and the intervention is feedback and education, followed by interviews, interspersed with the observations. It is not clear if the physicians interviewed were the same ones observed and the inference is this was not the case.

An overview of the criteria for observations based on national guidelines was provided. However the data collection tool was not identified and there was no

description of pre-testing questions for validity and reliability. The operational definition was given whereby the standard of hand washing was identified as the use of soap and water for at least five seconds, as the authors recognised alcohol hand gel was not in use. The selection of five seconds is surprising as the national guideline at that time specified at least ten to fifteen seconds (Larson et al. 1995). There is no mention if local guidelines reflect the national guidelines and this study was undertaken before the latest USA guidelines (CDC 2002) were implemented. A key point for research in practice is that the researcher must ensure the most recent recommendations are utilised for credibility.

Sampling size is not referred to but the number of observations for each study is clearly stated as approximately 250 over a one to two week period. However, the observations are not spread evenly across the different groups of staff and the reasons for this are not explained. This does not support the provision of the control and structure required in quantitative data collection (Polgar & Thomas 2000).

Nurses were trained to carry out the observations, but there is an absence of detail. The observers were on modified sick leave and also carrying out other functions, which questions the ability of the observers to focus on the research observations. Gould et al. (1996) describes issues of observer fatigue. This could be a factor with multi-tasked staff, already with a health problem. Staff who are not part of an observational team may miss data and there does not appear to be testing of inter-observer variations.

Informed consent and ethical approval is not mentioned and this gives an impression that the researchers did not consider it. Informed consent is an expectation in the USA as there are clear guidelines and regulations. Particularly relevant to this study is the first of the USA Belmont Principles, 'respect for persons', which requires informed consent (Grady 2002).

The results following the first observation identified 19% compliance by physicians, which increased to 85% following personal contact and feedback of results. Following education there is a gradual decline from 76% to 74% to 68%. The initial explanation by the researchers is that the physician who conducted personal feedback in the first part had more influence than the infection control nurse who

carried out the education. However, the reality is, these were different interventions and therefore personnel cannot be compared. It could suggest it is the intervention that had the greater impact. The gradual decrease in compliance was considered to be due to a lack of sustained input. Interestingly the respiratory therapists and nurses almost mirrored the increase and decline in compliance, but no interpretation is given. The weakness in the results for this part of the study was the sole use of descriptive statistics, whereas inferential statistics would have strengthened the analysis (Greenhalgh 1997).

The 40 interviews of the physicians appeared to be structured as a Likert scale of one to five to assess four statements in relation to the highest impact on hand-washing compliance. The results in highest ranked order were: knowledge that hand washing prevents nosocomial infections; poor physician compliance; personal commitment to hand washing and knowledge of repeat studies. Seventy three percent remembered the educational presentations, but only 18% the e-mail newsletter, inferring the former as a more meaningful learning medium. However, learning and remembering are different cognitions.

This was a large in depth study that was poorly described, probably because of the constraints of publication, which limited reporting to just four pages. The authors attempted to link infection rates to the study, but acknowledged the surveillance data reviewed was unreliable. Although the study provides more insight than structured observations alone and suggested education improved compliance, it did not explain how improvements can be sustained. In addition the highest rate of physician compliance at 76% still had a non-compliance rate of 24%, almost a quarter. The authors suggested physicians are role models and acknowledged they are unlikely to attend voluntary meetings on the topic, highlighting the value of face-to-face interactions, which played a role in improving physician behaviour. The strength of the study was acknowledged as the involvement of their subjects; however the major time commitment was a weakness. Therefore the study may have benefited from a qualitative approach that typically uses small samples that are more in depth by combining the observations, interventions and the interviews.

2.14 Studies within the naturalistic paradigm

There were just two studies, Prieto and Macleod-Clark (2005) and Erasmus et al. (2009) designed within the naturalistic paradigm that met the selection criteria of hand hygiene within a hospital setting.

The first study by Prieto and Macleod-Clark (2005) used observation within the design of a case study to research infection control practice in relation to isolation care, of which hand hygiene formed just one part. Prieto's (2003) thesis was obtained, which provided greater insights than the published article. This study provided a more holistic approach by exploring the infection control practice of nurses and healthcare assistants caring for patients in isolation on a medical ward, by working alongside them. The researcher's presence was considered to have influenced participants' behaviour but indeed this was the purpose of the role; to influence practitioners by promoting good practice.

The study was in three phases. First the priorities for practice development were identified to inform the production of a practice guideline followed by phase two, participant observation alongside an educational strategy. The final phase explored the perceptions of the intervention to identify the impact on practice. Multiple methods of structured and unstructured observation and semi-structured interviews were used which contributed to credibility and dependability, but would have been considered highly rigorous if undertaken with a team of researchers (Grbich 1999). However, the aim was to work with staff, coaching on an individual basis so as to understand the behaviour and responses to the intervention. The small purposive samples were appropriate, as qualitative data collection is not concerned with achieving statistical significance (Pope & Mays 2000). Informed consent was obtained from all participants and evidence of ethical consideration throughout as verbal consent was also obtained from patients that do not appear to feature in previous studies reviewed.

A strength of the study are the steps taken to follow the principles of participant observation and there appears a strong understanding of the role. Participant observation is not structured and therefore sample times or occasions are not required. However, working with staff for eight hours at a time supports the principle of prolonged engagement that contributes to the credibility of the research (Lincoln & Guba 1985). A validated tool was used for the structured

observation and a template developed for the unstructured observation. This latter tool, to observe eight key infection control activities, was practical but lacked specific criteria as 'always washed hands during patient care when needed' can be open to different interpretations.

A potential weakness is the ability of the observer to record or memorise so many infection control activities over one shift of eight hours. However, there are examples of good practice through recording the observations during the shift and the recognition of the potential for loss of data or distortion due to memory. The author addressed this through recording brief notes at the time, developing skills of relying on mental notes and faithfully completing records at the end of the day. In addition participants were asked to agree the interpretation during the feedback/reflection session at the end of the shift, therefore supporting the principle of dependability. These member checks are essential as a major weakness of qualitative data collection is the potential for subjectivity from the researcher as the data collection instrument and accuracy of the subsequent interpretation (Cutliffe & McKenna 1999). Peer review would have strengthened the trustworthiness of the study.

The overall finding of the study revealed participants experienced difficulty comprehending infection control recommendations and varied to the extent they were adopted. The overall compliance for infection control was 79%. Extracting the findings on hand washing reveals compliance during and after patient care as little as 0% during and 75-100% after. However, during one-to-one coaching this increased for both activities to 60-100%, demonstrating the value of this latter intervention. A particular finding identified that participants' were motivated to wash their hands as a means of self-protection such as after providing care to those patients in isolation due to infection.

This study was particularly noteworthy as both the thesis and published article provided 'thick description' whereby the reader can visualise the setting and the events taking place (Guba & Lincoln 1989). Providing such detail contributes greatly to the principle of transferability as the reader could apply the findings to their own clinical practice and replicate the study.

The study by Erasmus et al. (2009) was valuable as it focused specifically on hand hygiene to study potential determinants with nurses, medical students and doctors from five Dutch hospitals. Although described as a qualitative exploration, it used just one method, structured interviews through focus groups and one to one interviews. It is unusual in naturalistic enquiry to use structured interviews, as this may not allow for informal interaction, particularly as the researcher is likely to focus on achieving the answers to the questions posed. The interview guide was based on the Theory of Planned Behaviour, but the designed tool does not appear to have been pre-tested. The impression is that questions were answered according to the guide with input into Nvivo software for content analysis and code specific reports generated. The publication does not provide the thick description evident in Prieto and Macleod-Clark's (2005) article. These points intimated a more positivist approach in the conduct and reporting of the research in spite of the mention of discussion or comments made in the findings. However, the findings were of note, as they were presented by each staff group and therefore physicians' views were explicit.

The findings were presented as attitudes, subjective norms and perceived behavioural control. Attitudes encompassed the advantages and disadvantages of hand hygiene. The nurses and medical students referred to self-protection and physicians the protection of the patient as advantages, whereas all three groups considered the disadvantages were the negative effect of products on hands. Both nurses and physicians also commented on time to comply with the requirements. With subjective norms they all reported difficulties with addressing others compliance and described the culture of the hospital whereby it is accepted that senior staff deviate from the rules. Of particular interest was the impact of role models on nurses and medical students whereby they considered they adjusted their behaviour to match the behaviour they witnessed. The medical students in particular felt they were unable to comply if the rest of the group did not comply and copied the physicians and staff members. This raises questions for actions as leaders and role models. The final finding, perceived behavioural control, identified the barriers such as availability and access to hand hygiene materials, lack of time and forgetfulness. The physicians specifically reported on the scarcity of evidence based research as a barrier.

This study contributed to the body of knowledge in that a picture emerges of what staff were thinking, providing an insight into practice, although it would have strengthened the study to have observed practice. However, by exploring the realities of practice the significance of the role model, specifically physicians, was revealed. Therefore, the next section considers the literature in relation to doctors as role models.

2.15 Doctors as role models

In the UK senior doctors are titled consultants or may hold the post of professor. Consultant doctors are a group worthy of attention as Araf et al. (1999) identified them as the worst culprits for poor compliance with hand hygiene. This group, as a result of their status, should be setting an example as role models. Status is important as Lankford et al. (2003) found that health care workers in a room with a higher-ranking person who did not wash their hands were significantly less likely to wash their own hands. Indeed suggestions for further studies to improve hand hygiene compliance include identifying the strategies to re-enforce the importance of the role model (CDC 2002, Pittet et al. 2004).

The concept of role models in medicine has been described in terms of professional values, attitudes and behaviours (Paice et al. 2002). In particular, junior doctors highlighted the qualities of a role model that included the psychosocial aspects of medicine (Wright 1996). This holistic view is supported by social theory that considers much of our behaviour is learnt by observing, imitating and interacting within our social environment (Bandura 1977). This theory has been applied in the science of management where providing a positive role model was found to accelerate learning (Bartol & Martin 1998).

Ferguson (2009) considers that physicians by the nature of their role are leaders, role models and educators and play an important part in promoting adherence to safe practices by other staff and students. He continues by proposing that they are potentially effective system engineers, can embed safer practices in all elements of patient care and are able to promote essential structural and organisational change. Therefore, if doctors at the most senior levels act as effective role models for hand hygiene practice it could be hypothesised that compliance would improve and ultimately an infection rate reduction.

2.16 Formulation of the questions for the research study

The review demonstrated that despite there being extensive literature on hand hygiene there was a distinct gap in the research and limitations in what had been produced. Few studies of quality were found to exist. Poor compliance was however identified in hand hygiene within clinical practice, particularly amongst doctors at the higher level; and interventions to improve compliance had so far been unsuccessful.

A gap in the literature had exposed the fact that we do not know: why doctors do not comply with policies and guidelines in respect of hand hygiene; what their beliefs and attitudes are in respect of the formulation and implementation of hand hygiene strategies or the variance between their knowledge of hand hygiene and their actual performance in clinical practice. The questions raised made it apparent that there was a need to explore the skills and understanding of consultant doctors in relation to hand hygiene compliance; how these consultants related this to their practice; what influenced their thinking; and how influential consultant doctors may be as leaders and role models within the setting of clinical practice.

It had become clear there was a significant requirement to address this overall dearth of research in the area of consultant doctors practice and perspectives and by so doing make a substantial contribution to the body of knowledge. The purpose of this research study was therefore to determine the key factors in the formulation of strategies required to influence, develop and support consultant doctors in both their leadership role and their effectiveness as role models in the promotion of hand hygiene compliance. Consequently, three research questions were formulated:

- To what extent do consultant doctors conform to hand hygiene recommendations in clinical practice?
- What factors influence consultant doctors´ hand hygiene practice?
- What strategies are required to promote consultant doctors as role models and champions of hand hygiene practice?

As the theoretical approach is dictated by considering how best to answer the research questions and in so doing achieve the aim and objectives of the study, a

qualitative approach was considered most appropriate. The next chapter, Chapter Three, identifies and justifies the research methods selected to achieve this, together with a description of the steps taken to implement the methods and the detail of the collection of data.

Chapter Three

3 METHODOLOGY AND RESEARCH DESIGN

3.1 Introduction

The previous chapter identified a gap in the literature in relation to explaining consultant doctor's hand hygiene practice and a dearth of studies that have focused specifically on doctors. A remarkable situation given the poor levels of compliance reported amongst this group of healthcare professionals. This resulted in the formulation of the aim, objectives and research questions for the study presented in Chapter Two. Chapter Three therefore presents the rationale, justification of the theoretical framework and research design selected specifically to explore the hand hygiene practice and perspectives of consultant doctors. It also describes the implementation of the research methods selected and highlights the importance of reflexivity in qualitative research.

3.2 Justification of research methods

The studies reviewed in Chapter Two demonstrated that in spite of the extensive literature on hand hygiene there were surprisingly few research studies of quality, most carried out through quantitative data collection and therefore studied from a positivist perspective. Although the use of scientific methods is considered to reduce bias, what people say they do and what they do may be very different. For example, several researchers set closed questions, asking the subjects if they performed hand hygiene as recommended. Such questions are likely to produce a positive response and therefore the truth is not necessarily found. Surveys work well for testing knowledge, but exploring attitudes and beliefs lends itself more to an interview by trying to search for greater insights. In addition, it was found that when observation was used it was highly structured and therefore unlikely to capture all influencing factors in such studies. The interventional studies failed to produce sustained results and did not fully achieve hand hygiene compliance. Consequently, it has not been established what specific interventions work with staff, particularly doctors.

These limitations may therefore be due to the research methods adopted. Studies designed within the positivist paradigm or embedded within the principles of the naturalistic paradigm have contrasting designs and the approaches are very different. For example within the positivist paradigm the researcher has subjects;

controls are in place to assure objectivity, and there is a distance between the researcher and the researched. A top down approach is undertaken. In contrast the research observation, a naturalistic inquiry, is endeavouring to follow a bottom up approach and work with participants to gain insights and understanding into infection control practice. This is achieved by minimising the distance between researcher and participant, a key feature of this paradigm (Polit et al. 2001). Although Prieto's (2003) case study had a limited focus on hand hygiene due to the wider remit of the project, it was undertaken within the naturalistic paradigm and provided greater insights into behaviour and exploration of perceptions through the methods used. The interviews conducted by Erasmus et al. (2009) provided findings in Dutch hospitals that attempted to explain the theory/practice gap, but did not go far enough. A key finding was the importance of physicians as role models. However, a gap in the literature was identified that could be addressed by undertaking research specifically in relation to hand hygiene with senior medical staff in England, exploring not only their perspectives but their actual practice; what do they do in the reality of a practice setting; what are the challenges; and what do they need to support their practice as doctors and role models? The assumption is that answers to these questions will identify the interventions required to establish hand hygiene compliance. The approach in research design therefore, is considered to be dictated by how best to answer the research questions formulated in Chapter Two:

- To what extent do consultant doctors conform to hand hygiene recommendations in clinical practice?
- What factors influence consultant doctors' hand hygiene practice?
- What strategies are required to promote consultant doctors as role models and champions of hand hygiene practice?

Consequently, it was decided that a study be undertaken through a holistic approach, based on the principles within the naturalist paradigm which seeks to understand human behaviour in natural settings (Rees 2001, Topping 2010). This is supported by a national strategy on the prevention and control of infection, which highlighted the need for further qualitative research to aid greater understanding of the issues involved (Department of Health 2003). Such an approach would therefore be unique in relation to hand hygiene research.

3.3 Selection of methods: theoretical framework

The approach or broad methodology selected is embedded within the naturalistic or interpretative paradigm considered most appropriate for human inquiry (Reason 1994). This theoretical perspective lends itself to exploring the behaviour and view of consultant's attitude and beliefs towards hand hygiene by engaging with them in research.

There are a number of approaches used within the interpretative paradigm, such as grounded theory and phenomenology, each with its own philosophical orientation (Burns & Groves 2001). However, these specific research methodologies were not thought to be appropriate to answer the research questions. For example, grounded theory was not selected as the purpose of the study was not to develop theory but influence practice. This is supported by Silverman (2001), who considers there is not a standard approach among qualitative researchers but a commitment to naturally occurring data. Denzin and Lincoln (2005) describe the researcher as a 'bricoleur', borrowing from different disciplines. However, this has resulted in much debate and criticism within the research community and in selecting a broad methodology it is recognised the principles of rigor need to be scrupulously adhered to. Therefore, the framework for a rigorous design by Marshall and Rossman (1999) for a study using qualitative data collection and analysis was selected. Within the design the research methods selected included a field-based approach using observation, semi-structured interviews and field notes to seek the insider's point of view, known as the emic perspective (Holloway & Wheeler 2002).

3.4 Research design

The structured framework for qualitative inquiry, as previously described, provided a step-by-step approach thereby ensuring all aspects of a rigorous design were incorporated. This framework was also used to prepare the research proposal for successful ethical and local research governance approval. Throughout the design and implementation credibility, transferability and dependability of the research was addressed to support and achieve trustworthiness, thus providing confidence in the findings (Guba & Lincoln 1989). The following sections present and integrate the key steps in the research design together with the implementation of the methods used, demonstrating the concept of rigour (Burns & Grove 2001).

3.5 Sampling strategy

The research took place within a large university teaching hospital with a target population of over 400 consultant doctors working in clinical practice, from which the sample was drawn. Purposive sampling, whereby the researcher uses their knowledge to select the most representative and/or productive participants was selected (Morse & Field 1996). This type of sampling of a pre specified group is considered to be a rich source of data (Procter et al. 2010). As this does not usually provide representativeness of the whole population under study; to support the principle, consultants were selected from a wide range of clinical specialities. The clinical specialities ranged from intensive care units, medical/elderly care and surgical specialty wards/units, and those consultants who transcended specialty. Individuals considered particularly pro hand hygiene and more importantly those that were not, were targeted. The ethos of this strategy was to gain insights into the motivation of consultants who were interested and to identify the factors of those consultants that appeared not to be engaged.

The target sample size of 20 consultants was considered an approximate number, supported by Polit et al. (2001) for this type of research. The final sample size is determined by the principle of data saturation having been met as statistical power analysis is not appropriate for qualitative data collection, described by Silverman (2006, p308) as a "theoretical rather than a statistical logic". This principle, to support credibility, is based on ensuring the data collected provides a rich and full description with the assurance that no new data will emerge by conducting further observations and interviews (Morse & Field 1996, Lacey 2010).

Although 40 consultants were invited to participate in the study over a period of time, not all accepted, but towards the end of data collection several others had volunteered. However, the final sample size of 21 consultants achieved data saturation and further participants were not required.

The inclusion criteria were all consultant doctors working in clinical practice within the hospital setting and the exclusion criteria, simply those not meeting the inclusion criteria. An awareness of the potential difficulties was acknowledged in the selection of consultants as participants, described as 'elites' in the literature, due to their status and power within the organisation. In preparation for such

difficulties a personal visit was undertaken to meet with a clinical/academic professor from a large university teaching hospital outside of the research environment, who had a strong belief in hand hygiene practice. This afforded the opportunity not only to discuss his views, but also experience a first meeting in the role of researcher with an eminent consultant doctor.

Strategies to pre-empt potential challenges from consultants were prepared in the planning of the study, such as presenting a personal and professional positive image. Highlighting that I also practiced as a consultant nurse in the specialist field of infection prevention and control was thought to establish professional credibility. It was also considered that consultants were more likely to respond positively to a personal approach as this has two key benefits for the researcher. First, it afforded the opportunity to use techniques to encourage those consultants who were not interested in research on hand hygiene, but therefore were likely to provide important insights. Second, it enabled prospective participants, who are more used to questionnaires than interviews, to understand the stringent measures prepared and implemented in respect of confidentiality and anonymity. All 21 consultants approached personally agreed to be participants, whereas 19 consultants communicated with via email did not respond.

3.6 Ethical Issues

The principles of beneficence, non-maleficence, and respect for autonomy, confidentiality and justice were considered throughout the research design. Consultant doctors are not considered a vulnerable group and are in a position to be able choose whether or not they wish to be part of research studies. Therefore the main ethical issue was considered to be assuring confidentiality. In particular, data collected needs to be held securely and coded to ensure confidentiality and anonymity in accordance with the principles of the Data Protection Act (The Office of the Data Protection Registrar 1996). Consequently all participants were provided with verbal and written information, including details on confidentiality and anonymity prior to obtaining written consent. A copy of the written information and consent form is presented at Appendix Two and Three respectively.

The Royal College of Nursing (1998) consider ethical requirements of the researcher relate to their integrity, conscientiousness and quality of the research.

Firby (1995) suggests this can be addressed through peer review, therefore a peer reviewer together with monitoring of the research study carried out by two research supervisors, was planned and implemented.

Ethical consideration also had to be addressed in relation to the potential for witnessing poor practice. Although my presence in clinical settings was in the researcher role, there is a professional responsibility and accountability as a nurse to consider intervening, as patient safety is of paramount importance (Watson et al. 2010). Fortunately intervention was not required. However, steps were in place to discuss issues or concerns with the managers or infection team as appropriate. As the infection team had a nurse dedicated to work alongside staff, this route was chosen to feedback where areas of practice needed strengthening. An example of this was in relation to the management of enteral feeding sets and the local policy requirements of the principles of asepsis.

3.7 Data collection methods

Three data collection methods were selected:

- Observation of hand hygiene practice, to assess compliance in the practice setting and to identify the challenges of its achievement.
- Semi-structured Interviews to explore beliefs and attitudes.
- Compilation of field notes to capture informal discussions and provide the wider perspective.

A good research design includes planning of equipment to be used, preparation of availability, possible breakdowns, together with issues surrounding confidentiality and security. A checklist was devised as follows:

- Consumables: Information sheets for participants, blank consent forms, paper for field notes and pens.
- Interview room and a do not disturb sign.
- Audiotapes, recorder, spare batteries and transcribing machine.
- A hospital safe (not at the research site) to securely store coded audiotapes.
- Locked cabinet to separately store signed consent forms from all other items to assure confidentiality.

- Separate locked cabinet to store securely coded transcripts and field notes.
- Computer to store electronic records and support data analysis.

3.8 Preparation for data collection

Pilot studies are not usually a feature of qualitative inquiry, but a practise observation and pre-testing of the interview guide was undertaken with two consultants so as to experience the realities and potential difficulties of implementation. The first consultant was a willing and helpful participant, passionate about the importance of hand hygiene in clinical practice. The second consultant approached was a total contrast and consequently proved a valuable participant as experience was gained of the challenges previously described in interviewing 'elites'. Although this consultant controlled the discussion, it generated a lively debate.

This preparation for data collection proved invaluable to practice techniques, receive feedback, and identify any obvious problems in question selection within the prepared guide. Practice observations assisted in identifying how and where to stand during the ward round so as to discreetly complete the observation checklist and make notes. The questions compiled for the interview guide were found appropriate, this provided confidence in the overall style of approach and interaction, and therefore the guide was not altered. Although the dedicated time of a half hour worked well, it was evident the setting up and checking of the audiotape equipment efficiently and with alacrity was crucial so as to not prolong the interview time allocation. As part of the research proposal it was planned that the data collected during the practise observation and pre-testing of the interview guide would not contribute to the study and therefore would not be part of the data analysis. However, in hindsight this data provided valuable insights and would have been worthy of inclusion.

The following sections describe the justification of the data collection methods selected and the implementation of the observations and semi-structured interviews over a five-month period.

3.9 Observation

For ethical observational studies the researcher should identify clearly their role. Therefore the role of participant observer was selected as this provided the opportunity to openly observe behaviour in relation to hand hygiene compliance and the practical skills of consultant doctors. It also afforded the opportunity to ask for explanations of activities (Watson et al. 2010). A particular strength of the study was not being an employee within the research setting and therefore the ability to adopt the total researcher role, whereby visits to the clinical area are aimed specifically at carrying out observation (Grbich 1999). However, there was an awareness that separating the role of researcher from the professional role was challenging, due to the expectation that an infection specialist would normally challenge inappropriate practice. The strategy employed, emphasised to consultants that the purpose of the observation was not to be judgemental, but to witness the challenges of implementing hand hygiene practice within the realities of the clinical setting and that the research was designed to work with participants. This building of a rapport ensures that essential data is collected (Hammersley & Atkinson 1995).

Observations were planned within the clinical setting during the consultant ward rounds, as this provided the best opportunity to observe hand hygiene practice. Ward rounds within teaching hospitals are usually accompanied by a number of staff and therefore this provided an opportunity to melt into the background, be unobtrusive and note take covertly. There was the potential for the Hawthorne effect, a term coined from experimental studies that investigated methods of increasing productivity at the Hawthorne Works in Chicago during the 1920s and 30s. Although the intervention, environmental changes, increased productivity a major finding established that productivity increased due to the effect of the factory workers being observed (McCarney et al. 2007). Subsequently the definition has been broadened and authors often refer to how the observed may act in a way expected of them (Bartol & Martin 1998, Kohli et al. 2009). Further description of how the presence of an observer may influence behaviour has been described as the 'observer effect', although with prolonged exposure researchers consider this does not usually persist (Watson et al. 2010). Indeed most of the consultants commentated that after the initial start they were so focused on patients they were not consciously aware of being observed. However, several consultants did acknowledge their practice 'may have been better than normal'.

These aspects can affect the trustworthiness of observational data therefore other steps are taken to contribute to the rigour. Such steps included selecting a familiar observational checklist, that had been used personally in clinical practice to observe hand hygiene compliance, in an endeavour to reduce observer errors. The tool has previously been successful confirmed in increasing inter-rater reliability. It should be noted that the observation was not structured as for quantitative studies and therefore enables the wider skills of observation, learnt from extensive personal experience in clinical practice, to be utilized. The skills of the observer are vital to the success of the study however observers are human and concentration was found to lapse during lengthy ward rounds. Therefore observation is unlikely to provide 100% accuracy and this is acknowledged in the findings.

The observation checklist, found at Appendix Four, was selected as it is a nationally recommended observational tool for auditing hand hygiene compliance (NPSA 2004). This was considered to provide a focus for the observation and an insight to compliance, particularly as the literature describes poor hand hygiene compliance in terms of percentage results. Permission was sought and given by the NPSA to use the tool together with a small adaptation, in that staff group labels other than consultant doctors were removed. The tool is designed to provide a snapshot of practice over a 20-minute period. However, as it was used for a longer period it could be considered to provide a more accurate reflection of practice, albeit the checklist was not designed to assess the detail of the standard of hand hygiene carried out.

Nineteen of the 21 consultants participated in observations with two having to cancel. Although the interviews were undertaken with these two consultants it was not possible to re-arrange the observations, as both consultants were not in clinical practice again during the time frame of the data collection. Each ward round was generally of three hours duration in time and afforded the opportunity for informal comments and brief discussion, thus prolonging engagement. The latter was found to provide some of the most valuable data, recorded as brief field notes.

3.10 Semi-structured Interviews

Semi-structured interviews, considered by Silverman (2001, p291) as the "gold standard" of qualitative inquiry were selected. Audiotaping provided the opportunity to focus on listening and a degree of accuracy when analysing the data. An interview guide, at Appendix Five, based on the research questions, was devised so as to direct the conversation, but allow participants to describe experiences in their own words (Porter 2000). Spradley (1979) recommends use of a 'grand tour' question that makes sense to the participants and allows them to generalise. However, it was essential to have an element of control over the interview to ensure participants did not ramble on and in recognition that consultants, well practised at being in control, did not take over. It was recognised there are many issues in interviewing 'elites', not least the requirement for considerable interviewing skills and that they "do not have time for interviews" (Grbich 1999, p87). Interviews were therefore well planned and lasted for half an hour, with agreement for a potential second interview in case the interview was cut short or relevant information not collected. In practice, the consultants were appreciative of the technology used to tape-record the interview, which provided a clicking sound at 30 minutes to identify the tape was full. However, many of the consultants actively continued with the interview after the 30-minute time line.

All twenty-one consultants participated in the semi-structured interviews, with nineteen participating in the observation of practice. The plan was to pre-book the interview to take place within a week of the observation so as to maintain continuity, but by necessity the time frame varied from immediately after the observation to up to two weeks later. However, this variation did not appear to affect the research findings.

3.11 Field notes

Hand written notes and jottings are essential to capture the wider perspective and reflections of the researcher. Sandelowski (2002) describes the importance of intuitive thoughts and 'gut feelings' from using all the senses, which contribute to the richness of the data. This does however raise the potential of subjectivity, but self-awareness, application to the quality of data analysis and use of a peer reviewer was considered effective and appropriate actions to mitigate against this. It was evident the observational field notes provided additional rich data outside of the checklist through informal discussion and comments by the consultants.

These were typed up soon after compilation, as the notes were often difficult to decipher due to the covert nature in which they were written.

3.12 Security and confidentiality of data collection

Adhering to the preparatory checklist presented at section 3.7 and my personal integrity of following ethical principles maintained security and confidentiality. Of note is that participant names only appeared on the consent form and all other items thereafter were coded. There was however an awareness that the consent form, field notes, observation check list or interview tape were occasionally carried together (although as separate items) during transportation from the research site until they could be separated for storage. These are the practicalities that are difficult to address totally, adding to the heightened awareness and personal anxiety for potential accidental loss, albeit during a short time frame. Although spare batteries were available for the audiotape, in practice, use of a spare audiotape proved invaluable when the batteries did expire. This facilitated a smooth transition during the interview rather than wasting time and the distraction of changing batteries.

3.13 Data analysis procedures

Data to be analysed comprised the observation checklist, the field notes and semi-structured interviews. The purpose of this was to produce a rich account and deep understanding of the hand hygiene practice and perspectives of consultant doctors. This requires theoretical thinking and deep emersion in the data. Lathlean (2010, p423) describes there is “no right way” or “standard recipe for success” in qualitative data analysis, but that principles, schematic approaches and practical aids are helpful. Burnard (1991) and Anderson’s (2007) frameworks were used as practical tools, supported by the underpinning principles to interpret qualitative data, advocated by authoritative researchers such as Silverman (2006). In qualitative research the data is analysed concurrently as it is collected. However, it was recognised there are implications of analyse from first impressions therefore steps, later described, were put in place to mitigate against this.

3.14 Analysis of the observation and field notes

The observation checklist provided a numerical weighting based on recording each time a ‘hand hygiene opportunity’ was undertaken (a tick) or missed (a cross) during clinical practice. This provided percentage compliance results for each

consultant with the simple use of a calculator. Each observation was reviewed with the field notes. It was apparent that two areas of observation were recorded, those of the consultant specifically and the other related to reflections on the people and the environment within the clinical area. The records from the field notes were extensive and a simple categorisation system was developed to support the analysis, presented in the findings at Chapter Four.

3.15 Analysis of the semi-structured interviews and field notes

Mateo and Kirchhoff (1999) consider that although individuals are unique, patterns exist and therefore thematic content analysis was selected as the analytical approach to identify the patterns. Burnard's (1991) manual framework for thematic content analysis was selected as a practical tool to manage the data from the interviews and field notes through a fourteen stage step-by-step systematic approach:

- Notes and memos made after each interview.
- Transcriptions read through and notes made. Immersion in data.
- Development of category system: open coding of transcripts.
- Broader categories developed.
- Final list of categories developed.
- Peer reviewer generates category system.
- Transcripts re-read alongside categories and adjustments made.
- Each transcript coded.
- Coded sections are cut out and collected together.
- Cut out sections are pasted onto sheets.
- Selected respondents are asked to check category system.
- Sections are filed together for direct reference during writing up.
- Writing up – using tape recordings and full transcripts.
- Either: write up findings using verbatim examples or write up findings linked to the literature.

Although Burnard's (1991) framework proved useful there was a major limitation in respect of the manual stages of highlighting the categories, together with the cutting and pasting of large amounts of data onto sheets of paper. As this proved to be unmanageable it was addressed by integrating Anderson's (2007) framework. Although similar, the recommendation is electronic rather than manual data

management by using a simple computer programme such as Microsoft Word. For example the differing colours in the programme's highlighting feature is easy to use to identify each category and the transcripts can be cut and pasted into individual electronic files, to be copied again and pasted into themes.

Field notes were made immediately following the interview, mainly in bullet point form, to capture initial thoughts and feelings. In addition to the steps advised, the tapes were listened to on the same day of the interview and transcribed within the week. An assistant, experienced in transcribing, transcribed the audiotapes verbatim. Although some researchers consider that much is lost by not undertaking this task personally, a case can be made that more is gained from the time spent repeatedly listening to the tapes rather than in typing. Flick (2006) describes how transcription standards have not been determined and indeed is highly critical of standards of exactness that are likened to natural science and the precision of measurements and that the focus should be on interpretation. However, he provides some useful hints to guide the transcription and these were used for the assistant to number each line for ease of reference, note laughter and use a series of full stops to annotate pauses.

The field notes reflecting consultant doctors' informal discussions and remarks made during the ward round or moving from ward to ward were appended to the transcriptions of the semi-structured interviews for analysis. Each interview was reflected upon by listening to the audio-tape together with reading the transcriptions, reviewing results of the observation and field notes several times over to 'immerse in the data' in preparation for developing the categories. Thoughts were jotted down. The immersion in the data resulted in being able to visualise the participants as transcriptions were read. However, earlier interviews appeared to take precedence in the initial analysis and therefore the data was also reviewed in reverse order.

Identifying the initial categories was relatively straightforward, although 'collapsing again and again' proved a challenging task. There was also an overriding vigilance to ensure that something of importance was not missed. Indeed the categories were revised as concentrated analysis continued during the derivation of themes. An example of an edited participant transcript is presented

at Appendix Six to demonstrate the early stage of 'open coding' against the final categories selected.

3.16 Derivation of themes

The themes were derived by first highlighting the categories coded by different colours within the transcription and field notes electronically. The text was cut and pasted by colour code, resulting in one document for each category prior to printing. However, this was not a simple process as there was a personal struggle with a perceived dismantling of participant stories.

The categories were read repeatedly and potential themes noted. As themes emerged the categorised transcripts were collated under the theme headings, both manually and electronically. Derivation of the themes proved to be the most challenging aspect of the study and was only finally arrived at during the writing up of the findings. Going back and forth is described by Holloway and Todres (2010) as an iterative process. Part of this struggle was also the commitment to ensuring the 'truth' was presented and the search for natural variation (Polit et al. (2001).

Interpretation of the data is considered to reach beyond the results to uncover the meaning of the themes so as to answer the research questions (Holloway & Todres 2010). The final analysis weaves together the themes in an integrated whole to provide an overall structure and integrated description. This constructionist task is described by Polit et al. (2001) as demanding creativity and intellectual rigor. The overall structure, themes and categories are presented in the findings at Chapter Four.

3.17 Trustworthiness of the data analysis

Naturalistic research uses the concept of trustworthiness rather than reliability and validity to provide confidence in the research findings and includes the criteria of credibility, transferability and dependability (Guba & Lincoln 1989). To support the principle of trustworthiness, use of a peer reviewer and member checks, were undertaken in relation to the interviews and field notes. The peer reviewer supported how the categories and initial themes were arrived at. Two participant member checks were undertaken immediately after the interview, highlighting the researcher interpretation of key points. A further check by two participant

members was carried out at a later date to confirm the interpretation of the interviews. In addition, all participants were sent a copy of the first poster that was presented at a university conference and feedback invited in relation to findings and conclusions. The feedback received was minimal, thereby providing an element of confirmation of its accuracy. These steps were considered essential, as a major weakness of a qualitative approach is the potential for subjectivity by the researcher as the data collection instrument and therefore the accuracy of the subsequent interpretation (Cutliffe & McKenna 1999).

3.18 Time line for research project

The design of the project included a time line based on the principles of a Gant chart, which required revision on several occasions. For example it took almost five months to progress the protocol and application through research ethics, followed by local research governance before final approval was granted for the study.

3.19 Expected contribution of research to practice and dissemination

In the planning stage it was assessed that the contribution to research would include a greater understanding of the factors that influence the views and behaviours of consultant doctors together with the potential/real impact they have on hand hygiene compliance in the clinical setting. In qualitative research the principal of generalisability is not a feature, but the criterion of transferability is judged, whereby similarities in the findings may apply to other settings. This criterion is also referred to as applicability or fittingness (Guba & Lincoln 1989). It was considered likely the findings of the research would be applicable to other hospital settings. The design of the study therefore included the intention of wide dissemination of findings, recognising fully that the purpose of undertaking research is to share findings. This is discussed further in the personal reflection at Chapter Six.

3.20 Reflection

Reflexivity is a process used in qualitative research to reflect on how the researcher impacts on the research setting and can therefore affect both the data collection and analysis. Holloway and Wheeler (2002) consider that research does not happen in a vacuum, but there is a context in relation to the time and the physical and social environment. This also contributes to the principles of

trustworthiness through thick description, whereby others can visualise the setting, derived from the context and data.

Employing reflexivity proved to be invaluable, particularly when it was recognised and acknowledged that I began to consider myself sympathetic to consultant views and the challenges within clinical practice. Although this was considered of benefit to the study it also raised an awareness of the potential for subjectivity. However, this was compensated for by a commitment to search for the 'truth', a key concept in qualitative research and a term described by Silverman (2006) as an alternative word for validity.

A reflection on the perceived researcher/participant relationship during data collection and an overview of the research setting is presented as part of the findings in Chapter Four.

3.21 Summary

Overall, this chapter, Chapter Three, justified the theoretical framework and research methods implemented for the study to achieve the research aim, purpose, objectives and research questions posed. The following chapter, Chapter Four, presents the findings from the data analysis of observations, semi-structured interviews and field notes.

Chapter Four

4 FINDINGS

4.1 Introduction

The previous chapter described the design of the study, data collection methods and the process of analysis. This chapter presents the findings from the analysis of the observations of hand hygiene practice within a clinical setting by the research participants, the consultant doctors, together with the thematic content analysis of the semi-structured interviews and the relevant field notes. It is acknowledged that the findings from the observations and semi-structured interviews are interrelated as the interviews followed the observations, forming part of the holistic approach to the research study and not seen as two separate events.

First, the consultant doctors participating in the research study are introduced together with an insight into my perceived relationship with them as the researcher. This is followed by a description of the research setting so as to provide a context to the findings.

4.2 Participants

Specific details of the consultant doctors participating in the research study are not provided so as to maintain confidentiality. A total of nineteen consultant doctors, three female and 16 male, from a variety of specialties were observed during their ward round which lasted from between three to four hours. There were no obvious differences in the compliance results due to gender.

The range of clinical areas covered within the hospital included specialist surgical units, critical care and high dependency settings, medicine and elderly care. Several of the consultants had specialist roles that were disease specific, namely medical microbiology and joint clinical/academic posts. The findings highlight where there were differences in speciality role, but overall these did not reveal significant variation.

These same consultants were also involved in the semi-structured interviews. A further two consultants were interviewed only as they had to cancel the observation and because of rotational patterns it meant the observations were not

easy to re-arrange within the data collection period. Therefore, observational data is not included for them.

Most of the consultants were candid in their interviews and discussions, with several appearing to take the opportunity to convey and vent their feelings. However, two needed to be coaxed to express their own views, as initially their 'positive' responses appeared to be corporate views and not their own. I approached this situation by sharing some of the challenges they met during the observation, conveying an understanding of the realities of practice and reflecting on my own potentially unrealistic expectations as a policy writer for infection prevention practice. Also, sharing how much I had learnt from the experience of joining them in practice and my endeavour to achieve an open-minded approach.

4.3 The research setting

The research was carried out in an acute university teaching hospital and as such, all clinical areas that were visited as part of the research were extremely busy. In-patient areas were either in wards with four to six bedded bays with several single rooms or intensive care/high dependency units, where patients were either in an open plan area or in one of the few single rooms. All ward rounds, except one, were undertaken in the mornings where personal care and associated activities were carried out. This included physiotherapy, occupational therapy, portering duties, drug rounds, intravascular line care, observations, phlebotomy, discharges and admissions as examples. Visits were also observed from relatives, bed managers, the hospital chaplain, social services, and specialist teams such as infection control, the newspaper trolley and even groups of visiting medical students. Emergency situations and very ill patients were also observed. Of note were the challenges experienced by the domestic staff in trying to provide mid morning drinks to patients and carry out cleaning duties amongst all this activity. It created an impression of the 'messiness' of clinical settings, the real world of clinical practice, exacerbated in ward settings where there is open access with patients in four or six bedded bays. This also provided challenges for the ward consultants and the efficiency of the ward round, not least the lack of space. Additional equipment such as the notes trolley and computer on wheels (COW) aggravated this, or when membership of the ward-round was particularly large. Whereas, the ward rounds conducted within the intensive care units were smoother with each patient reviewed in a logical progression. Frequently, teams

in ward settings did not have a nurse present or only in attendance for just part of the time; this was seen as a loss to the aiding of communication in obtaining a comprehensive picture of patient care and communicating back further actions required. In addition to patients there were often relatives waiting to speak to the consultant.

A particular challenge for consultants in terms of time, were the 'outliers' (patients on other wards) or where doctors had patients that crossed specialities. This was compounded by a lack of a system to inform doctors when and where patients had been moved. Occasionally patients were absent for clinical investigations and a return visit was needed. The time pressures were evident and stopping for coffee or lunch before outpatients, operating theatre or other clinical duties appeared limited.

Although familiar with the clinical settings, the role of researcher afforded the opportunity to observe what actually was going on from a completely different perspective. It was an uplifting experience to witness how consultants concentrated on the complexity of the patients' medical condition, spent time teaching and communicated with the patient/relatives, sometimes amidst chaos! The impression was that the consultant doctors were patient focused and worked extremely hard. This overview highlights the context of undertaking research within the clinical setting and supports the principle stated previously, that research does not happen in a vacuum.

4.4 Observation of hand hygiene practice

The earlier description of the research setting highlighted the high level of activity within the open wards in contrast to the closed settings within intensive care units. It also captured the time pressures, intensity or hectic nature of most of the clinical areas. This context provides a perspective to the findings both from the field notes that highlighted a wide range of activities observed and the specific recording of hand hygiene compliance against the observation checklist. Prior to presenting the results from the observation check list the findings from the wider observations are considered.

4.5 Wider observations

There was an emphasis on hand hygiene at the entrance and exit to patient areas and the four to six bedded bays on the wards. All consultants used the alcohol hand gel on entry to wards and units, yet this was rarely undertaken on exit. However, ward consultants frequently missed the use of the hand gel entering and leaving the ward bays, whereas those working within intensive care/high dependency settings routinely hand gelled on every occasion as they moved from each bed-space. Albeit that they are not national recommendations, these requirements were within the Trust policy.

Observations demonstrated that hand hygiene was often carried out when there was not a requirement to do so, not only by the consultants but also by other staff members. An example of this occurrence was demonstrated when staff were standing on the ward round and used the alcohol hand gel, it seemed because it was there. Conversely hand hygiene was frequently not carried out when it should be. Staff were seen going to patients without undertaking hand hygiene prior to contact and specifically prior to aseptic techniques of administering an injection and on another occasion setting up enteral feeding. In particular there was an over use of gloves whereby they were donned when probably not required, such as assisting a patient to walk.

The recommended national and international hand hygiene technique of six specific steps was not observed on any occasion either by hand-washing or the use of alcohol hand gel. This six-step hand washing technique was originally designed by Ayliffe et al. (1978) to ensure a hand wash is significantly more thorough than normal hand washing. Steps in the technique ensure all the important parts of the hands such as tips of fingers; thumbs and the areas between fingers that are most commonly missed are thoroughly cleansed. The fact staff were not using the six-step technique conveyed an impression that either they were unclear, not conversant or chose just to ignore the recommended requirements.

Throughout the hospital there were signs and posters reminding everyone to carry out hand hygiene. Most of these were designed to be eye catching. However, there were some illogical placement of posters, for example one poster was located in the visitor car park and another that stated 'wash your hands before entering and leaving' but no hand wash basin was in the vicinity. In respect of

facilities and consumables there were both positive and negative factors in compliance levels. Easy availability promoted alcohol hand gel use, but on occasions it was missing or had run out. One consultant actively sought out alcohol hand gel when it was absent but did share that if I wasn't there he might have risk assessed the need for its use. There were frustrations expressed when the products were not available. Restricted access to hand-wash basins was observed in the four-six bedded bays when bed curtains or equipment acted as a barrier or in single rooms without en-suite facilities when patients personal wash items were present. Indeed, several comments were made on the feeling of invading the patients' personal space by using their washbasin for staff hand washing. Most of the consultants expressed intense frustration at the lack of secure space when entering wards to hang jackets or store other personal items in clinical areas to comply with the 'bare below elbows' policy.

4.6 Hand hygiene compliance

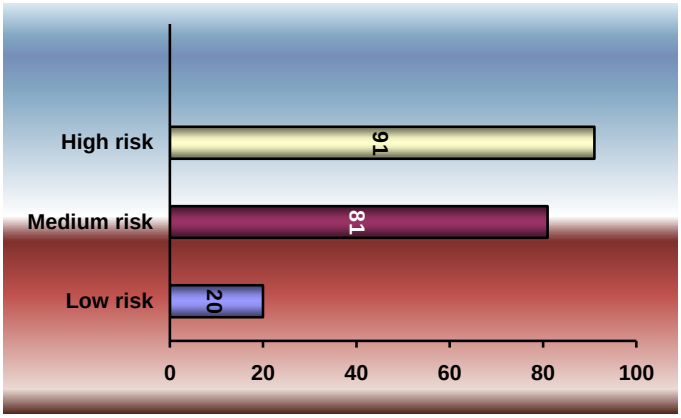
The percentage results of the observations, recorded on the national audit checklist for each participant were calculated from the hand hygiene opportunities against the actual practice. The checklist, which can be found at Appendix Four, identifies when hand hygiene should be undertaken. This is termed a 'hand hygiene opportunity' and is recorded positively as a tick every time this is achieved. Conversely if the participant fails to undertake hand hygiene when it is required it is recorded negatively as a cross. The ticks and crosses are totalled to calculate the percentage results. For example, if there were 10 hand hygiene opportunities and the consultant only undertook this practice five times, there would be five ticks, but five crosses from hand hygiene opportunities missed, resulting in a percentage score of 50%.

From the observations of the hand hygiene practice of consultant doctors during their ward rounds the results were collated to provide an overall percentage compliance. The combined results of 19 consultant observations demonstrated 64% compliance with hand hygiene.

The hand hygiene opportunities within the observational checklist categorise the activities in terms of risk. For example, carrying out an aseptic technique is considered a higher risk if hand hygiene is not carried out as opposed to handling patient notes, identified as lower risk. The activities associated with hand hygiene

opportunities are categorised into three risk categories: low, medium and high respectively, as later described and listed in Appendix Four. Therefore the results were also analysed by risk category and these results are presented graphically in figure one below followed by further description.

Figure 1: Results of hand hygiene compliance by risk category



The combined participant results for each risk category demonstrated low compliance associated with low risk activity (20%) and conversely a much-increased higher compliance for medium risk (81%) and high risk activity (91%).

4.6.1 Low risk hand hygiene activity

The main low risk activity was in relation to 'contact with notes and telephones etc', which scored zero, as there was not a specific action observed to undertake hand hygiene immediately before or after this contact. As one participant commented:

> *"how good a carrier of infection are folders?" [CD 01]*

Although this hand hygiene action was omitted, it should be noted that later most of the participants did go on to undertake hand hygiene before patient contact. Consultants considered this latter action, the most important standard required.

The 20% compliance for low risk activity was as a result of the five consultants in the intensive care setting who undertook hand hygiene routinely as they left every patient bed space. The environmental space, the ordered clinical activity, the

availability of alcohol gel and the smooth running of the ward round facilitated this. The activities of 'drugs round' and 'touching sterile goods' on the check list were assessed as part of other clinical activities that fell under medium-risk and high-risk activity respectively, and therefore not double counted. An example is where drugs were administered intravenously and therefore an aseptic technique is required.

4.6.2 Medium risk hand hygiene activity

Eighty-one percent compliance was achieved against the medium-risk hand hygiene activities that related mainly to patient contact, patient examination and administration of intravenous drugs

4.6.3 High risk hand hygiene activity

The percentage results in high risk hand hygiene activities were the highest compliance scored at 91%. These high risk activities related predominantly to the contact with infected patients cared for within an isolated environment or when undertaking wound examination. However, the percentage compliance would have been reduced below 91% if the participants had followed the local hospital trust policy or used the local hand hygiene audit tools, whereby additional hand hygiene is required on entering and exiting each clinical area/bay.

4.7 Comments noted during the period of observation

The field notes provided valuable data not only for noting the observations but the discussions and comments when walking between patients, rooms/bays or wards/units. This proved extremely valuable in capturing the frustrations or frank remarks of participant consultant doctors and contributed to a cumulative knowledge and understanding. For example, whilst accompanying an anaesthetist to an emergency, he pointed out that the hand hygiene practice required was not practical when racing to an urgent situation, knowing that minutes count. This consultant's practice was of high compliance on the intensive care unit and did lapse when dealing with emergencies based on the hospital policy. For example, in the emergency observed, he rushed through the entrance to the ward and into the bay without using alcohol hand gel. These were two occasions where hand hygiene was indicated based on hospital requirements and therefore he contravened the policy twice. He gave this as an example of his frustration

because he did not believe these occasions were necessary but was aware he could be admonished for this lapse.

This example was typical of statements made by consultants who were not attending emergencies but feeling time pressured when reviewing patients in other clinical areas. Before reviewing these comments and others that were integrated as part of the thematic content analysis from the semi-structured interviews, a reflection is presented on the perceived relationship between the consultants and myself during the observations and the interviews that provides further context to the findings.

4.8 Researcher/Participant relationship

My relationship as the researcher with the participants was perceived as both positive and productive, as consultant doctors proved willing participants and readily expressed their views. Holloway and Wheeler (2002) describe the debate of researcher distance versus a relationship that provides disclosure and sharing of experience, of which the latter was sought in this research.

Of surprise, when undertaking the research, was the personal pleasure and fulfilment of joining the ward-rounds, particularly being included in the informal teaching that took place. Consultants commented that after the initial start they generally forgot my presence. However, the challenge was to avoid the expression of personal or expert opinions when asked, providing only vague responses and emphasising the reason why the research was needed. As an infection practitioner it was important not to undermine the hospital trust standards but to focus on the challenge of building a relationship with the consultant doctors and achieve the research objectives. The comments and discussions prior to and after the ward round, particularly during the walk to other clinical settings contributed greatly to the data collection and subsequent thematic content analysis.

The open approach is particularly evident when listening to the audiotapes where expressions of anger, irritation, exasperation and frustration were vented by some, inferring an element of trust in the researcher. This was most apparent when one consultant described the disciplinary action he experienced and the hurt he felt, requesting this part of the interview be off the record. Efforts were made to convey a non-judgemental approach by expressing an understanding of the

challenges of implementing policy and guidance in the real world of clinical practice. Of note is that consultants did express concern over confidentiality and sought reassurance, particularly over the audio taped interviews and their security. They appeared impressed on the procedures in place particularly that audiotapes were coded and secured in a hospital safe when not in use.

4.9 Findings from the semi-structured interviews and field notes

Overall, the thematic content analysis of semi-structure interviews and field notes revealed a strong belief by consultant doctors in the value of hand hygiene. However, findings also revealed participants perceived a conflict between the drivers for hand hygiene in clinical practice versus those behind national and local policy directives. This gave rise to confusion, frustration and a lack of engagement thereby creating barriers to their leadership and acting as a role model. More specifically, whereas consultant doctors perceived themselves to be science-driven, they perceived infection prevention directives, both national and local, to be politically driven. These findings were strikingly apparent across the data as a whole. Furthermore, differing guidelines and audit tools failed to address levels of risk and a lack of engagement of consultant doctors in local hand hygiene policy development and implementation, was assessed to have compounded the situation. Despite such negative perceptions, the consultant doctors offered various recommendations to resolve the issues and engage them in the hand hygiene agenda.

The findings emerged from data analysis through the identification of categories and the emergent themes, connected through an overarching framework; 'Political versus Scientific Drivers' to explain consultant doctors views of hand hygiene practice which is presented in the final analysis towards the end of the chapter. This was found to have significant influence on the perspectives of the consultant doctors and was considered to have impacted on their clinical engagement with the hand hygiene agenda. The following sections presents the four themes, together with their associated categories, followed by the findings from each of the individual themes, which are then combined to demonstrate their connectivity into an integrated whole.

4.10 Rational for the themes

From the analysis of the 21 semi-structured interviews and field notes, the data was repeatedly reduced by assigning meaning so as to categorise it. An edited participant transcription is presented in Appendix Six that demonstrates how a number of the categories relate to the interview.

As the categories were identified differing and changing thematic labels were assigned as part of the thought process. The final themes emerged to provide insights and encompass the views of consultant doctors in relation to hand hygiene, thereby adhering to the original purpose of the study. The four themes and associated categories are as follows:

Theme 1: Impact of policy drivers for hand hygiene

- Top down approach to hand hygiene agenda
- National hand hygiene campaigns lacking evidence
- Misplaced emphasis on hand hygiene

Theme 2: Impact of local approach to implementation

- Controversy over content of local policy
- Threat of disciplinary action
- Approach to auditing hand hygiene practice flawed
- Approach to mandatory education and training inadequate
- Challenges to professional role

Theme 3: Beliefs and influences on consultants' hand hygiene practice

- Strong belief in hand hygiene undermined by scepticism
- Previous experience of hand hygiene
- Reality of adhering to best practice

Theme 4: Capitalising on consultant doctors as leaders and role models

- Using evidence to inform policy and practice
- Need for a tailored approach to delivering education and training to medical staff
- Promoting consultant doctors' senior role

In the following sections details of the findings are presented for each theme with a further description of categories. Selected participant comments are also presented to illustrate their view and provide richness to their story; the comments are identified by the use of quotation marks, italic font and indentation. Occasionally a series of full stops (…) are used to indicate irrelevant text that has been removed and bracketed non-italic words to provide context when needed. Some of the quotes are edited for ease of reading using standard conventions of punctuation so that a reader can understand and thus make sense of the sequence of words (Denscombe 2007).

4.11 Theme 1. Impact of policy drivers for hand hygiene

The findings within theme one had a major impact on consultants' views producing an overriding opinion that policy directives, starting at Government level, created a 'top down approach' and assessed by many as resulting in disengagement. This response was unexpected, as questions had not been prepared to trigger this topic and as the outpouring had been unprompted was therefore most powerful. The discussion around this theme proved to be quite emotive, with much anger, exasperation and frustration being expressed. However, there was natural variation, whereby consultants although acknowledging political interference also recognised there can be a positive impact of policy directives on improving practice. Within this theme consultants made reference to the political interference from external organisations to the hospital trust, predominantly the Department of Health (DH) and National Patient Safety Agency (NPSA) and referred to the World Health Organization (WHO). However, it should be noted that consultants were not always clear in respect of which organisation was steering aspects of the agenda being discussed, or they did not specify the organisations during the interview. Significantly, there was much criticism of the national hand hygiene campaigns, particularly the most recent, aimed at promoting a change in practice called the '5 moments' for hand hygiene. Consultants also referred to the misplaced emphasis on hand hygiene from the 'top down' as opposed to addressing other issues they considered of greater significance such as high bed occupancy or considering the financial costs associated with hand hygiene.

It is important to note that prior to and during the period of data collection, the DH had provided a member of their performance management team to work with

the hospital to reduce MRSA bacteraemia numbers, as they were off trajectory and therefore unlikely to meet their target as part of the national MRSA reduction strategy. Although this support was welcomed by the Trust there was huge pressure to improve performance not only from the DH, but also the Strategic Health Authority (SHA) and commissioners at the Primary Care Trust (PCT). A consultant, during discussion of the hand hygiene agenda, reflected on other aspects of hospital management and described how the term performance management had been introduced and that he considered the culture within the Trust made it futile to resist, resulting in clinician disengagement.

Within this theme, three categories were identified: the top down approach to hand hygiene agenda resulting in disengagement; national hand hygiene campaigns lacking evidence and the misplaced emphasis on hand hygiene.

4.11.1 Category 1.1 Top down approach to hand hygiene agenda

All the participating consultant doctors were critical of the 'top down' approach to hand hygiene practice either during the interview or in the off tape discussion and comments recorded in the field notes. Consultants described the extensive discussion on the web page, doctors net, citing that doctors were very angry and indicating these are commonly held views. Eight of the consultants were particularly critical of the DH during the interview.

> *"Don't think much of the Department of Health at the best of times, so - diktats, diktats are used". [CD 01]*

> *" I think the way it was pushed forward, as a sort of this will, from the top down. Government, Department of Health, down across the board …" [CD 09]*

Several consultants considered the reason for political involvement was due to the high profile attributed to high levels of hospital acquired infection and as a consequence involved an undercurrent against the medical profession.

> *"One thing I have found rather distasteful about the whole programme is right from the government side there has been a finger blatantly pointed at medical personnel for the cause of this MRSA which is, OK it is*

contamination and spread, but a lot of the lay public sort of feel, that you know, doctors have caused this because of not washing hands". [CD 11]

"……they keep trying to blame the medical profession for this, rather than recognising that actually it's not the doctors fault, it's the clever bacteria, but is there something we can do about it? …… and again that makes clinicians frustrated. I think the fact that we're being blamed for a problem rather than being asked to help resolve it. And I think there's a large political angle with this for blame as well as purely a health issue". [CD 18]

"It's a political tool that's been used for a much bigger political purpose. You know, it's to do with acquiring targets and consultants to be suppressed, independent treatment centres, getting work done at an extraordinary rate at whatever quality to meet political targets and consultants block that because professionally we don't like patients to be treated like tins of beans, you know, they are individuals. And so I think there's a, consultants need to be treated professionally over all of this". [CD 21]

4.11.2 Category 1.2 National hand hygiene campaigns lacking evidence

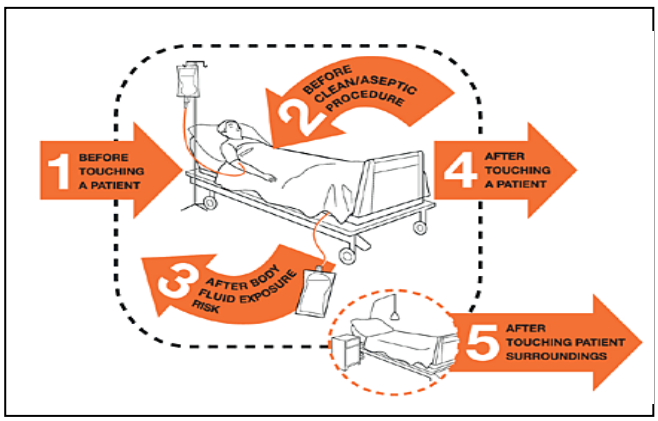
National hand hygiene campaigns initiated by the NPSA, an instrument of the DH, were also seen as politically driven with much comment on the lack of evidence and scientific testing having taken place before being introduced.

"They wrote it on their 'b….y' posters, everybody read them. They said wash your hands, use the gel. They put posters up that said things like if your hands are visibly clean wash with gel, they wrote wash with gel, so to deny that they did it is just like being a 'b….y' politician, it's complete nonsense and it's typical of the Department of Health to do something without doing a pilot study so the law of unintended consequences can be exacted on the whole population instead of on a small subset while you work out your campaign, refine it and get it right. It's just scientifically irresponsible behaviour and the Trust was so obsessed with MRSA that I don't think they even thought about it but the posters came from some national organisation so I think that was an unfortunate error. I mean let's

face it your average member of the public thinks of washing as being something you do with soap and water so to displace that common sense belief with an ill informed scientifically dodgy campaign I think was an opportunity wasted". [CD 12]

On the first day that data collection commenced with the first consultant, the NPSA launched the latest national campaign, '5 moments for hand hygiene', a World Health Organization initiative, highlighting five key moments when hand hygiene is required. The hospital trust had cited this concept within their policy issued two months earlier, although all but one of the consultants were not aware a new policy had been issued. During the data collection period of nearly five months, just two consultants had heard of this '5 moment' concept, but could not articulate the principles. Twenty of the 21 consultants interviewed were specifically asked their view of this concept by showing them the credit card sized advice, as presented in figure two. The one consultant not asked his view was the first participant, as the observation and interview was conducted on the day the '5 moments' was launched nationally.

Figure 2: Credit card sized picture of 5 moments for hand hygiene
Source:http://www.who.int/gpsc/5may/background/5moments/en/index.htm



Twenty consultants reviewed the credit card size picture of the '5 moments' for hand hygiene and attempted to visualise how the recommendations could be implemented in practice, talking through the challenges. Views varied, whereby consultants either liked the idea of the card or not.

"Yep, I think that is pretty much what is recommended from a Trust point of view but it's nicely put. Can I keep this?" [CD 11]

"I think there's too much information on there and this goes into, it's credit card size so it goes into a wallet, I mean how many times are you going to pull this out of a wallet to say now let me see do I use hand hygiene because I'm doing this with a patient? I don't think it's going to work really is it?". [CD 14]

Just three of the twenty consultants agreed with the overall concept of the guidance and considered they were already doing what was described and should be the bare minimum to protect patients. However, it should be noted these three consultants were not in full time clinical practice. The other seventeen consultants considered the '5 moments' difficult to implement or challenged the requirements. There were comments about the increase in time required to meet the standards and that additional consultants would be required to make it work. They were particularly vexed at being asked to change their practice yet again without any discussion and did not fundamentally agree with the change or that it was practical or achievable.

"I think again it's the, people will ask well what you know you're asking me to change my practice but why and that was the important question to have an answer to". I think consistent, clear, pragmatic guidance and solutions will fall on favourable ears. I think to get hung up on little things, risks diverting people's attention from what are central tenet of the message is really important and little things can divert people and something gets lost". [CD 03]

Other consultants were more critical about the practicalities of implementation.

" It's difficult again isn't it because the whole principle is entirely sensible. Um, and I think, I don't know, I think on the whole we probably do quite well but you can always do better can't you? I'm not sure whether er, when you take it to the stage where it is actually incompatible with actually doing your job, which potentially you are pushing towards that stage, then I think that's an issue". [CD 04]

It's just not do-able is it? You're talking about five hand gels in between one patient to the next. ..... but in practice I really can't imagine we're going to be adhering to five moments". [CD 05]

"It works great in a side room, if all the patients were in a side room that's the card but as you say it doesn't work on a six bedded ward …. when actually you're doing Doris' pills and then Bob falls out of bed next to you and you do a bit of that and then you're back to Doris again and instantly you've done some different patient contact - there's been no hand hygiene near some things, and that I think is how it works and that's certainly what we do you know you're over and you're talking to somebody and then oh you know can you have a look at Mr Whatsit's wound oh you know when you come back again". [CD 16]

Some of the steps required were described as a 'no brainer', particularly the moments after patient contact and before aseptic technique. The 'moment' that caused most consternation was in relation to the patient's surroundings and that the card implied it was given the same level of risk as an aseptic technique. There were questions over how many times hand hygiene was required when only handling notes or touching the trolley and these were seen as additional steps when ultimately there may have been no patient contact.

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"I think that if you add in lots and lots you may move the common sense forward and people will say you know this is a waste of time really". [CD 07]

"I suppose it's the after contact with surroundings that's the difficult bit isn't it because you're surrounded by so much I mean you cant, you'd be disabled if you were really doing this, for example you go into a bay that has been isolated and you wash your hands but you have to touch the door to get out and then do you wash them again on the other side, ... I mean how far can you go? So in that sense yes it's over the top". [CD 20]

Consultants also expressed concern at how the '5 moments' would be audited and recognised that there was the possibility to double count, whereby hand hygiene was carried out after a task and therefore may not be required before commencing the next one. An example cited was in relation to leaving one patient, gelling the

hands and then moving immediately to the next patient. To gel again was not considered necessary but there is a perceived expectation that hand hygiene is required again to meet the requirements of audit.

> *"Now if you were strictly auditing me for that kind of thing it would be very easy to then say, well [participant name] hasn't quite, he's not followed the World Health Organization Five Moments because he didn't then gel his hands again before touching that next patient 30 seconds later and there is an element of, I don't, yea I'm totally comfortable and feel right about gelling hands and all the rest of it but what I don't want to be doing is spending my entire life just you know bathed in chlorhexadine and gelling hands. It, it's not necessary". [CD 02]*

4.11.3 Category 1.3 Misplaced emphasis on hand hygiene

Most of the consultants considered the DH and NPSA approach resulted in too much attention being placed on hand hygiene at the expense of other requirements. For example inadequate staffing levels, lack of environmental cleanliness, overcrowding in the bays and high bed occupancy in particular were all cited as issues.

> *"That we have here, 95%-98%* [bed occupancy] *instead of the recommendations for 85% or 80%. So the hot bedding as people call it, that is a problem. There is no getting away from that, it's just been ignored, it's just been put to one side. The fact we haven't got isolation facilities or side rooms, that's the reason they don't have infections in private hospitals, that's the reason they have low rates of MRSA and other infections. If you go to European or other institutions where everyone is in a side room…… ……it's been the thing that's directed attention away from the fundamental failings of the NHS and the way that care is delivered. The trouble is that those things would of course cost billions of pounds to put right because every hospital would need to be rebuilt in this country". [CD 09]*

The consultants also made reference to issues that were considered higher risks than hand hygiene such as implementing standards required for intravenous cannulae or antibiotic controls:

"Well I probably did infection control a better favour today by stopping antibiotics on that bloke with the knee than I did with all that gel on my hands, which I didn't need to use actually, because that bloke sitting there for another three days with that open wound with no infection there, what's going to happen? I tell you what, by next week he'll have MRSA or Klebsiella or God knows what". [CD 21]

This consultant was trying to portray how he had used alcohol hand gel when he considered it was not required, as he had been reprimanded previously and was careful to adhere to the requirements. Although this comment was made during the interview, he had previously discussed this during the ward round. He was extremely frustrated as he considered he used his expertise and a risk-based approach to stop antibiotic therapy as soon as possible and follow up patients to promote early discharge. As a surgeon he had knowledge and experience of latent deep-seated infections that proved difficult to treat months later.

There were a variety of comments related to financial costs to the hospital budget associated with the hand hygiene agenda and questions over whether a cost benefit analysis had been undertaken. In addition to the campaigns there was reference to the products and the increased usage of alcohol hand gel.

"How much does it cost, a fortune? I bet these alcohol companies are just lapping it up. Do we, do we have big vats of it, you now, do we have 100 litre drums and a system of refilling. I bet we don't. It's outrageous, what about landfill and all this kind of stuff. Buying these pots five times a day for every ward. It must be costing hundreds, where's the cost effectiveness of all this?" [CD 21]

4.12 Theme 2. Impact of local approach to implementation

There were frustrations with hospital management and how the hand hygiene initiatives had been introduced, together with their associated policy and audits. The threat of disciplinary action or personal challenges for non-compliance of the hand hygiene and dress code policy was significant and considered by some to have driven the implementation. There was controversy over the policy, as it was not seen to be evidence or risk based and indeed so constraining as to prove unhelpful to their practice. The consultant doctors' experience of audit, education

and training was generally negative. Collectively this impacted on their professional role and role modelling that included how their peers, juniors and other staff perceived them. However, there were also positive views as it was recognised that hand hygiene activity had improved and several consultants were aware of and acknowledged the pressures the Trust was under from the DH, SHA and PCT in relation to meeting the healthcare associated infection reduction targets. Therefore within this theme five categories emerged: controversy over content of local policy; threat of disciplinary action; approach to auditing hand hygiene practice flawed; approach to mandatory education and training inadequate and the challenges to their professional role.

4.12.1 Category 2.1 Controversy over content of local policy

Consultants were most unhappy at how the hand hygiene and dress code policy had been introduced and frequently used the terms 'top down', 'lack of discussion' and 'lack of evidence' or commented negatively on the evidence base cited.

> *"If we constantly have this mantra that we need evidence based medicine, if suddenly we've got a politically based hand hygiene policy with no evidence to underpin it do you expect anybody to sign up to it". [CD12]*

This consultant was particularly frustrated, as most of the patients on his ward round did not require direct contact, which he saw as the true requirement for hand hygiene activity.

The policy was also referred to as guidelines and there was anger at how practitioners were expected to implement policy changes when they were not even aware when there had been changes. Consultants questioned why changes were needed and this endorsed scepticism. There was also irritation when they were informed policy updates could be located 'on the web-site'. As they pointed out, they do not spend their time trawling the web checking on the latest policy.

The policy was considered lengthy as it consisted of over 60 pages. One consultant doctor had précised the policy to an A4 bullet point guideline to support the colleagues he worked with. The standards required were also considered illogical and confusing and it was suggested a list of priorities should

be produced, as there was a need for a risk-based approach. This was compounded by a lack of clarity of the requirements in practice, particularly in respect of different clinical settings and particularly those perceived as low risk to infection.

> *"I do think in practice it's almost impossible to actually adhere strictly to the guidance – so I do struggle with it a bit and I struggle with knowing how far you take it". [CD 04]*

Other consultants questioned the need for hand hygiene as they walked in and out of wards or bays during the observation and also during the interview.

> *"I think washing your hands as you go in and out or every ward is fine, although if you've actually not touched anyone or done anything you do wonder about that". [CD 21]*

Three consultants did agree that guidelines should be rigorous with one of those commenting:

> *"Guidelines should be stringent and we have to do everything". [CD 14]*

However, this strongly held view was not reflected in his personal clinical practice, as the policy requirements were not adhered to during the observation.

Several consultants described how they followed the Trust requirements and 'do as they are told' or described themselves as 'sheep', without believing in the standards required. It was seen as easier to follow and not worth making a fuss or they did not have the time or the interest to challenge. However, others asked why they had not been engaged with writing the guidelines as they are normally. One consultant described the system whereby they review, interpret, discuss and determine how the standards can be implemented locally. Views were expressed in relation to the blanket approach to hand hygiene regardless of risk setting with several consultants stating they did not undertake hand hygiene between patients in the outpatient department, either not realising the guidelines applied (which they did) or disagreeing that they should.

"Those guidelines are for the whole trust and one of the things we picked up, what about outpatients and if the expectation say where you're actually having what would be considered a social contact". [CD19]

One other consultant was so perplexed at the rules 'spreading to outpatients' that he concluded that it must have been part of a rather different agenda. Other comments questioned the rationale for requiring hand hygiene when simply sitting behind a desk or shaking hands.

The section of the Trust policy on dress code was new, had been directly recommended by the DH and included a 'bare below the elbows' standard and that neckties should not be worn. This came in for the most criticism and discussions were particularly emotive. Consultants questioned why the dress code had not been adopted by the private health sector and commented that if it was a key issue in infection control and caused infections, why did the private sector have low rates of infection? As one consultant described, a whole profession was changed overnight without consultation. Although he recognised this as a genuine achievement he also acknowledged the resistance by his colleagues. This also appeared to be a national issue, well described by the following participant:

……"there's no way the policy's going to go is it, a lot of people are very angry I mean if you look on, I participate in a forum on doctors.net which is a you know forum where doctors can talk about different subjects to one another and if you look at things on infection control and bare below the elbows they are very popular subjects on there"……

……."You'll see one thing and there'll be hundreds of responses and letters to it, surveys that have been done on that site have shown a very, very high level of people being against all of this and against the way it was initiated"……..

……."There is always, as you say, two sides to the argument, maybe some people supporting it but far outnumbered by the number of people who think it's ridiculous and that's a bit worrying, you know the trend is I would say probably 75%:25% in terms of percentage of people who say the whole thing's daft and not based on evidence and a small number of people who

say, "Well come on it is common sense after all. Let's do it. So it has divided people".....

....."I think most were against the way it came about probably not so much as against the fact that of course everyone wants to do the right thing for our patients but you can't just say nowadays, it's not acceptable in any other form of medicine just to say, well this is common sense ". [CD 08]

A particular issue with 'bare below the elbows' was the loss of wearing a wristwatch, described by many of the consultants as a tool of their trade. The removal was considered a significant change in their clinical practice.

"And there was a lot of argument about watches, watches in particular on the anaesthetic side upstairs. You know it sort of part of the tools of our trade you know, we're stopping hearts, we're, you're often stopping the whole circulation as well and the timing is critical you know, the difference between a few minutes is quite important plus we are documenting everything down as we go and you tend to look round the hospital and every single clock is different so it's very hard to sort of have a sort of a clear idea what the time is ....." [CD 02]

"what I find difficult, and I know a lot of other people, is, is I am totally slave to my watch and I find it very difficult to function without a watch so I have to remember to take my watch off when I go into a ward area. Occasionally I, I forget to do that I must say and I have been challenged". [CD 19]

Consultants were irritated there was no evidence that wearing a wristwatch was implicated in transmission of infection or genuinely wanted to know if they were important carriers of infection. Several consultants found it illogical that watches could not be worn, but wedding rings or religious symbols could and this was seen as nonsensical. One consultant asked in the interview if I had noticed how a member of her team during the ward round was hiding his hands and she thought this was because he was wearing a religious symbol around the wrist.

> *"It's a religious, I think it's a festival and it's put on by the Imam at a certain time of year and you don't take it off it just falls off naturally so wear and tear, it's cotton it will fall off so it might fall off after two weeks or two months or three months". [CD 05]*

She was unsure if this was allowed and assumed it was, but also questioned how this complied with policy.

A male consultant doctor commented that bare below the elbows would be easier for females, but the two female consultants when asked considered this was not the case and indeed expressed the same views as their male colleagues. The only difference in gender noted was the loss of wearing a stoned engagement ring commented on by two females. Consultants described how their traditional dress or 'uniform' of suit and tie had been taken away without any discussion or consultation. Suits were part of their professionalism, status, prestige and image, but also considered an expectation by patients. The term 'de-professionalisation' was used on several occasions and again seen as part of a wider agenda, particularly with the associated disciplinary action. It was recognised by the consultants there had been adverse effects on the standards of dress. Comments were made that the more junior doctors were beginning to abuse this, turning up for work in jeans. Several consultants were concerned that patients did not know who they were. One consultant was irritated during the ward round when he informed his patient he could go home and the patient's response was to thank him and that he was waiting for his doctor. This was raised again during the interview:

> *" Many, particularly elderly patients like him, they don't, you know everyone looks the same now, you look like you know a bunch of geography teachers from the local school. No-one can tell who's who and it is, I've had that situation a number of times. ..... I think a lot of people haven't liked that either, the er that sort of de-professionalisation of the whole thing. Removing your uniform which I suppose if you're a consultant traditionally was a suit or whatever and a tie and everything else". [CD 08]*

As described during the section on observation, several consultants expressed frustration in relation to the lack of hooks to hang jackets or a secure place for

personal belongings such as a wallet or mobile phone. This was also raised in interviews with one consultant describing how it had been raised at a local negotiating committee meeting, but had not been addressed. There were experiences shared of how the hand hygiene agenda and dress code made them think twice about visiting wards on an ad hoc basis. The 'popping in' to check on a patient, review an x-ray or notes or speak to colleagues/relatives in between other work commitments had been adversely affected.

> *" .....you've got 30 seconds between you know your clinic and your operating list, Sister wants you to come and see somebody so, on another ward, so I go down there, I've got you know my coat and my blazer you know I've got all that and actually I go to the ward and I say great where do I put my coat, my bag, my jacket, my wallet, my mobile phone, my all the other things. I did it on one of the other wards and the Sister said oh well you shouldn't be wearing, and well I've come from outside into the ward because you asked me and well where, oh right well we'll have to get the keys to the Sister's office to you know you'll have to lock it in there and then when you've finished you know, a 30 second come in quick have a look at the wound that you'd operated on two weeks ago, turns into 5 minutes of trying to get and actually you don't bother and that was one of my worries. Well you avoid it because you think I can't be bothered, I haven't got, I've got a bag. .....Yes exactly and if you've got a yellow card from somebody to say well you didn't wash you hands when you entered the ward you know well that's because I was carrying 14 sets of notes and a you know whatever and actually I just won't bother. I'll do a ward round on Thursday, I'll see them on Thursday. I could have seen them on Tuesday but actually I won't I'll be in short sleeved shirt on Thursday and I'll go round and I'll do all my patients then because I'm in patient mode which may not be the best thing". [CD 16]*

One consultant who thought dress was a 'major issue' described how a member of his team had asked patients and medical staff what dress they wanted for medical staff.

> *"..... one of my House Officers did an audit about five or six years ago now with pictorial images of different styles of clothing for doctors, female and male, and showed patients and medical staff how they felt the consultant*

should dress and you know by far the large majority wanted the standard traditional suit, tie or a suit for a female as well". [CD 14]

Several consultants either talked about re-introducing white coats or providing a uniform, but felt the hospital trust would not pay for daily washing of white coats and uniform proposals had fallen on deaf ears.

4.12.2 Category 2.2 Threat of disciplinary action

The discussion of the dress code in particular generated much discussion and included how disciplinary action had driven compliance.

"It was, it was, I'll speak personally from our kind of area here in [speciality]. We started to hear rumours about yellow cards being issued to people who weren't bare below the elbows and this was just like red rag to a bull to some of my colleagues and to an extent to me. It was just like, it felt like treating us like school kids and really genuinely insulting and it was, it was". [CD 02]

It is of note that this consultant was genuinely interested in hand hygiene and had arranged for his team to be filmed to try and translate the standards into practice and address the challenges of when hand hygiene was required when multi-tasking.

One consultant, who received an official reprimand, was so hurt by this he requested his description of what happened be 'off the record'. He described his experience in detail and of his concern and outrage that this was now on his personal records having previously had an unblemished career. It was obvious the other consultants were aware of this reprimand as they referred to it. Just one consultant thought this approach appropriate.

"You've got to use a stick because we're human beings and we're resistant often to change particularly in the healthcare market". [CD 14]

Other consultants that were challenged, as opposed to being reprimanded, generally did not receive this well. For example, a consultant was challenged during his ward round in front of his team and patients by a student nurse and he

genuinely did not understand what he had done wrong. Apparently he had a pen behind his ear that he took out to write in the notes and the student felt he should have washed his hands. He felt too embarrassed to discuss further what she felt he should be doing. Further examples included:

> *"I'll give you an example. A girl who hadn't been conceived when I was already fully trained caught me walking along the corridor of* [clinical setting] *past the offices and asked me why I didn't have my arms bare and I said because I was going to interview a relative. Ah she said but you're on a clinical area. Now this is just stupid. Now I fully understand that if I go into a ward dressed like this and I don't touch anything because I've gone in to pick up a set of notes or I go to talk to the nurse in charge or I go to speak to a relative or whatever, I would expect that infection control staff would be able to appreciate that what I'm doing isn't inappropriate even if it doesn't follow the letter of their regulation but actually they can't because, a) they don't have the insight or b) have been told it's a blanket rule that applies to everybody everywhere all the time". [CD 12]*

There appeared to be a real undercurrent surrounding these challenges and it was evident it was how the challenge was posed, as several consultants had said they did not mind being reminded. Some consultants perceived they were viewed as being deliberately obstructive.

> *"…… People are quite resistant to change but I don't think that's malicious it's just that for some reason even though they think it's important they can't get into the habit". [CD 10]*

4.12.3 Category 2.3 Approach to auditing hand hygiene practice flawed

There was a mixed response to hand hygiene audits, acceptance in some cases and the right thing to do, but overall a very negative view. Consultants again considered this was a 'top down' approach, described by one as command and control and another as feeling slightly hammered down. Other comments included ridiculous, senseless patrolling and process orientated. One consultant considered that the audit was used, as it was one area of practice that was very easy to watch, measure and count. Reminders were seen as appropriate, but

several consultants had been challenged in front of their teams and patients. It transpired there were several audit tools in use. One tool that was used by consultants to self-audit did not reflect the Trust policy, requiring the additional standards in relation to hand hygiene prior to and leaving multiple bedded patient bay areas. Several consultants were aware of anomalies.

> *"I've been through the process of auditing other people on ward rounds so with the check list, ticking the boxes as to, I think I've mentioned this to you before. One of the things that struck me is that actually to satisfy all of the tick boxes in terms of washing your hands between patient contacts first of all didn't make any sense and secondly it would have meant you were washing your hands I think I could calculate up to 4 or 5 times in between patient contacts if you did it on entering the ward, before the patient, after the patient, leaving the ward, before the next ward etc. to tick the boxes, so some of the figures that we were sent round said the number of people cleaning their hands when they left the ward was only 70% whereas all the others were 100%. Well it was obvious because if you've just cleaned your hands at the bedside and then walked off the ward, you didn't get another tick for walking off but you haven't done anything wrong in terms of common sense infection control because you've cleansed your hands between patient contacts which is obviously all that matters and all the audit should say in my view. So some of the statistics at the hospital that were collected through that audit process were fundamentally flawed". [CD 09]*

Another consultant went on to say:

> *"So it's whether the guidelines are right and whether the criteria that we are auditing against are actually based on best patient care in infection control". [CD 15]*

One of the consultants admitted to fudging the audit in that she determined the standards to be achieved based on importance and risk. Audit was seen very much as a tick box exercise with one comment that hand hygiene was seen as audit and not the practice. There were also discussions on the requirement to

achieve 100% compliance, considered to be impossible based on the audit tool in place.

> *"Exactly I mean if you're going to use a tool and you know you want 100% compliance then it's got to be achievable. It's got to be I think 100% on the right risks, because it is completely different from an aseptic technique to actually handling notes". [CD 16]*

4.12.4 Category 2.4 Approach to mandatory education and training inadequate

Those consultants that discussed the management of education and training within the hospital were mainly critical. Within the Trust there had been a number of hand hygiene campaigns and the medical director had written to all consultants to ensure they participated in hand hygiene training. Consultants also considered they were updated in other ways such as through emails and lunchtime meetings. In addition, all staff were required to complete induction on joining the Trust and either completion of an e-learning package or attendance at an update annually was mandatory. Most consultants were found to have undertaken updates for the first time. A recent introduction was the signing of a pro-forma by consultants, returned to their Divisional Clinical Director, to declare if they had attended hand hygiene training, completed the e-learning module and if they had not, how soon they planned to do so. This scrutiny was a significant change in being held to account and had been introduced as part of their appraisal. Mandatory training on hand hygiene, required every year, was not well received as it did not change from year to year and was considered almost insulting.

> *"I suppose one of the things that people get a little bit upset, maybe not the right word but a little bit concerned about is the fact that then theoretically one has to repeat that session every year for the rest of your life as far as I can see it, but nothing changes from year to year and I think that's a bit, almost a bit insulting". [CD 09]*

Attendance at the mandatory training session was not well received and indeed not one consultant expressed a positive response. Of concern during taught sessions was that more junior staff were given permission and encouraged to challenge consultant practice and report them. Some of the consultants felt being

in a mixed group particularly with non-clinical staff, such as caterers, was not appropriate. The level of teaching was considered at the lower levels and therefore a waste of time, a tick box exercise with concern expressed over the time taken that could be better employed. One consultant described how colleagues stopped him in the corridors, as they were incensed at the 'rubbish' they had to listen to. Most of the consultants, due to their experiences, were critical of the presenters mainly because they considered they lacked the knowledge required and were never told the 'why', the underpinning explanation. For example, a presenter stated that hospital acquired infections can be reduced by 30% simply by washing hands and later stated the Trust had a target to reduce MRSA by 50%. The consultant questioned this and asked for the evidence of the 30% reduction with an intention to review the papers and went on to ask how the reduction and target percentages could be reconciled. However, the presenter was unable to answer both queries and was described as becoming 'flummoxed'. He was not intending to put her on the spot so did not pursue this. Consultants were not used to this type of delivery. However, several consultants did not mind who led the teaching session providing they were credible.

> *"I think what we found slightly, what I found quite difficult, I can't speak for other people. What I found slightly difficult is that I, this training is frequently delivered by people who have no understanding of the kind of work that I'm doing and you know I don't mean that in any kind of insulting way to infection control nurses and things like that but I think they would frequently have a lot more credibility with fellow nursing staff than they will with some of the medical staff who are often doing quite high and sort of interventional procedures and other bits and pieces. Who don't necessarily understand all the mechanics of giving anaesthetics or, or resuscitating someone on intensive care units. So from my point of view generally the best advocates for this are colleagues, because they, they come with sort of inbuilt if you like clinical respect and they also understand the kind of environment that you are in so they can interpret the rules and give you either a. the rationale, or b. the, you know, the work around if you like to ensure that it becomes something that is practical and useful". [CD 02]*

There were mixed views over the content, but overall the sessions were not well received.

> *"The initial session which was about infective risk was fatuous for a consultant and a complete waste of time. The practical demonstration if you like and the light box was fine. Well certainly as it is, as it stands at the moment is going to turn people off and it has done I'm sure. I think there's vastly more important things if you're going to corner consultants and force them to consider something, there's much more important things that could be done which aren't targets". [CD 20]*

Although two consultants considered the e-learning not to be very educational and that the tests could be completed without working through the modules, others welcomed this approach. It was seen as particularly helpful as it could be fitted in with other work commitments. Other positive comments included:

> *"I thought that was very helpful. ……. I might not have picked it up had it not been mandatory but I did think in retrospect it was very helpful……I think pleasantly surprised really, it wasn't too complex, there were simple messages, it was well illustrated with very clear diagrams and cartoons, key bullet point messages that came across". [CD 14]*

Hand hygiene was promoted by testing technique through use of an ultraviolet light box within clinical areas. In addition, the staff of the infection team attended clinical areas for local teaching sessions. It transpired there were very little practical skills training in how to carry out hand hygiene effectively with a focus on testing technique through the use of the ultraviolet light box. The procedure is for staff to apply a cream to their hands that is detected by ultraviolet light. Hands are then washed, followed by the placing of hands under the ultraviolet light to detect the areas of the hands where the cream has not been removed and represents inadequate hand washing technique. There were mixed views on the use of the ultraviolet light box.

> *" I can't think of ever having formally had training on using the hand gel. No I don't think I ever have had. Er we've been recently all been had the er ultraviolet gel test for hand washing. I did that a few months ago. But not*

the hand gel. Yeah it was good, it was good! The um, it really helps the junior staff who haven't been through that before to understand the importance of how – some of them had, had to, had to have 2 or 3 goes before they got their hands clean and made them understand how difficult it was. – So it is, it is a quite it's educational and entertaining". [CD 01]

"Um having said that actually to capture people and get them to wash their hands properly from my point of view actually someone coming and standing in the ward with the light box which is hideous and you do it on your Trust annual thing and all the rest of it but actually I mean everyone laughs about it and it's not terribly well sort of perceived but, but actually it does make you know how to do it properly and not everyone then chooses to adhere to that but you know there is an effort being made to do that. But I think the pick up amongst doctors of actually sort of um accepting that and accepting being told what to do by other people isn't always great". [CD 05]

4.12.5 Category 2.5 Challenges to professional role

Other issues were raised in relation to hand hygiene adherence in practice that related to their professional role and position as consultant doctors and the challenges this posed. For example one consultant spoke about how they were fed up with being told that nurses were better than doctors in respect of hand hygiene, others spoke about this perception and being seen as the bad guys. However, eleven consultants made unprompted comments about their colleagues' failure to adhere to the hand hygiene standards. There was recognition that doctors could be arrogant; some 'behaved quite well' whereas others 'breezed in' without following the dress code or carrying out hand hygiene.

" I still see consultants colleagues that move between patients and they're not putting on gel". [CD 07]

Surgeons were particularly criticised by their peers as they were considered to have more of a focus on the operating theatre. Although it was also accepted there were differences between specialities. The consultants accepted themselves as role models and recognised this as a professional duty.

"I am also quite conscious of the fact that the way that I behave around the patients is clearly picked up on by both the nursing staff and the junior doctors". [CD 02]

"I've taken my position as a role model reasonably seriously and I think I adhere to the guidelines in a common sense approach on the wards". [CD 09]

"If the junior are not doing it, it is our fault". [CD 17]

Several consultants described how they tried to role model, perhaps undertaking hand hygiene activity when it was not required but just for show. One consultant described that he tried to act as a 'master of ceremonies' by over emphasising his hand hygiene practice in front of staff. However, a consultant questioned if this was the correct thing to do, as it was a failure to role model correct practice. Others did question whether or not they were demonstrating best practice. Significantly, others felt that although they followed much of the guidance they were unable to challenge others who were not following guidance or promote the stringent requirements for hand hygiene, based on their lack of certainty or scepticism.

"Difficult to be [a role model] if you don't fully believe in what is required. You can't be compliant with something that doesn't make any sense". [CD 09]

"I haven't forced it on them". [CD 11]

"I think the consultant body actually being uniform and having the right attitude towards it is really important but I can also see why people have challenged it over time as well. [CD 04]

One consultant shared that he had never observed his team in practice. During one of the observations a member of his team was seen to be wearing a long sleeved jumper and rings, against policy. The consultant admitted he had not noticed, but also:

"If there was more belief in the whole thing because it would be backed by evidence I would be out there". [CD 09]

Conversely other consultants did challenge, but because of scepticism or lack of their own understanding, they would do this in a 'jokey' or informal way.

"I suggest you put some gel on unless you want to have D&V, or something of that nature". [CD 03]

This consultant also appeared to be the only one willing to specifically observe others and to challenge them:

"….but I frequently will emphasise to people that I have spotted them not doing it and I'm one of the very few people that I've ever seen correct anyone with that you know ……it is amazing how often I put gel on and I watch the other person not put gel on and I will call people on it when I notice it but I'm pretty sure that very few of my colleagues do that and whether that's because they don't make a fuss about it or whether it's because they don't notice it I don't know". [CD 03]

Overall, the consultants saw role modelling as an important concept and there were comments in relation to how the medical profession begin their careers by looking up to their seniors and trying to emulate them. However, they also questioned how they could act as role models due to their views on the policy and audit challenges.

4.13 Theme 3. Beliefs and influences on consultants' hand hygiene practice

Three categories were identified in this theme: strong belief in hand hygiene undermined by scepticism; previous experience of hand hygiene and the reality of adhering to best practice. The consultants had a strong belief in hand hygiene but this was undermined by scepticism due to the perceived lack of the evidence. There was acknowledgement of recent improvements in practice and more specifically from their prior experience during their early careers at medical school. They recognised their practice was not always perfect but were confused with the requirements that contributed to the challenges of implementing the hand hygiene standards in the reality of clinical practice. They admitted they worked around

this and used their judgement to risk assess, conversely they considered this ability had been taken away due to the policy standards now required. This reality extended to the concerns expressed in respect of their personal health due to the increased usage of alcohol hand gel. The additional time taken to carry out hand hygiene was thought to ultimately impact on patients and of more concern was the loss of tactile contact with the patient, as a more 'hands off' approach was taken.

4.13.1 Category 3.1 Strong belief in hand hygiene undermined by scepticism

All the consultants reacted positively to the requirement for clinical hand hygiene practice. The terms 'no brainer', 'common sense' and 'important' were frequently used terms. The following are a brief selection of positive statements made:

> *"I think its, well certainly from an intensive care point of view I think it's very important". [CD 13]*

> *"It's a valuable practice in everyday life as well as in medicine". [CD 19]*

> *"Well I think hand hygiene is obviously very important". [CD 21]*

Several consultants referred to the fundamental belief that they were there to do their best for patients and avoid harm, also referring to their Hippocratic Oath. However, they frequently used the word scepticism, due to the perceived lack of evidence commented on by all 21 consultants. They all wished to see the evidence behind the standards required for hand hygiene practice, particularly the evidence that demonstrated it made a difference to infection rates. Ten consultants specifically stated this was of such importance they considered it would have a greater influence on their practice. Some felt irritated to being quite angry, particularly as they considered they were educated and trained on an evidence based model and were now expected to function without this fundamental principle being met in respect of the hand hygiene agenda.

> *"I think there is no doubt that's an issue and I think the difficulties is because people were sceptical of the evidence because people were just being told that that what they had to do". [CD 04]*

"*They're not high quality evidence, they are observation, they are expert opinion so there isn't any true evidence, that's one of the problems. Well I don't think you should tell people there is evidence because they are not talking to fools here, they're talking to people who spend their whole lives, certainly in the medical profession, interpreting evidence and even the evidence that is out there for certain conditions is not always good evidence. So to try and almost brainwash people into the fact that there is evidence to support these policies when there isn't, is frankly a little bit insulting". [CD 09]*

However, these views are balanced by those consultants who although critical of the lack of evidence were more accepting:

"In this area of no evidence, although there may be some aspects that are true and over the top, not evidence based, it can't possibly do any harm. And in the end there might be some benefits we don't know about and in a sense might work". [CD 01]

"The evidence is a bit lacking, but why wouldn't you?……I think it's a vague irritant to people but they recognise it's the right thing to do, so makes them bear with it". [CD 17]

4.13.2 Category 3.2 Previous experience of hand hygiene

Consultants were specifically asked about their experience of education and training on hand hygiene at medical school to elicit if this had a bearing on their current practice or views. Their responses included experience outside of education and training that included the impact on senior staff. However, the overall finding was that not one consultant of the 21 participants had received specific hand hygiene training during medical school, although there had been references to when to undertake hand hygiene, learning in practice and the specific technique of operating theatre scrub. They were not however asked a question in relation to the date they were medical students but it was apparent this spanned the 1980s and 1990s.

"Absolutely nothing. Nobody took any notice of it in those days". [CD 09]

"Well this was back in the 1980s and we didn't do anything, nothing at all". [CD 19]

For some consultants' hand hygiene was referred to during medical training. One consultant stated,

"Yes it was mentioned certainly. Um, yeah. As, as an important thing, um, but not in great detail……. We were always taught to wash your hands after touching a patient, I think that was the limit of it. And that was, I think, made quite obvious and I mean it was something that we all understood we had to do. I don't think it went any further than that. But that was thirty years ago". [CD 01]

Of note is that this consultant, who scored highly in undertaking hand hygiene before and after patient contact during the observation, had also admitted earlier in the interview that he knew he was better at undertaking hand hygiene after patient contact.

Several consultants also mentioned hand washing in practice whereby there were informal prompts, usually from the ward sister and described apprenticeship style training. As medical students they acknowledged their senior doctors as role models both positively and negatively.

"I qualified in 1991 and when I was a houseman it wasn't on the radar at all in terms of being considered to be something that you taught medical students and junior doctors about. There was no cascade of good practice from senior staff. Most of the staff I worked with paid no attention to washing their hands between patients". [CD 03]

Whereas another consultant stated:

"It was common sense and we watched. Observation of seniors and peers. But again very little formal training. That would have been late 80s and 90s". [CD 04]

Most hand washing seemed to occur prior to aseptic technique or after patient contact. The latter particularly if hands were considered contaminated.

"…Most of the doctors that I worked with would have washed their hands after seeing patients, or after touching patients lets put it that way. So not after touching notes and things, and obviously you were taught to wash your hands for surgery and aseptic procedures". [CD 20]

"We were taught through an apprentice system essentially on ward rounds and in the operating theatre. Really the mainstay of hand hygiene training when I was a medical student back in the early/mid 80s was to do, always in the operating theatre and prior to surgery and prior to procedures. There was very little education about hand washing in daily practice on the wards because it was not part of daily practice". [CD18]

Overall the consultants did receive training in relation to the specific hand hygiene technique in operating theatres related to a 'surgical scrub'. The principles were also applied for undertaking aseptic procedures.

"I don't think anybody talked about routine hand hygiene on the wards as such when I was at med school. Certainly they would talk about how you had to scrub in theatre. You did scrub in theatre, and, and also hand hygiene, like scrub up or do thorough hand hygiene before carrying out aseptic technique. So you know, actually there is no, any education about carrying out hand hygiene after patient contact". [CD 08]

An interesting experience from one consultant was in relation to undertaking dissections where the anatomy professor insisted students were not allowed to wear gloves, but use a barrier cream, thought to save money. He noted the disparity between this and clinical practice.

"…….it makes me reach and quake at the thought How you come out with hands stinking of formaldehyde and barrier cream and not a lot else. And is if you come from that kind of context – you're dealing with a multiple of different bodies and bits of poo and God knows what else, then its not actually a great training for when you then arrive in hospitals. You don't think hand hygiene's that important". [CD 02]

Medical school also had an influence on hand hygiene practice within practical examinations. Several consultants described how they were not allowed to wash hands between patients during the examinations due to the time constraints. Although one did point out the volunteers were considered 'out patients', inferring a lower risk as opposed to 'in-patients'.

4.13.3 Category 3.3 Reality of adhering to best practice

Consultants described the realities and the complexity of adhering to hand hygiene standards. They also reflected on their perceptions of the wider costs to themselves of using alcohol hand gel, the impact to their patients and their professional role in hand hygiene clinical practice. Most of the consultants recognised their practice was not 100% perfect. They approached this honestly; describing their lapses but also acknowledging there had been huge improvements.

> *" My behaviour overall I think has changed hugely in the last year and that has been quite an interesting journey for me". [CD 02]*

> *"I genuinely think I probably do it subconsciously 97% of the time and in the 3% where it gets lost is where somebody distracts me at the moment I would go and put gel on". [CD 03]*

However, there was also much discussion with regard to the challenges in practice and the confusion over what is required. During the interviews some consultants stated they were clear about the requirements but this was not evident during the observations of them in practice. For example one consultant who stated he was clear on the requirements did not carry out hand hygiene after patient contact and did not realise he should undertake hand hygiene prior to gloving. Another consultant said if he was in doubt it was easier just to gel. The following are extracts of these challenges in clinical practice:

> *"If I give you an anaesthetic I'm touching the patient, gowning up drawing up another drug getting things ready, starting defibrillating them, then fiddling with the ventilator and the gas exchange. You know I genuinely get confused about when I should be hand gelling, when I should be wearing gloves and actually sometimes I just don't have time to do it. I don't. I've*

got to be in there and give them drugs within seconds otherwise bad things happen". [CD 02]

"Um, I think I routinely do gel between patients but I know I touch trolleys and case notes and things that I shouldn't do, but I can't possibly conduct a ward round and do stuff. And you go and touch the mikes on the computer and the COW [computer on wheels] *with you on the ward round and all that kind of stuff. And I honestly don't know how you get around that ..... You know I struggle to see how practical it is but I think what I do, I mean I think I'm confident in that I know when I should be washing my hands properly and I think I know when to gel and I think I practice reasonably good hand hygiene. You'll tell me otherwise I'm sure. But I know that I'm not perfect and I know that if I'm in a rush I won't do it as effectively, as properly. I know that I don't stand and do a proper 5 point hand wash every time I wash my hands. Um, but I do think I do it probably reasonably efficiently, reasonably thoroughly, reasonably clearly and reasonably well for others to see, to know that I'm doing it too I suppose. So, I think I'm probably one of the better ones. But I'm' sure I'm not perfect but I feel reasonably confident that I know when I should and shouldn't be washing". [CD 05]*

Others described the lack of clarity and admitted they were 'slightly' unclear, particularly when selecting hand washing or use of alcohol hand gel. There was also an admission of not 'whole heartedly' taking on all the guidance, particularly with the perceived lower risk activities such as handling notes, demonstrating a lack of belief in the requirements. The focus was very much on the patient who was at risk and therefore undertaking hand hygiene associated with patient activities, seen as the greatest risk of transmission of micro-organisms.

These comments gave an insight into how consultants manage their practice by using risk assessment. There were also inferences as to how this was a standard professional approach by medics and recognising this can create organisational problems where people act against the system. Several consultants were very clear how they adapted and made hand hygiene work for them. However, there was criticism that risk assessment was considered to have been taken away.

"And that is the problem with some of the ritual is that risk assessment you make all the time has been taken away. …It doesn't take account of your professional skills as a doctor or nurse or anyone else and being able to risk assess if you like". [CD 09]

Several consultants commented on the increased use of alcohol hand gel and expressed concerns mainly related to the potential long-term effects on their skin. However, only one consultant had personal experience of ill effects with the others referring to hear say about this or knowledge of colleagues. Those consultants who were surgeons were particularly concerned about the high usage and that once they had skin problems their career could be over.

Of most concern was the potential impact of hand hygiene on the time taken during clinical practice and the potential impact on patient relationships. Several consultants were interested to know if anyone had undertaken work on the additional time that was required for carrying out hand hygiene, as this had not been factored into job plans. However, it was also recognised that the increasing patient complexity did not appear to have been considered in job plans either. There were negative comments about undertaking non-touch ward rounds with just one consultant describing the benefits of this for patients. Another described how he felt uncomfortable when a patient offered their hands to shake and he had to go 'running off' to carry out hand hygiene. His concern was how this may be perceived negatively by patients and potentially making the patient feel he viewed them as unclean. Three consultants specifically described their feelings in relation to the focus on hand hygiene that had led to a more 'hands off' approach.

"You know I have real issues and we talked about this in consultants meetings over the last year or so. That actually for me to actually go on a ward round and touch a patient, which I do all the time, because that's the kind of person that I am, I mean you've seen that that's why it's the kind of person that I am. And to actually touch them, to talk to them, to have a doctor patient relationship is now being impacted on". [CD 04]

"There's very little you know patting Doris on the hand and sitting on the bed which I used to do……I feel slightly more distanced from them". [CD 16]

"So my personal belief is one of the problems with this imposed, centralised, not necessarily evidence based, highly supervised attitude at the moment about hand washing and so on is that it may actually, you know, if I look at myself honestly, probably does just slightly take you away from patient contact when you need to do it. So I think we need to be very careful to get the balance right". [CD 21]

4.14 Theme 4. Capitalising on consultant doctors as leaders & role models

Findings within the previous three themes have identified a need for the consultant doctors to be engaged in the hand hygiene agenda and capitalise on their responsibilities, leadership and role modelling position. Within this theme the findings emerged from asking consultants for their suggestions in respect of what might assist them as role models, suggestions for education and training and what other ideas they might have that would take the hand hygiene agenda forward. A wealth of suggestions were received. These were eventually grouped within three categories in theme four: using evidence to inform policy and practice; need for a tailored approach to delivering education and training to medical staff and promoting consultant doctors' senior role.

4.14.1 Category 4.1 Using evidence to inform policy and practice

Views relating to the need for the provision of evidence for hand hygiene practice and bare below the elbows requirements have also been highlighted in the previous themes and were strongly expressed within this theme. Suggestions were made to promote common sense if there is not the evidence and be honest about it, provide insight into the vision of why and consider different learning styles and different ways of teaching. Only two consultants commented they did not require the evidence base, with 14 consultants recommending evidence as the most powerful tool for influencing hand hygiene practice in the context of practitioner needs.

"People respond clearly better to evidence than they do to just rote". [CD 01]

"So I do think that actually having some back up educationally, around about you know, evidence based practice which has obviously been one of the issues with the hand hygiene issues over the years. But I think it does need to be put in context". [CD 04]

"Someone needs to prove this makes a difference in the first place. I tell you what would be easy to sell this, what would be an easy way of selling this whole philosophy would be if someone had the evidence to support it, then it is a piece of cake, you could sell it to anyone, because if you said to a bunch of consultants we've done a trial, in this hospital with did this and in this hospital we did nothing and what it showed was a 50% reduction in hospital acquired infections or something, you know, as you would for introduction of a new medicine or treatment or whatever. You compare the standard regime with a new regime and demonstrate a significant difference anyone would be able to sell that". [CD 09]

"I don't know how you do the trial but probably its too late, probably it can't be done any more but I think it would have been extremely valuable if early on in this process that has taken over that someone had actually tried to formally demonstrate that the change in practice towards where we have gone has you know made a significant difference". [CD 17]

4.14.2 Category 4.2 Need for a tailored approach to delivering education and training to medical staff

A requirement for human input into education and training was considered essential. In addition, integration of hand hygiene with other infection topics and incorporating hand hygiene into clinical practice alongside staff was considered to be important in engaging clinicians. However, the views of consultant doctors varied in relation to the presence of an educator/trainer within a formal teaching setting to the practice setting and other colleagues and staff who could input. A number of consultants felt that e-learning and reading journals suited them better. There were comments on who should deliver this human input and this varied, with most consultants preferring someone from their own profession, and several others stating they did not mind providing they were credible. Teaching in clinical practice was particularly favoured by nine consultants who described how it would be helpful to have staff to demonstrate, teach, advise and support them in practice by working alongside, as opposed to just visiting the clinical area.

"Would help to have someone join team and work with team in practice". [CD 06]

"Well I think, if, if you know say you once a month do a ward round with a team, with a firm, then you're there to see how we're doing I suppose but then also you're there to educate us and you're there to help us and especially if you've got more of a microbiological background we can then be asking you, you know if you're a microbiologist asking questions about antibiotics and policy and this and that". [CD 05]

"I think almost certainly it's more beneficial to do it in practice, you capture people before their rounds and in the course of their work because they're going to go on the wards or whatever, they have sign off sheets and you can make sure everybody's captured. You have to lead them, you have to present it in a sort of adult way don't you in the course of people's working practices and daily lives rather than something else that they haven't got time to do". [CD 10]

Ten consultants considered that hand hygiene teaching should be integrated with other infection topics and cited differing reasons. For example, it should not be a 'stand alone' topic because it was not particularly interesting or that it would be more meaningful in context. Why separate it out from other subjects? The latter point had also been linked to the suggestion for integrating hand hygiene alongside other clinical skills so that it would not need to be taught separately.

Individual consultants identified a myriad of recommendations and ideas, with one consultant highlighting that different messages are needed for different people and another commenting that different learning styles needed to be addressed. Several consultants considered the hand hygiene guidelines needed to be localised to reflect differing risk areas and that it would be helpful if there were a list of priorities and simple messages, together with the tools to risk assess. There were also recommendations and ideas that provided interesting insights. For example one consultant stated:

"And if you just train people like monkeys to do something all the time they tend to do it. I suppose the obvious thing is to combine the two is to know what the right evidence needs you to do and then make into a ritual. The perfect solution". [CD 01]

Whereas, another consultant who held a lecturing post within the medical school shared strong opinions:

> *"I think one of the difficulties with um, we rarely use the words train interestingly in postgraduate medical education because it's almost a slightly dirty word. We train a dog and you educate a person is often an expression that is used. ..... [CD03]*

> *" I'd perhaps argue that actually the solution to infection control is about changing people's beliefs and values rather than their knowledge base. Actually I think you probably could ask a lot of nurses and doctors you know what is good practice and actually they probably would have a fairly good stab at giving you what is good practice and they would have the knowledge base. To do it so repeating knowledge based training programme to them probably doesn't influence their practice. What will influence their practice is getting at their, their traditions, their beliefs, their values". [CD 03]*

It is important to note and take into consideration that although countless ideas were forthcoming, the consultants did convey there was not a requirement for such a focus on hand hygiene, articulated by the following two consultants:

> *"There's really more important things if you are going to corner consultants and force them to consider something". [CD 20]*

> *"To have formal education sessions is pointless because we all have all these journals, all these books, this is such a minor thing, I mean we all know about hand washing and one sheet piece of paper's fine, the idea that you have to cancel a whole half day of clinical work which we have to do now for these governor's meetings, what a waste of time. You know this hospital for half a day a month shuts down for governance training. Well hand washing doesn't need that, we're used to being educated, we read the abstract of an article and then review our practice on how we manage a particular type of wrist fracture so hand washing is a very minor part of our education. It doesn't need to be a massive thing". [CD 21]*

4.14.3 Category 4.3 Promoting consultant doctors' senior role

Consultants used the terms leadership, professional/personal responsibility and role modelling to describe the need for consultants to take a leading role in taking the hand hygiene agenda forward. All consultants recognised their position as a role model and the need for clinical engagement. There were suggestions relating to the need for assertiveness that could only be addressed by seniority and that local champions must include a consultant.

> *" I think leadership is really important in that most people want to have a good reputation in people's eyes ……. and if you can get senior clinicians who have a good reputation behaving with hand hygiene in the way that they are regarded for their clinical expertise then the people who work with them will pick up the same messages hopefully. And actually empower senior people to actually enforce this a bit more. I think if we actually had senior people who generally juniors look up to actually saying, "Come on put it on", they'd get bored of hearing it after a while and they would actually want to not look poorly functioning in the boss' eyes and people would start to realise the priority of it a bit". [CD 03]*

This consultant went on to describe how hand hygiene should be addressed by putting it in a more generic leadership programme, linked to clear examples of how this contributes to being an effective leader. He also went on to consider:

> *"If you get the Medical Director or the Chief Executive to sit in a room full of consultants and say I want you to learn this, I've learnt it, I acknowledge it's important, I want you to get the message ……. It's about saying you know I don't do this to you, I do this with you and is the important thing and this is something that, you know, we all, we should be all of value and importance to all of us. I think, you know start with the highest person in the organisation and then work your way down and I actually heard somebody senior say I value this, I think it's important, I'm not just paying lip service to this is an important message and that then makes life easier for people with less traditional influence and status in the organisation to ratify the message and repeat the message and clarify the message". [CD 03]*

There were also comments that ranged from peer shaming of consultants so they felt out of step with their colleagues, to creating an elite group with influence, seen as role models to lead the way. This was thought to play on consultants' traditions, beliefs and values within their profession.

> *"This has been important you know that actually I traditionally and actually maybe this isn't a good way of doing it, that actually I don't prioritise it enough in my clinical practice that actually it is not acceptable for the boss to come in wearing a tie and a collar and a wrist watch, that actually, yes, we traditionally look that way but actually life has moved on, we need to dress in a different way, we need to behave in a different way in terms of hand hygiene, we have a very key role in disseminating messages to junior staff and role modelling is one of the mechanisms by which that happens". [CD 03].*

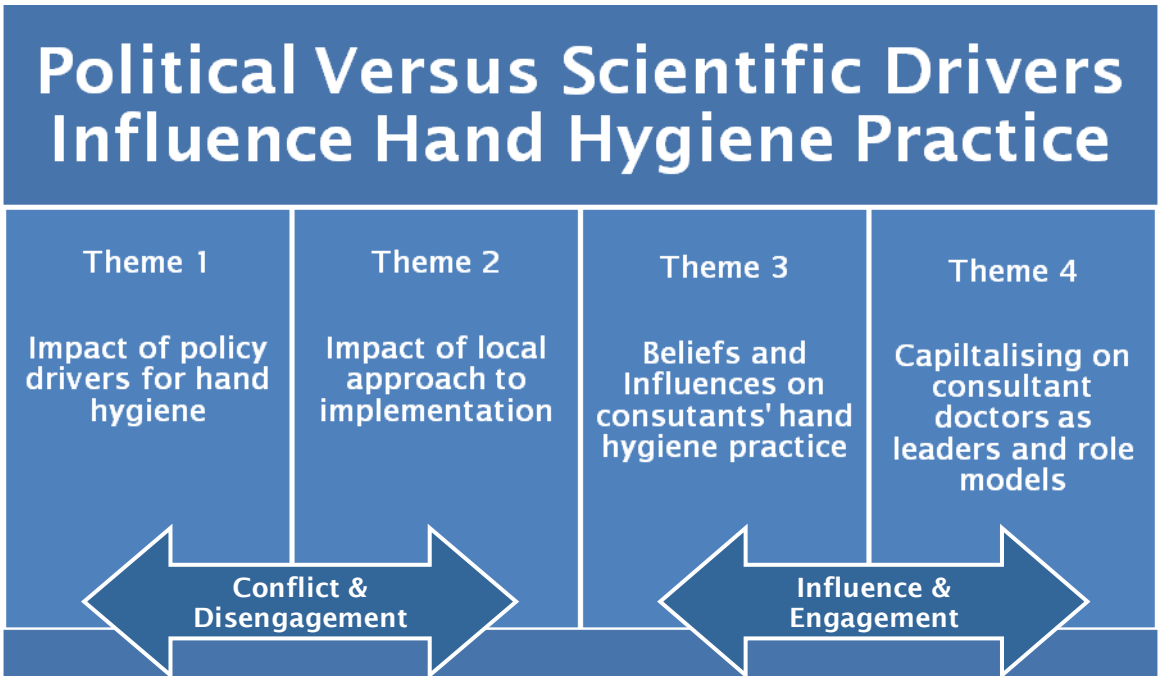
> *"I think that is important, to engage you know the consultant or the senior medical team because you know their patients are very important to them and rather than, and I think it is important to get them on board rather than sort of dictating to them". [CD 07]*

4.15 Final analysis of the four themes

Overall, some one hundred findings within the fourteen categories of the four themes obtained during observation, semi-structured interviews and field notes, were jointly analysed.

The final analysis draws together these thematic pieces into an integrated whole so as to describe the perspectives of consultant doctors on the hand hygiene agenda and its continued implementation in clinical practice. It is suggested that a political influence and conversely a lack of scientific influence prevailed in relation to the clinical hand hygiene agenda. Figure three portrays how the four themes are linked through an overarching theme identified as 'political versus scientific drivers influence hand hygiene practice'.

Figure 3: Overarching thematic model



The introduction of government policy directives through a 'top down' approach to implement the hand hygiene agenda vividly displayed the consequences of conflict and disengagement between political and scientific drivers. Whereas dialogue and implementation of a science base has the propensity to influence and engage consultant doctors.

Therefore themes one and two can be considered linked by 'conflict between political and scientific drivers for hand hygiene' and disengagement. Conversely themes three and four are linked by 'hand hygiene should be influenced by science, not politics' and the potential for engagement.

4.16 Summary of findings

Findings of this research study suggest the current involvement in the approaches to the promotion and implementation of hand hygiene practice among consultant doctors are simply not working satisfactorily. Although consultant doctors have a strong belief in hand hygiene, demonstrated by their high compliance in clinical practice with high risk activities, there is decreasing compliance when observed carrying out lower risk activities. There is in existence an overall scepticism of what is considered to be the current politically motivated hand hygiene policy

requirements. As a consequence the political paradigm was considered to have held greater influence than scientific drivers.

Collectively these issues have created confusion about what is required in practice together with frustration and a lack of engagement of consultant doctors. This in turn has created barriers to their participation as leaders and role models in the implementation of the hand hygiene agenda leading to a lack of engagement or disengagement. However, despite these failings, consultants have acknowledged that there has also been a positive impact on improving both national and local standards together with an understanding of the pressure on the hospital trust from external bodies such as the DH, SHA, and PCT to meet targets. Consequently, consultant doctors have proffered both ideas and recommendations to significantly take forward the hand hygiene agenda.

The next chapter, Chapter Five, discusses the findings, taking into consideration the context of the research setting together with the national and policy directives reflecting on the research questions that were originally posed.

Chapter Five

5 DISCUSSION

5.1 Introduction

The purpose of the research study was to explore the skills, attitude and beliefs of consultant doctors in relation to hand hygiene compliance; how they related this to their practice; what influenced their thinking; and how influential they were as role models within the practice setting. Key factors were determined in the development of strategies required to influence, develop and support these consultant doctors as both leaders and effective role models in promoting hand hygiene compliance. This formed the basis for addressing the three research questions:

- To what extent do consultant doctors conform to hand hygiene recommendations in clinical practice?
- What factors influence consultant doctors' hand hygiene practice?
- What strategies are required to promote consultant doctors as role models and champions of hand hygiene practice?

The focus of this chapter is to discuss the central issues arising from the major findings, presented in Chapter Four, within the context of the study and relevant literature with the aim of teasing out answers to the questions posed. Critical debate addresses the central issues, demonstrating their importance and their likely contribution to the body of knowledge. The final chapter of the thesis, Chapter Six, will then draw together the conclusions for the research study together with implications for practice and recommendations.

5.2 Central Issues arising from study findings

The breadth and depth of the findings were enlightening. The following are the central issues that were identified for discussion:

- Infection prevention and hand hygiene - the political dimension.
- Local impact from a top down approach.
- The hand hygiene message lost in translation.
- Guidelines and policy: recognising the evidence base and risk.
- The quality of education and training.
- What should be measured in audit?
- Engaging senior clinicians.

Each of the following sections will critically debate the central issues.

5.3 Infection prevention and hand hygiene - the political dimension

One of the most significant findings of this research study was the negative reception by the consultants of the national hand hygiene policy. The policy was not considered to be based on scientific evidence; there had been no discussion with the consultant doctors or adequate preparation for the latest implementation. Consultants were found to be frustrated at this politically driven 'top down' approach to clinical practice. This is not a finding that has previously been reported in the hand hygiene literature, but much debated in the wider context of the NHS and government. The former chief executive of the NHS, Sir Nigel Crisp, proposed that the NHS should be freed from direct government control and run as a separate body without political interference (Crisp 2009). The context of this was in relation to advocating the DH focus on wider health issues that leave the NHS to manage itself, respecting each others distinct roles and capabilities.

In reviewing the literature the rhetoric from the consultants was not unexpected as Levenson et al. (2008) found similar views expressed in relation to political control of the NHS at ten consultation events 'Do Doctors have a Future?' Although non-medical staff attended the events, the doctors' views were clearly presented in the report. Their findings resonated as they described how the medical profession considered they did not have a trusting relationship with politicians and as one doctor stated at the consultation event, "politicians want to de-professionalise medicine because professional groups are sources of power and are thus competitive to sources of political power" (Levenson et al. 2008 p15). However, Dickson and Gilmore (2008) commented that in an over-centralised and largely state controlled health system there is a tendency to blame government and politicians for all the ills facing the profession. They continued by pointing out that the pressures and challenges in the medical profession reflect the wider social and technological changes.

However, and importantly, consultant views are crucial as there is a consequence to this. My research identified that there was a perceived 'top down' approach, as the government became involved and hand hygiene took on a political dimension for a purely clinical activity. This meant implementation was approached as a governmental tactic, not in a clinical way, and therefore considered by consultants to be bullied through and as a result responsible for their lack of ownership and

negativity surrounding the hand hygiene agenda. The most senior health care professionals not only lacked engagement but also became disengaged. Why should politics without discussion and a lack of scientific evidence influence the implementation of clinical practice?

The public believed hospital infections were associated with sub-optimal hand hygiene by health care staff and poor environmental hygiene. There were similarities in the USA where there were increasing concerns with the rise in antibiotic resistant micro-organisms. Staff, especially doctors were considered to resent the hand hygiene efforts initiated in 2001 and were perceived as too busy, too distracted or too arrogant to comply (Aleccia 2008).

In spite of the negative view of political interference, some consultants agreed action was required and Gould et al. (2007) concurs that the government had to act, as there were high profile media campaigns in relation to healthcare associated infections and the National Patient Safety Agency (NPSA) was set up as a response to this. Indeed the DH has subsequently stated their hands on approach to the serious problem of healthcare associated infections had been successful, as the infection reduction targets had been achieved (DH 2010).

A history of tensions exist between the government and the medical profession, recognised by the Health Secretary for the last Labour Government, who had reportedly intended to engage and forge a new partnership with doctors (DH 2007). This perceived need for a more balanced relationship continued with a change of government. The White Paper (DH 2010) acknowledged the need to remove 'top down' control and that the new health bill would help prevent political micro management. With a move to de-centralisation, the DH has been scaled down and the 'Clean-your-Hands' team at the NPSA has been disbanded, together with the removal of infection targets and replacement with a quality agenda. However, in 2011, progression of the White Paper through parliament was placed on 'pause' for a period of time, as it had been recognised there had been a lack of clinical engagement, the very thing that had been found by this research study, to have been absent in the implementation of a government driven hand hygiene policy into clinical practice. Governmental engagement with healthcare clinicians is therefore yet to be realised.

There is little doubt that government scrutiny will remain as other proposed systems are established and implemented, such as Commissioning Boards,

Monitor and the Care Quality Commission. This will mean that political influence is likely to continue, which will require a need to consider just how active and effective consultant engagement can be cultivated.

5.4 Local impact from a top down approach

The continuation of a 'top down' approach in relation to hand hygiene practice locally was evident and not surprising, particularly within a climate of targets and local, regional and national monitoring and scrutiny, with financial penalties for non-achievement. Compliance with hand hygiene was strongly associated with preventing healthcare associated infection; a premise criticised within this study by consultants who considered there were additional issues implicated, for example high bed occupancy. In a published letter to a peer reviewed journal, Jang et al. (2010a) reported that Canadian physicians also commented that hand hygiene, in their view, was not the only factor associated with infection risk. Although this was a well-described letter, it was part of a larger focus group study with multi-disciplinary staff published elsewhere (Jang et al. 2010b). Therefore, the quality of the extracted work is difficult to ascertain.

The perceived misplaced emphasis on hand hygiene to address healthcare associated infection together with the threat of disciplinary action for non-compliance irritated consultants. Of concern was the finding in this study, that during observation in clinical practice the consultants and others carried out hand hygiene when there was not a requirement, perhaps because of the fear of penalties for non-compliance. This situation was found during interview to have created a climate for the consultants, as senior clinicians, not being able to question or object through a command and control approach by management.

A strained relationship between the consultants and management within the hospital was not just a local finding. The NHS Confederation (2007) reported that engagement between management and clinicians although the key to success was falling short at every level. Leveson et al. (2008) found doctors were 'exercised' by the quality of managers' decision-making and lack of clinical input, but did acknowledge they should make more effort. There can be little doubt that there is an obligation on the part of the consultants to exercise both personal and professional responsibility in support of the hospital at difficult times and be proactive in their engagement.

In addition to formal disciplinary action locally, consultants explained that managers gave permission for all grades of staff to challenge the most senior staff and this message was re-enforced at training sessions. This strategy appears to be increasingly acceptable. Holyoake (2010), a senior lecturer, describes the outcome of a three-day workshop whereby 22 paediatric student nurses examined their perception of hand washing and identified that a new system of supporting, shaming and blaming would encourage staff to wash their hands. The 'awkward feeling campaign' emerged, whereby permission would be given to confront each other, irrespective of social position. A poster campaign was developed with such slogans as 'I don't care what type of consultant you are! I do care that you wash your grubby hands'. This appears incredibly rude and naïve as Sahud et al. (2010) describes how a culture of blame in hospitals has been shown to create a toxic atmosphere and does not allow for a deeper understanding of why mistakes occur. He recommends a need to inculcate a model of hand hygiene to achieve the highest of standards for patient safety and that the best way to change behaviour, is to gain 'buy in' and earn the respect of clinicians by engaging them as opposed to confronting them. Unfortunately healthcare staff, continue to perceive doctors as the worst culprits for non-compliance with hand hygiene, demonstrated in the focus group study in Canada, published after the literature review for this study was completed (Jang et al. 2010b). It is not surprising that with such negative attitudes that doctors appear unwilling to engage.

Although the major tension appeared to lie with management, the root cause of consultants' views stemmed from the lack of scientific evidence for a hand hygiene and dress policy that in turn influenced the implementation of education, training and audit. However, the content of these initiatives are not driven by management, but led by clinicians within infection prevention and control teams. Therefore, such specialists have a duty to lead the hand hygiene agenda, personally, professionally and responsibly.

5.5 The '5 moments for hand hygiene' message lost in translation?

There are in existence national and international guidelines on hand hygiene that are translated into local policy and guidance. This part of the discussion focuses on how the hand hygiene message, that originated from infection practitioners in Geneva, Switzerland, has been 'lost in translation'.

Prior to the 'Clean your Hands' team recent disbandment, the NPSA led the national hand hygiene campaign, based on the successful Geneva Hospital multi-model campaign in the 1990s. The eminent lead for this work, Professor Didier Pittet, initiated this ground breaking campaign with the World Health Organization (WHO), that resulted in the first international hand hygiene guidelines published in 2009 and the subsequent development of tools for supporting implementation. Although this work was based on theories such as change management, much of it appears to have been 'lost in translation'. For example, the WHO endorsed the concept of the '5 moments for hand hygiene, devised by Sax et al. (2007a) and previously described in the introduction in Chapter One. Although the authors claimed this concept was based on scientific evidence, the detail was not published and therefore this concept, although appearing logical, was unsupported by evidence. There would have been more strength in the publication and concept if all the evidence had been provided and fully referenced.

Despite the lack of published scientific evidence the '5 moments' concept was accepted with alacrity by the NPSA for national introduction, an example of a 'top down' politically driven policy approach. Surprisingly the concept had been introduced by infection practitioners in the hospital trust and referred to within their local policy, two months prior to the national launch by the NPSA. However, it was apparent from the observations and semi-structured interviews with the consultants during the research study, that most had not heard of this policy or if they had were not aware of what the '5 moments' entailed. This does raise questions as to how a new initiative can be introduced nationally without scrutiny and discussion with clinicians into an evidence based practice environment? In addition the simple message of hand hygiene before and after every patient contact had been lost to requirements that were perceived to be more complex. Furthermore, it was an initiative that practitioners are expected to implement without knowledge or training and therefore could be considered ethically and morally questionable. As this was a national initiative, it is possible that other hospital trusts may have experienced similar problems, particularly as this was widely discussed on Doctors Net.

A challenge for the '5 moments' concept was found to be a lack of level of risk. For example, the same level of risk is assigned to contact with the patient environment, touching intact skin with carrying out an aseptic task, and therefore not surprisingly consultants did not understand the sense of this, evident during

the observations of practice. Conversely the Canadian's have implemented 'four moments', as they have combined two. Jang et al. (2010b) reported that focus groups of healthcare staff either believed the environment was unimportant or of real concern, quoting a doctor who believed in the former. It is of note that in a recent teleclass (Sax 2011), Dr. Sax commented that further work is required on the '5 moments' concept in determining risk and identifying what is the riskiest moment.

I carried out a personal visit to the Geneva University Hospital and to the World Health Organization. This was undertaken in the latter stages of the research and the opportunity was taken to meet with the world leading experts individually; Professor Pittet, Dr. Sax and Dr. Allengranzi. I met with each expert individually for a dedicated hour of professional discussion. The meeting with Dr. Sax was particularly enlightening in relation to his leading work on the '5 moments for hand hygiene'. It became apparent in discussion that there was little doubt that the '5 moments' introduction had indeed been lost in translation from its origins in Geneva. I opened the discussion by asking Dr. Sax how the concept of the five moments had emerged and he shared his early thinking that had originated in his experiences of training to pilot an aircraft. He envisaged that key principles of teaching and learning for pilots could be used for hand hygiene, particularly the idea of 'chunking', whereby tasks are broken down into smaller tasks to make them easier to remember. The '5 moments' had been designed on this principle to support clinicians. This concept had originally been designed for in-patient areas in acute trusts, with implementation agreed at a local level with clinical teams. The latter point was significant as it was recognised that clinical teams could identify the realities of implementation in practice and determine how it should work.

The Geneva team had obviously engaged their doctors as they had improved the hand hygiene compliance incrementally and more recently with a more stringent audit tool, based on the '5 moments'. In 2011 their compliance percentage was over 70% and they were very sceptical of compliance rates that achieved 100%. From the experience with their doctors they also concurred with some of my findings, particularly in relation to their physicians' views on the lack of evidence. However, they had not experienced a political focus, national campaigns or disciplinary action. It was also of note that I observed consultant doctors and other staff within the Geneva hospital wearing long sleeved white coats.

Although the NPSA provided support materials for the '5 moments' concept and arranged training days for healthcare leads this came after the national launch. Obviously this would have been beneficial in advance, so as to prepare for the change of clinical practice. From personal experience of attending a training day it was evident the infection practitioners present were challenged with understanding the new requirements and consequently the message was diluted and increasingly misunderstood. Perhaps worse, a directive was issued that the concept be introduced in all health care settings that included outpatient clinics, psychiatric care, GP surgeries and the home. The argument was not that hand hygiene is not required in all healthcare settings as it is well documented that increasingly patients with complex needs are being cared for outside of hospitals, but more the lack of discussion with clinicians and consideration of applicability and risk. The focus was so great that requirements to comply with the '5 moments' appeared in relation to non-clinical activities, for example, cleaning the environment and equipment. It appeared first in the national cleaning manual (NPSA 2007) designed predominantly for domestic staff and then as a policy requirement as part of the annual Patient Environmental Action Team inspections (NPSA 2010). The concern is that the central focus on clinician hand hygiene during clinical activity with patients is overshadowed by incongruous requirements. As the number of times hand hygiene may be required increases the potential to do this when not required multiplies. Indeed during the observations in clinical areas staff undertook hand hygiene when not required and conversely there were lapses at other times.

Judah et al. (2009) writing in relation to health education campaigns, that include hand hygiene, consider many behaviour-change campaigns prove to be largely ineffective and cite the lack of pre-testing. Although the NPSA used pilot sites prior to their first campaign in 2004, the rolling out of the campaign was implemented prior to the evaluative publication that subsequently highlighted the lack of medical engagement. The second initiative with the '5 moments' was not piloted and there were no plans for evaluation, therefore and not surprisingly, behaviour change has proved to be such a challenge. On a personal visit to the NPSA it was noteworthy to find that most of the 'Clean-your-Hands' team leading the campaign were non clinical. Their expertise was related to project management expertise and therefore the lack of a clinical background may have been a potential weakness.

There is little doubt that national and international campaigns have raised the profile of hand hygiene both with the public and healthcare staff. However, there appeared a lack of a change management approach to the new innovation. Pope et al. (2006) in describing the early implementation into the NHS of treatment centres, write how what appeared a simple concept framed by central government was translated and transmitted with the resultant 'disconnections'. Their case study illustrated the limitations of the top down and policy driven attempts at change and the crucial importance of the front line 'micro-systems'.

For a national initiative involving many organisations the Diffusion and Innovations Theory, which has been described as a process by which the innovation is communicated through a social system, could be considered (Rogers 2003). The NPSA could suggest that their work with infection practitioners, who were the key point of contact in the implementation of hand hygiene campaigns, may claim this group of staff were indeed such a social network. However, one of the qualities of the diffusion and innovations process is rather than focussing on individuals to change, is to reinvent the behaviours so they fit the needs of individuals and groups (Rogers 2003). This study demonstrated the quality of fitting practitioner needs was not addressed. It was particularly evident with the anaesthetists who questioned how the '5 moments' concept fitted with the speed and pressures of their work within an anaesthetic room and operating theatre when they considered they were multi-tasking. Smith et al. (2006) concur with the complexities of anaesthetic work, this is well documented and is compared to high technology industries such as aviation and a different approach to their specialist training is suggested.

In the USA the Joint Commissioning Centre for Transforming Healthcare (2010) developed a 'Targeted Solutions Tool' that was developed with industry to identify the main causes of failure to clean hands and target solutions. Working with eight hospitals they claim to have improved hand hygiene compliance from 48% to 82% in just over a year. What appears to be unique in this approach is a nationally led systematic programme tailored locally to identify issues and meet the local needs. Engagement of staff is one of the key aspects and therefore if the increase in hand hygiene compliance is sustained, this will provide useful insights to achieving a change in behaviour. However, as with other initiatives caution is required to ensure that projects are not introduced from another country or setting as they may not be translatable.

In the UK the 'Normalisation Process Model' (May et al. 2007) is emerging as a credible theoretical model to assist in understanding complex interventions and how they can be made to be workable and routinely embedded in health care practice. The tools for this model lend itself for local use as May et al. (2007) recommend it to be specifically for the complex intervention related to the work that it involves and acknowledge it is not intended for diffusion of innovations or individual behaviours.

5.6 Guidelines and policy: recognising the evidence base and risk

As previously identified there are several national and international guidelines that vary in their recommendations but are used to inform local policy. This creates fundamental problems and this was found to permeate through those on hand hygiene and dress code policy within the hospital trust. There were contradictions between policy versus guideline and unrealistic expectations of clinicians. Although there is a strong evidence base for hand hygiene there was a weak underpinning evidence base for the detail in the guidance. The scepticism of doctors is not about the concept but the process. Providing consistency and clarity over evidence and consensus guidelines may have provided credibility.

Although the terms policy and guidelines are commonly used interchangeably in the hospital trust, policies are considered compulsory and guidelines as a guide for action. All hospital staff, both clinical and non-clinical are warned quite clearly in the hand hygiene policy document that disciplinary action may be taken if the policy is not followed. Staff must also achieve 100% compliance with hand hygiene standards. Results based on the observations carried out within this research study showed clearly that consultants did not achieve 100% compliance and consequently were not compliant with the policy. In addition, although the recommended six-step hand hygiene technique was not being assessed during the research observations, it was noted this was not implemented on a single occasion by any of the consultants observed or indeed during the wider observation of other healthcare staff. This placed a significant number of staff at risk of disciplinary action. Consultants within the study were well aware of a colleague, who was also interviewed, of the disciplinary action that had been taken against him and how this had been recorded on his personal record for not complying with policy. Therefore it was not surprising that in practice, consultants carried out hand hygiene when not required to do so. This approach was not just local. A

General Medical Council Fitness to Practice Panel (GMC, 2010) issued a warning to a doctor from another hospital for misconduct that included failure to complete induction and refusal to accept the trust policy on hand hygiene.

Colleagues in the USA, where there is a climate of fines for healthcare associated infections, have debated the issue of disciplinary action in relation to hand hygiene. Wachter et al. (2009, p1403) has a particular interest in patient safety and considered the 'no blame' paradigm versus physician personal accountability, using hand hygiene as an example. He suggests that an environment that punishes a single lapse is not wanted unless the "error is both deliberate and egregarious" and that if punishment is required it should be proportional and just. The focus therefore should be on those that do not clean their hands habitually and wilfully, despite education, counselling and systems improvements. He also highlights the issue of implementing safety practices that are supported by weak evidence.

A guideline is considered more useful for practice, as practitioners prefer to use their judgement in clinical activities due to the complexity of each situation. However, guidelines alone are unlikely to change practice. Barley et al. (2008) interviewed 22 consultant psychiatrists and found that prescribing guidelines are only one component used for decision-making. Furthermore they suggest that competing and complex sources of knowledge and the use of 'mindlines' explain why dissemination of guidelines will not change prescribing practice.

It was clear from the observations in this study that carrying out hand hygiene in the realities of a clinical setting is not the simple measure so often described. This is supported by Erasmus et al. (2009), Sax et al. (2009) and Dhar et al. (2010) who concur there is complexity. Differing situations and many factors affect hand hygiene and in particular these are not addressed in guidelines that cannot cover every eventuality. Gobbi (2005), although writing about nursing practice, comments on moving from one job to the other and the interlinking and interweaving of activities that are common features in a busy ward. Hand hygiene is not a stand-alone activity and is carried out as part of clinical activity.

Hurwitz (1999), debates the legal considerations of guidelines and emphasises the use of clinical discretion and that the expert witness is the gold standard in court

proceedings, although recognising that some national guidelines have a prescriptive legal rule. He also comments on the developing influential nature of guidelines and the need for dialogue between guideline developer and user, a weakness identified by the consultants in this study. The basis of doctors being involved in guideline development harks back to Plato in the 4th century BC based on majority views (Hurwitz 1999). There is an expectation In the 21st century of having both policies and guidelines based on evidence. However, the underpinning evidence base for the hand hygiene and dress policy is lacking. The consultants found the standards required within the hand hygiene policy unrealistic and the dress code illogical. As with the Jang et al. (2010a) study they did not believe the evidence was sufficient and used their professional judgement. The latter is a common finding with doctors "I don't work to protocols because I use my judgement all the time" (Leveson et al. 2008). However, from the observations and interviews carried out the consultants were not clear or knowledgeable about what was required in the hand hygiene policies. Therefore practice may be based on shortcuts such as 'scripts', 'heuristics' and 'rules of thumb' (Gabbay & May 2004).

The evidence cited in the policy was predominantly the WHO guidelines as previously discussed in relation to the '5 moments' for hand hygiene. Of note is the local hospital policy changed the concept to the '5 critical moments'. As the posters and appendices for example, referenced the 5 moments this is probably an error. Unfortunately this type of mistake is likely to irritate staff and affect credibility. The national evidence based guidelines for preventing healthcare associated infection (Pratt et al. 2007) was also referenced in the policy, but this guidance differed with the emphasis on four key factors that need to be considered, implying a risk assessment approach. These national guidelines, based on multiple meta-analyses, demonstrated that much of the evidence for hand hygiene was not strong. Although consultants would prefer to have the evidence for the hand hygiene and dress code policy, many of them also stated they did not require this as they accepted the notion of common sense. Therefore it is recommended this be taken into consideration for future formulation of policy/guidelines.

The 'evidence' for the dress code policy was cited from the DH policy document Uniforms and Workwear: An evidence base for developing local policy (DH 2007b).

However, there was no evidence cited for this DH policy document as it was based on supporting information. It had not considered the wider issues of changing the way doctors dress for work. Following the demise of the white coat, still worn throughout Europe, consultants commonly wore suits and ties. From the interviews they felt their 'uniform' of ties and/or suits, which displayed their professional status, and their tools of the trade, wrist watches, had been removed without any discussion and based on a flawed policy. The suits equally applied to the female doctors.

These issues have been debated nationally and Jones (2008) on reviewing 20 reports on doctors' attire found that the perception of a physician's competence was related to appearance. White coats were found to be popular amongst patients with casual dress as the least popular. He continued by noting that most people regarded short sleeves and no ties as casual dress. As with many of the consultants within my study, Jones (2008) also refers to the theoretical infection threat from ties, watches or clothing as a smoke screen for the extraordinarily high bed-occupancy rates.

Although there is evidence that long sleeves and wristwatches preclude thorough washing at the wrist, there is no evidence that contamination in this area contributes to transmission of micro-organisms (Farrington et al. 2010). To add to the debate Burden et al. (2011) have claimed in a USA study that bare below the elbow appears to have little impact on infection risk. Their study, whereby microbiological cultures were taken from 100 doctors found no statistically significant differences of bacteria colony counts between the contamination of doctors' white coats compared with short-sleeved uniforms or the skin at the wrists of both groups. This study referred to the English guidelines and recommended there was not a requirement for healthcare staff to avoid long-sleeves. Being 'bare below the elbows' stemmed from a common sense approach so that wrists could be effectively cleaned as part of the hand hygiene technique. Conversely, a plain wedding band is permitted despite evidence demonstrating ring wearing increases hand contamination (Trick et al. 2003) and is against USA and international guidelines (Longtin et al. 2011). In addition, there is no evidence that collar ties have caused infection. Although found to be contaminated with micro-organisms, which is not unexpected, as they are not sterile items! These contentious requirements are therefore difficult to justify and importantly,

Grimshaw and Eccles (2004) found a lack of a theoretical basis as a major barrier for the interventions used to support the implementation of evidence into practice. The key issue highlighted here is that many of the consultants interviewed were aware of the debates and are particularly cognisant of such publications accepted in peer reviewed journals, thereby providing an element of credibility of the evidence base. Unfortunately this detracts from the fundamental hand hygiene message and its importance.

Cookson et al. (2009) found variations in recommendations and best practice from their evaluation of 21 hand hygiene guidelines from European countries, thus providing verification of a need for localised consensus. This is supported by the work of Lockwood et al. (2004) who found that successful strategies to implement evidence based medicine included structured meetings with medical staff, regular updated guidelines with consensus of consultant opinion and encouraging staff at all levels to question 'what we do'.

Many of the issues with guidelines identified by consultants were also experienced by General Practitioners (GPs). Carlsen et al. (2007) carried out a meta-synthesis of GPs attitudes to clinical practice guidelines whereby six broad themes emerged that were all alluded to during the consultant semi-structured interviews. The central issues were the questioning of guidelines that included scepticism about the evidence; lack of flexibility to take into account complexity; jeopardising relationships for non-adherence; risk aversion; lack of time to read the guidelines and guideline format that needed to be short and simple.

The authors of hand hygiene policy, infection prevention practitioners, were perhaps too accepting of the national/international guidance and the contradictions in requirements. They had also failed to understand the irrelevance of including non-clinical staff within the hand hygiene and dress code policy. However, practitioners rely on expert opinion/consensus and with the perceived 'top down' pressure to support improvements, decisions were made without them being fully researched, evidenced based or in discussion with clinicians. It is acknowledged there is difficulty in being a lone voice and challenging or questioning the establishment and the experts. This research study identified that the current hospital policy on hand hygiene and dress code policy are considered a major barrier to hand hygiene practice by consultants. Crucially, if the policy is

questionable, the impact on the requisite education, training and audit of practice based on this is significant.

5.7 The quality of education and training

Teaching against a flawed hand hygiene policy is not educationally sound and it was not surprising the consultants were critical. There was a lack of presentation of the evidence base or expert consensus to underpin the training. In addition a blanket approach, where clinicians of all levels and non-clinical staff such as those in catering were educated together was considered inappropriate. There appeared no consideration for how the teaching should be approached for a group of staff described as requiring a "uniquely complex scientific and analytical approach compared to other health professionals" (Leverson et al. 2008). This is supported by Duggan et al. (2008) who were critical of the 'one size fits all'. They suggested that initiatives need to be tailored to the specific needs of different professions to affect long term behavioural change.

Although a variety of teaching approaches were offered there appeared a distinct lack of educational theory based on the fundamental principles of training needs analysis, design, delivery, assessment and evaluation. This is supported by Bastion et al. (2008) who following a literature review of hand hygiene studies considered there was a need for further research to evaluate interventions based on theories of adult learning.

The delivered teaching sessions in particular were described as information giving. Bruner's (1973) theoretical framework describes learning as an active process in which learners rely on a cognitive structure that allows them to go beyond the information given. Bloom (1956) an eminent authority on education, was critical of the lower levels of training where there is a simple transferring of facts and he professed that education should promote higher levels of thinking. His taxonomy underpinned the principles of the knowledge, skills and attitude structure to training whereby the learner benefits from using knowledge and the intellect, develop their attitude and beliefs and use their ability to put physical skills into effect (Krathwhol 2002). This simple model continues to be a widely used system. However, it was evident from the consultants that they had not been taught the skill of hand hygiene. Instead hand hygiene practise was merely an assessment of how well hands were washed by examining the residue of a cream detected under ultraviolet light.

There is a need to return to educational principles when planning teaching sessions for medical staff. From their feedback it is evident that the principles of addressing differing learning styles as suggested by Kolb (1984) must also be taken into consideration. Much can also be learnt from social and health psychology as teaching and learning does not necessarily translate into practice. For example the role of intention is considered the key determinant of behaviour and there is potentially a role in manipulating intentions (Webb & Sheeran 2006). Some work has been undertaken in hand hygiene by Whitby et al. (2006) in the community with children, mothers and nurses and Jenner et al. (2006) with predominantly nurses, with both studies recognising this type of study as exploratory work. Erasmus et al. (2009) investigated behavioural determinants through focus groups that included physicians. The key outcomes of this study were the beliefs in relation to the importance of hand hygiene for self-protection but that a lack of positive role models and the social norms by senior physicians may hinder compliance. Therefore, there is also a need to consider the more established social learning theory that recognises that most human behaviour is learned observationally and through modelling (Bandura 1977). In relation to doctors, Goldstein et al. (2006) suggests that role models in particular play a significant part in the development of professional behaviour. This would prove a very powerful innovation if consultants' behaviour in practice was developed, but this could only be achieved if the guidelines and requirements for hand hygiene were clear, agreed and practicable, educational theory applied and the audit process and tools addressed.

5.8 What should be measured in audit?

The hand hygiene and dress code policy formed part of the overall hospital audit programme with a variety of audit tools in use by infection practitioners, link advisors for infection prevention and specifically consultants and their teams. This was at odds with the nationally recommended audit tool used for this study, as the infection team had developed new tools to reflect changes in the draft international guidelines prior to and at the time of data collection. On reviewing the hospital audit tools they did not match the national or international guidelines, or indeed the recent hospital policy and therefore the validity of results was questionable. For example, the requirement to perform hand hygiene at the entrance and exit to wards and bays is not required within the national or international guidelines. Stewardson et al. (2011) are highly critical of this

requirement. Overall this questions what is being measured and more importantly the significance of the compliance results reported.

There has been much debate in the literature with regard to auditing hand hygiene practice. This includes criticism over audit tools not matching guidelines (Gould 2010), technique not assessed (Gould et al. 2008), inappropriate assessment (Stewardson et al. 2011), self report as the least reliable method (Jenner 2006, Gould 2010, Dhar et al. 2010), staff not adequately trained and validated (Sax et al. 2009, Dhar et al. 2010, Gould et al. 2011), length of time of audit, Hawthorne effect (Sax 2009, Gould 2010, Gould et al. 2011) and time of day audit undertaken (Gould et al. 2011). Sax et al. (2009) also recommend the use of confidence intervals for audit results in view of the low number of hand hygiene opportunities that may be observed. However, this level of analysis is not a feature of local audits and may be considered time consuming and costly to employ the expertise to undertake this level of statistical analysis.

The audit tool used for this study was recommended nationally at the time of the data collection and has since been superseded by international audit tools (WHO 2011). This is potentially a weakness within the study considering the issues of audit identified from the literature. Therefore the results within this study in respect of audit need to be viewed with caution, particularly as the latest tools have removed risk levels and indeed the overall percentage compliance in this study would have been lower. However, the focus of the observation was not on the audit process and just providing compliance results, as the study aimed to seek the wider view and dig deeper to understand hand hygiene within the realities and context of clinical practice. The strength of this study is the minimum of three hours spent with each consultant in practice to gain this wider view. What this study adds is that an audit tool that recognises risk brought a different dimension to the findings and also challenges why this principle has been removed when professional practitioners are expected to work within a risk assessment model. Furthermore, audits are undertaken in isolation to associated activities and the 'moment' and 'risk' for hand hygiene can be complex.

Of further concern is the requirement for practitioners to achieve 100% compliance and therefore it was not surprising the audit may have been 'fudged' or that consultants completed the audits based on their risk assessment. If the

measurement is not right this will reflect on the reporting. Hintikka et al (2011) recently reported hand hygiene compliance of just 19% in Finland, but did not reveal how they measured practice. With so many questions over validity of audit, this could be potentially unjust for practitioners. Also, full compliance is not realistic, although an expectation starting at the DH and filtering down to the hospital managers and accepted by the infection team. There does not appear to be an acceptable percentage proposed in the literature, but personal discussions with eminent experts consider the focus should be on continuous improvement.

The purpose of audit results is keenly debated. Bastion et al. (2008) and Bryce et al. (2007) propose the standardization of audit tools so there is a standard approach that provides comparison and benchmarking. Unfortunately this is where the audit tool can be used for the wrong purposes and Sax et al. (2009) and Dhar et al. (2010) concur the focus should be on gradual improvements. The latter researchers are particularly critical as they consider the audit tools are unlike any other quality tool indicator. For example, surgical site infection surveillance has specific indicators that could not be developed in the hand hygiene audit tool due to the complexity of practice. They believe that hand hygiene measures were not created to be compared but to focus efforts and improve patient care. Sax et al. (2009) go further and purport that all current approaches provide approximate information and that results are designed to build a bridge in the knowledge gap between observers and those being observed, providing a user friendly and robust tool for education, monitoring and feedback. This was not the consultants experience and if the intention is to improve practice then there is a need to aspire to realistic improvements.

Hand hygiene audits require a focused observation in clinical practice. From observations' one particular issue is revealing. It was apparent, not only from the consultants and their teams, but many other staff, that hand hygiene was undertaken when not required and left the impression that staff do not really understand what is required. It is probably not just a local finding as Sax et al. (2009) describe a hand hygiene opportunity taken when not required as facultative. Indeed, (Sahud et al.2010) concurs and suggests an analysis and re-design of workflow may be needed to reduce the frequency of hand hygiene opportunities and this would help practitioners. The complexity of hand hygiene in practice is recognised by Wachter et al. (2009) who write how staff may not know what

behaviour is expected of them, the underlying rationale or how it is audited. He is very critical of dysfunctional systems, sometimes created by providers or administrators who lack essential training and may make it too hard to adhere to the practice. This results in 'work-arounds', that were revealed in some of the discussions with the consultants. It questions how consultants, considered as clinical experts, can function as role models if they are unsure of what is required. Furthermore they need to be engaged with the hand hygiene agenda before expertise and role modelling can be developed.

5.9 Engaging senior clinicians.

Consultant doctors, as the most senior clinicians, are seen and see themselves as role models and leaders in clinical practice. Therefore a natural step to introducing change within the clinical environment is to fully engage senior clinicians as the champions of hand hygiene practice in the production of policy, the establishment of guidelines and implementation of practice within the hand hygiene agenda. As identified within the research findings this did not happen and indeed resulted in disengagement. This study demonstrated that consultants were engaged with the concept of hand hygiene as they fundamentally believe in the practice, but also have strong views on what is required, the standard of education and training and how recent campaigns, policy and audit have been implemented. Conversely, as participants of research, they willingly allowed themselves to be observed and expressed their views readily when asked. Although research recruitment stopped at 21 consultants, after data saturation was met, there were more consultants wishing to participate. This is a major strength of the study as Firth-Cozens (2001) and Jenner (2002) found doctors notoriously difficult to recruit. Therefore there is a real opportunity to actively engage consultants within the hospital.

The literature does not appear to have addressed the practitioner needs in relation to hand hygiene, therefore this study is considered unique, in that consultants were asked for their recommendations for future policy and practice and this contributes greatly to the body of knowledge on hand hygiene. These appear to be new specific findings and highlight issues that can be rectified with active engagement.

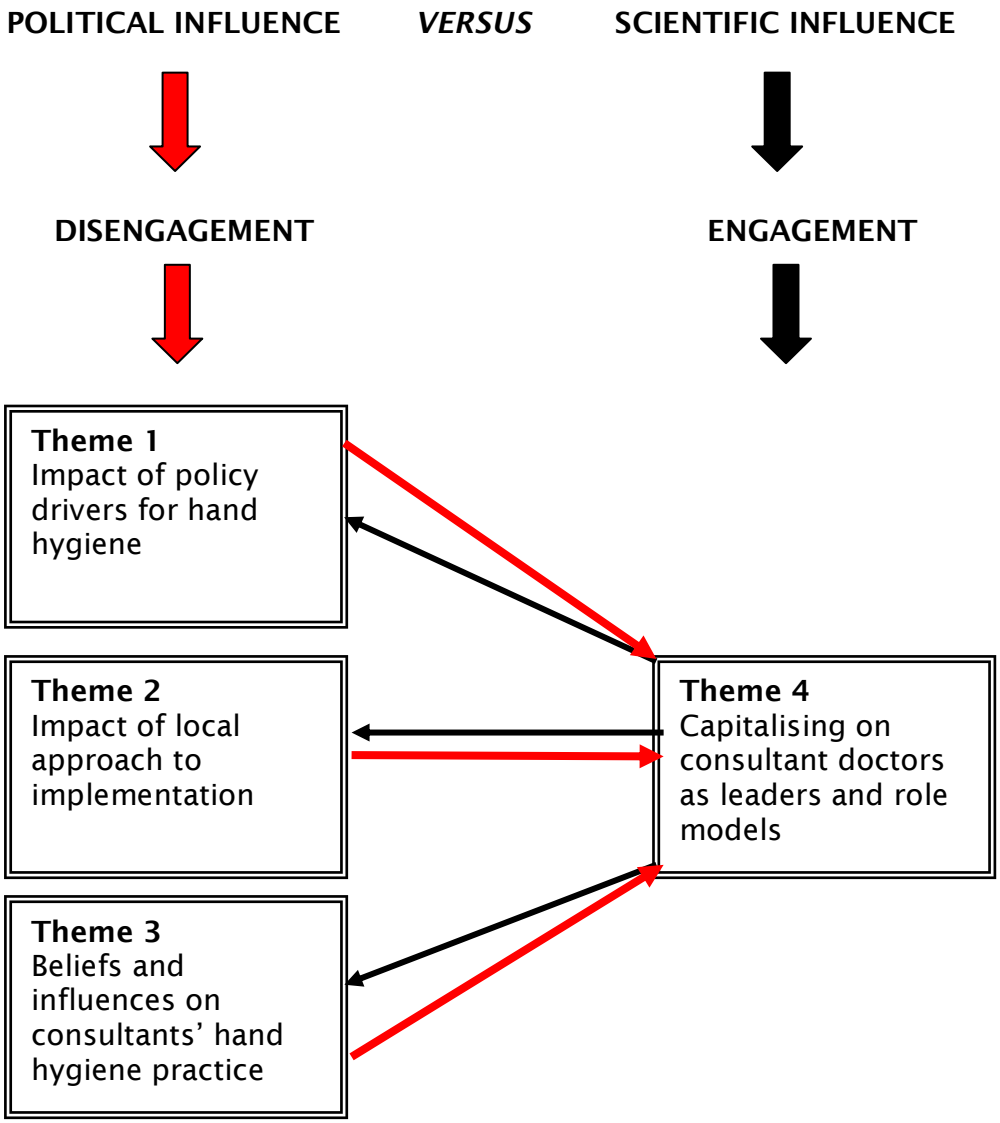
Overall, implementation of recommendations should build on the premise that consultants consider hand hygiene a 'no brainer' and this practice is an inherent

belief. It should begin with a review of the guidelines and audit tools working collaboratively with their input and agreement and relevant to their area of work. It is also imperative to recognise that appropriate education and training is addressed.

Although the recommendations of consultant doctors varied, this demonstrates the importance of listening to them, working with them, recognising their distinct professional body and as stakeholders are influential. The findings also demonstrated they are interested in the bigger picture such as personal and financial costs, the underpinning evidence base and thinking beyond hand hygiene. Conversely, it is as important to recognise that doctors themselves recognise other traits that pose challenges. Leverson et al. (2008) reported that doctors revealed they could be un-leadable, they may have dysfunctional personalities and a sense of strong individualism. In the USA, Saint et al. (2009) studied the barriers to implementing evidence-based practice to prevent HCAI and found two types of personnel, 'active resisters' and 'organisational constipators', who collectively increase the difficulty of implementing change. These challenging aspects, together with the significant and powerful finding that the command and control approach is anathema to doctors are major obstructions to engagement. It is therefore recommended that to engage consultants they must have a leading role in the hand hygiene agenda. The General Medical Council (2009) expect senior doctors to offer a leadership role, work with others, put their patients first and dedicate to continuing improvement not only in their practice but the organisation and environment where they work.

The benefits of consultants taking a leading role in the hand hygiene agenda has the potential to reverse the overarching theme, that political versus scientific drivers influence hand hygiene practice. This was considered to have led to disengagement and therefore by overturning this finding there is the opportunity to cultivate engagement. The schematic diagram at figure four demonstrates how the political influence and disengagement can be reversed thereby promoting engagement at a national and local level. Importantly, it emphasises the wider use of a scientific approach, not just to hand hygiene, but the application of the science of change management.

Figure 4: Reversing the overarching theme: political versus scientific drivers influence hand hygiene practice



There are similarities in the diagrammatic representation of figure four with the principles within the theoretical change management model of Lewin's (1947) force field analysis. This is based on the relationship of forces whereby the driving forces, represented as black arrows, exert a greater influence over the restraining forces of the red arrows. The relationship of forces and individuals in the environment is known as the field, which relates to social, historical, situational and physical influences that can be aligned to culture (Tiffany & Lutjens 1998). Therefore, theme four, capitalising on the professionalism of consultant doctors, if conferred, has the power to drive the agenda that ultimately leads to engagement.

A final thought on engaging doctors and understanding their unique identity is to consider the insight from Hurwitz and Vass (2002) in defining a good doctor:

> One approach to defining a good doctor equates the answer with the skills of an applied scientist: good doctors combine individual clinical expertise and best available external evidence: they are thoughtful, evidence based practitioners who use intangible personal resources in the care of their patients.
> (Hurwitz & Vass 2002, p667)

5.10 Ethical and justice issues

In undertaking this research study, it raised a number of issues related to ethics and justice. It could be considered unethical for the Trust to implement a flawed policy and associated audit tools to judge doctors practice, a professional group who are considered expert practitioners. Consequently it is also unjust to promote a whistleblowing culture that results in inappropriate challenges to their practice and use of disciplinary action over questionable rules. Whistleblowing within the NHS was designed for staff to create an open and comfortable environment for them to raise genuine concerns for patient safety (Social Partnership Forum/Public Concern at Work 2010). In the context of hand hygiene practice this has been promoted improperly as many of the examples of perceived lapses in practice could be considered excessive to warrant whisteblowing. Furthermore, to stifle consultant doctors' views, questions or concerns is morally wrong and ultimately inhibits engagement. Overall, this displays a lack of respect for persons, a principle described as a basic moral norm (Beauchamp & Childress 2009).

5.11 Summary of discussion

The answers to the questions posed within this research study have been teased out through a discussion of the central issues, which arose from the major findings presented in Chapter Four. The negative reception by consultant doctors to the hand hygiene agenda was created as a direct result of the political dimension and local influence from a 'top down' approach identified as the political drivers. It raised questions about why the hand hygiene agenda was introduced without discussion with consultant doctors and a lack of regard for presenting the scientific evidence. This resulted in political drivers being brought

into direct conflict with the scientific drivers. The threat of disciplinary action against the consultant doctors and a bullying approach to the implementation did not help to create an atmosphere of engagement and in effect stifled further dialogue surrounding the questionable rules. This was highlighted by the introduction of the 5 moments concept for hand hygiene, lost in translation, with many consultant doctors unaware of its actual content several months after it had been embraced by hospital trust directives. The contradictions in terms of policy and guidelines together with conflicting audit procedures and inadequate training and education; dilution in the perceived professional image of consultant doctors compounded the unsatisfactory situation and contributed to the scepticism of the processes in place. Fundamental to engaging with consultants is the need to address the presentation of hand hygiene evidence and the science of change management principles.

Chapter Six, the next and final chapter, now draws together the conclusions of this research study addressing the extent that consultant doctors conform to hand hygiene recommendations in clinical practice; what influences such practice and what strategies are required to promote these senior clinicians as role models and champions of hand hygiene in practice. Implications for practice are highlighted and significant recommendations made for action. The strengths and limitations of the study are also included together with a personal reflection of completing this research thesis.

Chapter Six

6 CONCLUSIONS

This final chapter, Chapter Six, now draws conclusions from the research and identifies the implications for practice; makes recommendations for addressing the issues; highlights the strengths and limitations of the study and provides personal reflections of undertaking the research.

6.1 Concluding Summary

The research study was undertaken in an NHS acute university teaching hospital. It explored the practice and perspectives of consultant doctors to determine strategies required to improve hand hygiene compliance. Although extensive literature on hand hygiene was found to exist, there are limitations and few are of quality, resulting in a distinct gap in such research. Consequently this research thesis is considered unique, as for the first time, observations and semi-structured interviews were carried out with consultant doctors in relation to hand hygiene and as a result it has contributed to the body of knowledge. The study embraces their views, their issues and their recommendations, yet at the same time has also been able to assess their levels of hand hygiene compliance and the challenges they face in the reality of clinical practice. Furthermore, it identifies the factors that influence such compliance together with the potential strategies required to promote consultant doctors as role models and champions of hand hygiene practice.

There is little doubt that the national, politically driven, 'top down' approach to the hand hygiene agenda, together with the production of questionable local rules and implementation without discussion or involvement of consultant doctors, irritated, frustrated and perplexed these senior clinicians. This lack of senior clinical engagement and change management strategies resulted in creating conflict between what can be termed the political and scientific drivers. In addition, the differing policies, guidelines and audit tools were found not to complement each other and this was compounded by the scepticism over the detailed requirements. Consequently, this all negatively impacted on the resulting mandatory education and training packages that were not well received by consultants, thereby creating further annoyance at the way the hand hygiene agenda had been introduced. The study also found a failure to consider the levels of risk of transmission of micro-

organisms with differing levels of clinical activity and in different clinical settings that adversely impacted on the implementation in clinical practice. Collectively these issues created confusion in respect of what was required in clinical practice resulting in a lack of engagement by the consultant doctors. The reliance of the hospital trust on the threat of disciplinary action to implement change added to the disengagement. This in turn has created barriers to their participation as leaders, as role models and as agents of change in the implementation of the overall hand hygiene agenda. However, despite these shortcomings, consultant doctors have proffered both ideas and recommendations to positively address the issues that would engage them. This is not surprising as the consultant doctors have the same desire as the hospital trust and the government to reduce hospital acquired infections and deliver safe patient care.

6.2 Implications for practice

Significant implications for the hand hygiene agenda in clinical practice have been identified in this research study. Hand hygiene initiatives both nationally and locally were introduced without any involvement or dialogue with the consultant doctors locally. They are the most senior healthcare professionals; expected to be the leaders and role models in clinical practice, consequently their views and performance act as a powerful influence on others. They need to be engaged; even the government have recognised this requirement.

Setting of standards together with the creation of rules and guidelines in clinical practice that are unachievable affect the credibility of the hospital trust. It also has implications for infection teams as the authors and implementers of local policy as it is likely to have a negative influence when infection advice is provided on other matters. Furthermore, it highlights the waste of resources in terms of practitioner and trainer time in continuing to provide inappropriate and inadequate education and training, against a flawed policy, that is not realised in practice. This situation is further aggravated by the production of an audit performance tool requiring 100% compliance, used to observe and judge practice, which in reality has been found to be unachievable, created a tendency to fudge results, and consequently is of little use.

There is little doubt that the consultant doctors are confused over the hand hygiene standards required and therefore consistently have to make their own

judgements. Considering these are based on a lack of education and training during medical school and more recent experiences, this questions not only how they make informed judgements but the quality of them. By not addressing their confusion and expecting hand hygiene to be carried out when not required is iniquitous. In addition, the encouragement of staff to observe others and report their lack of compliance with hand hygiene rules has created a toxic atmosphere in clinical settings whereby practitioners are apprehensive of being challenged or anxious of the threat of disciplinary action against them.

Hand hygiene is considered the cornerstone of infection prevention, a failure therefore to adequately address it poses an increased risk to patients, the public and those who work within the NHS. The following section therefore provides recommendations for action.

6.3 Recommendations

It is acknowledged that the conclusions and implications for practice are wide ranging, consequently the recommendations to address them will create significant challenges. In addition the controversy and difficulties surrounding their implementation both nationally and locally are not underestimated.

6.3.1 National Level

The current hand hygiene directives should be revisited, It would add credibility if the National Institute for Clinical Excellence led the writing of future guidance in relation to hand hygiene, as their work is well respected by clinicians and more likely to be embraced.

Consideration should be given to how future campaigns are managed together with realistic time frames for implementation and recommendations on the expectation of the percentage hand hygiene compliance levels. It is of critical importance to consider a locally set hand hygiene compliance improvement programme as an achievable target. This requires expert engagement and a steer from two of the major UK infection interest groups, the Infection Prevention Society and the Healthcare Infection Society with senior clinician involvement.

6.3.2 Local level

A theoretical framework, such as the Normalisation Theory, that lends itself to working with local groups of staff should be used to address the strategies identified below for developing hand hygiene practice and the expertise of consultant doctors. Although working with consultant doctors is of paramount importance it is essential that a multidisciplinary approach be taken, as this is a recognised and well used model of working in healthcare. The following strategies are recommended:

- Develop a hand hygiene policy and local guidelines in collaboration with consultant doctors, which understand and implement their recommendations based on evidence, on risk, on expert consensus and on the particular clinical setting.
- Establish a leading role for consultant doctors, recognising the potential impact of their professional influence with clear working engagement between them and infection teams.
- Develop audit tools that mirror the requirements of policy and guidelines with results focussing on improvements in practice as opposed to 100% compliance.
- Create education and training packages which are underpinned by learning theories aligned to approved policies and guidelines and address the criticisms of previous hand hygiene education and training.

6.4 Strengths and limitations of the study

6.4.1 Strengths

The major strength of this research study is that it has made a theoretical contribution to the body of knowledge. This is particularly so as no other hand hygiene study has undertaken the in-depth approach of observation followed by individual semi-structured interviews with consultant doctors. By taking an holistic approach, the consultants as participants, became fully engaged, were prepared to be observed during their ward rounds and willing to share an open dialogue.

A further strength of the study was the personal ability to recruit 21 consultants from different specialties, representative of the main clinical areas of the hospital trust, as doctors are notoriously difficult to recruit. The personal approach is considered to have continued through the consent process and data collection period, whereby a perceived trusting relationship was developed and facilitated

the unearthing of practice and perspectives from consultant doctors. This contributed to the credibility and trustworthiness of the research study.

6.4.2 Limitations

It is acknowledged that the outcomes and recommendations may not be applicable or transferable to other settings as the research study was undertaken in one university teaching hospital. However, nationally a number of the contentious issues have been debated on doctors' web sites and in the medical and national press indicating the study findings and recommendations are likely to be applicable to similar settings. The literature demonstrates the challenges of hand hygiene adherence still persists both nationally and internationally.

Another limitation of this research study is that further work has not been carried out to pilot the recommendations and proposed strategies. However, these are potential areas for further research.

A further limitation may be that the literature review focused on reviewing the literature only in written English publications and narrowing this further to those English-speaking countries, plus China, Holland, Germany and Switzerland where seminal work was carried out and therefore may have omitted valuable work. However, some literature from other countries did emerge as part of the focussed search and there was no indication that work had been undertaken specifically with consultant doctors using a qualitative approach, but this could not be confirmed.

Despite the limitations I would not have changed the research design, methods or implementation of this study.

6.5 Personal Reflection

Undertaking the research study and compiling a research thesis whilst in full time employment, changing posts twice, suffering a period of illness and a family bereavement within the period of the thesis proved to be demanding. However, although carrying out the research was challenging, it was also an enjoyable and an enlightening experience.

Selecting hand hygiene as a topic for investigation proved to be informative and on reflection the qualitative approach taken was the right choice, as new findings emerged. However, it is not just the findings but my personal learning that has taken place from gaining an insider's perspective. This was an adjustment in my theoretical position, as infection prevention and control is associated with the scientific approach and therefore this paradigm shift proved revealing.

There were several aspects that particularly supported me in undertaking the study. First, my position as a consultant nurse helped; as these roles are well respected in the hospital trust. Also that I was undertaking research, as part of doctoral studies, impressed the consultants. This provided an element of credibility and was thought to establish a professional relationship and gain the confidence of the consultant doctors. Other aspects related to the visit to London during the development of the study to meet with a professor, and the work with two local consultants to practise my observational and interview skills. Although these were acknowledged as valuable experiences, it is only with hindsight that I truly recognised their worth. Although I had worked with consultants as part of my practitioner role, the role of researcher was different and consequently my preparatory work assisted in achieving a rapport with consultants as participants in research that was to prove extremely beneficial.

It is also with hindsight I recognised prior experience gave me the confidence to undertake a study with consultant doctors that could potentially deter others. This emanates from my role as a consultant nurse and an extensive nursing background, whereby visits to clinical areas and communicating with all levels of staff is usual. There are implications for replication of the study, as the researcher would require the expertise, experience and inter-personal skills to not only conduct the research but also achieve the confidence of participants and ultimately obtain rich data. I consider the researcher/expert practitioner role is a major strength of the study, described by McCormack (2003) as bridging the gap between 'knowledge users' and 'knowledge generators' and furthermore it develops a research culture in practice. The theoretical position of relativism was evident in my approach and clearly linked to the assumptions of the naturalistic paradigm.

As a consultant practitioner I was confident in my ability. However, this was challenged, particularly in the research setting where the practicalities of implementing hand hygiene requirements proved difficult in everyday clinical practice. I was also surprised and disappointed when noting the wider observations during data collection, where staff were witnessed to either undertake hand hygiene when there was not a requirement or conversely failed to do this when there was a requirement. It was personally difficult when I had to also undertake hand hygiene during the occasions when it was not required, but felt obliged to do so to comply with the hospital trust standards. Although the role of researcher was a comfortable place to be it also created for me a professional dilemma as I was left feeling unsure as an expert practitioner on what I would advise and furthermore began to question my own personal beliefs. This created deep reflection and the realisation of the need to work alongside practitioners to develop workable and local guidelines, based on available evidence and risk.

Due to this personal experience I now recognise the need to professionally question the hand hygiene agenda. As a consequence I have been able to influence the policy and guidelines within the healthcare organisation I was employed with at the time to present a pragmatic approach.

The consultant doctors demonstrated many of the traits identified in researching elite groups. All types of emotions were witnessed from anger, frustration and even hurt. My transcriber noted how angry some of the research participants were whilst she was transcribing the tapes and actually asked if I was coping with this. I did not take the consultant doctors' emotions personally, indeed I was delighted they were able to air their views and share their feelings so openly. This I consider added richness to the study. Although data saturation was met, on a personal level I would have taken pleasure in undertaking more observations and interviews of those additional consultant doctors who put themselves forward for the study.

Throughout the study opportunities were taken to share the findings at a University Conference, first through a poster and then through an oral presentation the following year. In addition, a personal visit was made to the National Patient Safety Agency to share the research findings through an oral presentation. This was well received with an offer for me to work collaboratively

with them. Unfortunately it was not long after this that staff changes were made at the NPSA as the department was in the process of streamlining and the 'Clean-your-Hands' team soon disbanded.

A poster was also presented at the Infection Prevention Society conference, which achieved the award of the poster prize. My prize money was used to undertake an educational visit to the centre of hand hygiene research in Switzerland, the University Hospital Geneva and the World Health Organization respectively. This was a fantastic opportunity to speak to leading experts in hand hygiene research and formally present and discuss my study and have my work recognised.

Furthermore, I was requested to submit an abstract for a poster presentation that was accepted by the scrutiny panel at the First International Conference on Prevention of Infection and Control 2011 in Switzerland. An application for a travel award was successfully made to the Infection Prevention Society to fund a conference place and travel costs. This was an amazing and exciting experience brought about as a result of my research study and hard work.

It is anticipated that dissemination of my research will continue to be shared with infection colleagues, as they are the practitioners who are likely to be the catalyst for taking the hand hygiene agenda forward. The Infection Team at the research site have requested I work collaboratively with them to re-visit and assist them to take forward the hospital trust hand hygiene agenda. This is a personal achievement as my work has the potential to influence and impact on clinical practice.

On final reflection, although this has been extremely demanding it has been both a journey of intense personal and professional development.

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8 APPENDICES

APPENDIX 1

Summary table of research studies reviewed

1. Australia

Author(s)	Date	Method	Main Findings
Whitby et al *Community: mothers and children* *3 Tertiary Hospitals*	2006	Survey	Social pressure from others was highly ranked as an influence on hand hygiene practice.
Sladek et al *2 teaching hospitals*	2008	Mixed methods: Observation and survey	Poor hand hygiene compliance of doctors – mean 7.6%. Higher levels associated with experiential learning and no relationship to rational thinking style.
Fitzpatrick et al *208 hospitals*	2009	Survey – pre and post state wide campaign	Campaign successfully engendered positive attitudes and dispelled negative perceptions of before and after patient contact hand hygiene.

2. China

Author(s)	Date	Method	Main Findings
Huang et al *Hospital*	2002	RCT	Increase in hand hygiene activity of nurses following single intervention of education.
Tai et al *Four hospitals*	2009	Survey of perception of interventions promoting hand hygiene including cognitive factors	Nurses and physicians perceptions of the importance of hand hygiene differed, as did self-reported performance.

3. England and Ireland

Author(s)	Date	Method	Main Findings
Gould et al *ITUs, medical, surgical units*	1996	Multiple method approach using structured observation, questionnaire and interviews of nurses' hand decontamination, the use of gloves and sharp instruments	Hand decontamination less than 50%. Glove use appropriate. Sharps compliance commendable, but some unsafe practice. Other variables influenced practice such as nursing workload.
Gould & Chamberlain *Surgical wards, Teaching Hospital*	1997	Controlled before and after study	No change in hand hygiene practice of nurses following a single intervention - education.
Naikoba & Hayward	2001	Systematic review	Multifaceted approaches are more effective than single interventions such as education. Performance feedback can positively influence hand-washing behaviour. Some effect from reminders, automatic sinks and alcohol products.
Jenner et al *Teaching Hospital*	2002	Survey to identify psychological constructs through application of theory of planned behaviour	Attitudes and personal responsibility were significant predictors of behaviour and should be addressed in future interventions
Prieto *Hospital*	2003	Thesis: Case study approach of infection control practice including hand hygiene	Hand hygiene compliance sub-optimal. Participants experience difficulty comprehending infection control recommendations.
Creedon *Medical /surgical ICU Teaching Hospital*	2005	Observational study and questionnaire	Multifaceted intervention improved hand hygiene compliance
Jenner et al *Teaching hospital*	2006	Mixed methods: survey and observation	Hand hygiene practice was poor and bore no relationship to intention and self reported behaviour.

Gould et al	2008	Cochrane review	Most studies are methodologically flawed with only 2 selected for review. The studies addressed 'universal precautions'. One study found that a single intervention did not work whereas the other study did.
Cole *University*	2009	Survey and semi-structured interview	Student nurses overestimated their knowledge and skills and this is considered a major barrier to improved hand hygiene performance.

4. Switzerland, Germany and Holland

Author(s)	Date	Method	Main Findings
Pittet et al *Hospital Switzerland*	2003	Observational study of hand hygiene	Failure to cleanse hands is common in post anaesthetic care unit due to intensity of patient care.
Pittet et al *Hospital Switzerland*	2004	Observational study and questionnaire of physicians hand hygiene	Hand hygiene adherence is associated with work and system constraints.
Wendt et al Hospital *Germany*	2004	Observational study of hand hygiene using hand rub only across the hospital	Inadequate hand hygiene compliance. Focus should be on specific healthcare activities.
Pittet et al *Teaching hospital Geneva*	2006	Cross sectional study: observation and questionnaire	Hand hygiene compliance of doctors ranged from 23.3% to 82.6%, but conversely self reports high levels of intention, motivation and a positive attitude. Only 44% considered themselves role models and there is a recommendation to re-enforce this.
Sax et al *Teaching hospital Geneva*	2007	Survey – to quantify behavioural components of motivation to comply with hand hygiene	Behavioural beliefs favour hand hygiene, although adherence is driven by peer pressure

			and perception of high self efficacy. Female sex, training and campaign exposure increased compliance.
Erasmus et al *5 hospitals Holland*	2009	Qualitative approach: structured interviews	Nurses and medical students considered advantages of hand hygiene as self protection whereas doctors considered protection of the patient. All expressed concern over products used on hands. Concerns related to time and other barriers such as facilities a culture whereby senior staff could deviate from rules. The importance of the role model was evident.

5. Unites States of America

Author(s)	Date	Method	Main Findings
Watanakunakom et al *Teaching hospital*	1998	An observational study of hand-washing and infection control	Poor compliance, physicians better than nurses. Isolation procedures excellent.
Harbarth et al *Paediatric units*	2001	Observational cohort study to determine predictors of hand hygiene compliance	Hand hygiene compliance poor but increased during high-risk activities.
Salemi et al *450 bed hospital*	2002	Observational study of hand-washing with educational intervention	Hand hygiene improved after education then declined.
Lankford et al *Old and new hospital*	2003	Observational study of handwashing with comparison on the effect of new facilities on compliance	Hand hygiene compliance better in old hospital than new. Staff influenced by senior person.
Larson et al *2 Neonatal ICUs*	2004	Mixed methods: observation and self report diaries	Nurses self report over 22 months reflected hand hygiene practice observed for 1 hour each month. However, it was noted there were differences in methods during the study.

Shimokura et al *45 haemodialysis units*	2006	Survey – self reporting of personal protective equipment use and hand hygiene	Nurses and technicians had poor understanding of infection control practices in haemodialysis units. Tailored training recommended.
Leventhal et al Plastic surgery	2009	Survey – web based of physicians hand hygiene knowledge	Lack of knowledge by facial plastic surgeons of indications, methods and agents for hand hygiene. Promotion of guidelines recommended.
Lewis & Thompson *Hospital*	2009	Survey of perceptions and knowledge of infection control practice	Healthcare professionals had poor knowledge of hand hygiene practice and appropriate cues to action are required.

Participant Information Sheet

Identifying strategies to promote consultant doctors as role models and champions of hand hygiene compliance.

You are invited to take part in a research study. Please take time to read the following information carefully and ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

WHAT IS THE AIM OF THE STUDY?

- The aim of the study seeks to identify the skills and explore the attitude and beliefs of consultant doctors in relation to hand hygiene compliance. The outcomes of the study are expected to determine key factors in the development of strategies required to influence, develop and support these leaders as effective role models to promote hand hygiene compliance.

WHAT IS THE DESIGN OF THE STUDY?

- The design of the study is in two parts. The first part is based on qualitative inquiry with data collected through observation to act as a basis for the subsequent interview. Field notes will be used following both observation and interview. Data will be analysed thematically whereby identification of common issues will determine the second part, a pilot study of strategies aimed at ultimately improving hand hygiene practice. As an inductive approach is used, it is not possible to identify how the pilot will be implemented and evaluated in part two. However, it is anticipated a field-based approach is likely whereby the researcher will work alongside the consultants. .

WHY HAVE I BEEN CHOSEN?

- You have been chosen for your position as a medical consultant in clinical practice. I plan to work with approximately 20 consultants in the first part of the study.

DO I HAVE TO TAKE PART?

- **NO.** It is up to you to decide whether or not to take part. You are free to withdraw at any time and without giving a reason.

WHAT WILL HAPPEN TO ME IF I TAKE PART?

- If you do agree to take part you will be asked to sign a consent form to confirm your agreement. Even if you sign the consent form you can still withdraw from the study at any time
- By arrangement I will accompany you during your work in clinical practice followed by a personal half hour interview in private. I wish to audiotape the interview so that I can listen carefully to everything you say rather than writing notes. This audio tape recording is treated as highly confidential and your name will not be on the tape. It will also be held securely in a safe.
- If you are invited to participate in the second part of the study, separate information will be provided and further consent will be obtained.

WHAT DO I HAVE TO DO?

- Just allow me to accompany you or sit/stand in an area where the observation can be carried out. For the interview, just answer questions honestly in relation to hand hygiene practice.

WHAT ARE THE POSSIBLE DISADVANTAGES AND RISKS OF TAKING PART?

- There should not be any disadvantage or risk of taking part. However, if you feel the observation or interview is inappropriate at any time we will stop immediately.

WHAT ARE THE POSSIBLE BENEFITS OF TAKING PART?

- There may not be a direct benefit for you but it is hoped that others will benefit as the study contributes to the body of knowledge.

COMPLAINTS

- *If you wish to complain about any aspect of the way you have been approached or treated during the course of this study please speak to the Research and Development Office.*

WILL MY TAKING PART IN THIS BE KEPT CONFIDENTIAL?

- *If you consent to take part in the research all information collected will be kept strictly confidential. The signed consent and other communications with you such as letters or emails will be kept manually in a locked filing cabinet, separate from all other data collection materials. I will be the only person able to identify who you are. The audiotapes and associated written records will not have your name on them, but will be coded. The tapes and written records will be destroyed within a year of the end of the study.*

WHAT WILL HAPPEN TO THE RESULTS OF THE RESEARCH STUDY?

- The data will be analysed and the findings contained within a report. I must emphasise it will not be possible to identify you in any way within this report.
- The report will be shared with others through publication in a peer reviewed journal and presented at conferences.
- A summary of the report will be shared with you later in 2009, followed by the paper for publication.

WHO HAS REVIEWED THE STUDY?

- *The study has been reviewed by the researcher's university academic supervisors, staff within the Trust Research and Development Office and the local Research Ethics Committee.*

WHAT IF SOMETHING GOES WRONG?

- *If you are harmed by taking part in this research project, there are no special compensation arrangements. If you are harmed due to someone's negligence, then you may have grounds for a legal action but you may have to pay for it. Regardless of this, if you have concerns about any aspect of the way you have been approached or treated during the course of this study you may wish to contact the hospital's Patient Advice and Liaison Service (PALS) on 023 8079 8498, email PALS@suht.swest.nhs.ukor write to PALS, C Level, Centre Block, Southampton General Hospital, Tremona Road, Southampton, SO16 6YD.*

CONTACT FOR FURTHER INFORMATION

- Please contact me for further information or if you have any queries:

Jan Westbury
Consultant Nurse Infection Prevention and Control
Telephone: 023 8082 5775 Mobile: 0786 752 8151
jan.westbury@scpct.nhs.uk

Thank you for taking the time to read this.

APPENDIX 3

CONSENT FORM FOR RESEARCH STUDY

TITLE OF PROJECT: Identifying strategies to promote consultant doctors as role models and champions of hand hygiene compliance.

NAME OF RESEARCHER: Jan Westbury

Centre Number: RHM PAT 0264

Study Number: REC 08/H051/46

Participant Identification Number:

		Please tick to confirm
.	*I confirm that I have read and understood the information sheet dated March 2008 (version 1) for the above study.*	
.	*I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.*	
.	*I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason and without my legal rights being affected.*	
.	***Data Protection:*** *I understand that any information I provide is confidential, and that no information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party. No identifiable personal data will be published. The identifiable data will not be shared with any other organisation.*	
.	I have informed the researchers of my participation in any other research study.	
.	*I agree to take part in the above research study.*	

_____ _____ _____

Name Date Signature

_____ _____ _____

Name of Researcher Taking Consent Date Signature

1 copy for participant and 1 copy for researcher

APPENDIX 4

OBSERVATION CHECK LIST

Date: Location:

Time: Participant No:

Low risk	
Touching sterile goods	
Contact with notes, telephone etc.	
Drugs round	
Other	
Medium risk	
Patient contact (hand-shake)	
Setting up O2, Nebulizers	
Observations	
Setting up IVI, giving	
Injections, Ivs	
Removing gloves	
Other	
High risk	
Dealing with bodily secretions	
Suctioning, tracheostomy care	
Infected wound dressings	
Phlebotomy, cannulation	
Other	

Adapted with permission from the National Patient Safety Agency. Hand hygiene observation tool (NPSA 2004).

Definitions: Fulkerson – Risk scale for hand hygiene opportunities

Low Risk

1. Sterile or autoclaved materials
2. Thoroughly cleaned or washed materials
3. Materials not necessarily cleaned but free from patient contact i.e. notes, papers, telephone and nurses desk area.
4. Materials in contact with patients with little contamination risk i.e. furniture in patient area

Medium risk

5. Objects or materials that have been in close contact with patients but are not contaminated with patient secretions or other sources of pathogenic bacteria i.e. relatively clean patient gowns, linen, used cutlery or plates, bed rails and tops of patient tables.
6. A patient: minimal contact without touching excretions or secretions and for a limited period of time such as shaking hands, taking a pulse or giving a back rub.
7. Materials and inanimate objects that have been in contact with, or bear, patient secretions such as saliva, not known to be contaminated.

High risk

8. A patient: directly touching areas of secretions such as mouth, nose and so forth.
9. Materials contaminated with patient urine
10. Patient urine (direct contact)
11. Materials bearing faecal soilage
12. Faecal soilage (direct contact)
13. Materials that have been in direct contact with known infected secretions or excretions.
14. Secretions or excretions known to be contaminated (direct contact)
15. Infected patient sites such as infected wounds (direct contact)

APPENDIX 5

Interview Guide

- Thank you for agreeing to be interviewed
- The purpose of the interview is to discuss your opinions on hand hygiene

1. There has been much debate in the literature in relation to when hands should be cleaned in a clinical setting. What are your thoughts on this?
Prompt: for example, nationally it is recommended that hand hygiene is performed after every patient contact.

- What evidence do you think is required to demonstrate hand hygiene makes a difference?

2. Can you give me an overview of the education and training you have received on hand hygiene during your career?
Prompt: medical student, junior doctor, registrar, consultant
Lecture, demonstration, practise, video, leaflet

- Which ones (if any) did you find most helpful?
- What suggestions do you have?

3. What would you suggest is the role for consultants in promoting hand hygiene compliance?
Prompt: for example some studies have suggested the development of role models.

- Do you see yourself as a role model?
- Is there anything you might need to help you as a role model?

4. Would you like to ask me anything about the observation?

Questions to be formulated from results of observation.

THANKYOU FOR YOUR TIME

APPENDIX 6

Example transcription

CD 18	Open coding	Categories
1	historically surgeons have been dreadful at washing their	Previous
2	hands - belief that it wasn't so important ….between each	experience
3	patient.	
4	on the back of that it's been difficult … to suddenly	
5	change all of their existing habits and practices. It's	Reality of
6	difficult .. to suddenly stop smoking …same with washing	adhering to
7	hands	best practice
8	appropriate to see if by washing hands you can really	Using
9	make a difference …….once that has been shown then …	evidence
10	more doctors find it easier to move into the realm of	Controversy
11	recognising that it is a useful part of good clinical practice	over policy
12	rather than just being told	/Strong belief
13		undermined
14	we were just told to not wear ties, …elbows bare,	by scepticism/
15	shouldn't wear a watch, fine to wear a ring and I find that	Top down
16	extraordinary….don't understand why a watch is more	approach
17	dangerous than a ring……..think we should all be taking	Top down
18	rings off …….. feeling this is because it wouldn't be so	approach/
19	socially acceptable …….. ludicrous……..	Controversy
20		over policy
21	I think there have been studies which have been	
22	showing ……wash the bacterial count underneath a	Controversy
23	ring .. is minimal if you've washed your hands	over policy
24	properly …..but on the ward rounds we don't wash our	
25	hands properly every time and every time I wash and use	Reality of
26	a scrub on the ward rounds I don't wash underneath my	adhering to
27	ring so I don't think ……..the experimental surveys	best practice
28	actually prove that it's relevant to clinical practice.	
29	Absolutely [lab based] if you actually took a swab from	
30	underneath my ring now after a ward round I bet you'll	Controversy
31	find some funny bugs in there.	over policy
32		

33	bare below the elbows … you're not supposed to be able	Controversy over policy
34	to wash your hands properly …… if you have got	
35	sleeves…… someone has shown once that there is a	
36	bacteria on your tie ….shirt….. trousers …….. underpants	
37	and actually we could reduce the bacteria further by being	
38	naked……	
39	clinical studies that actually in the operating theatre our	Controversy over policy
40	bacteria count would be less if we were all naked but it's	
41	obviously not socially acceptable … all to do with what is	
42	a balance ……socially acceptable …….. what is reasonable	Reality of adhering to best practice
43	to make reasonable practice.	
44	Well we don't know that if we actually were all going	Controversy over policy
45	round naked that we would make a difference, that might	
46	make a difference too, we've just never tried it.	
47	Sorry for being ridiculous ……..it has been	
48	suggested that actually the rubbing of the clothes actually	
49	produces squames	
50	But we've never shown that this makes a difference by not	Controversy over policy/using evidence
51	wearing ties either.	
52	[BBE] with very little clinical evidence that that really	
53	makes a difference	
54	they won't publish the evidence [DH] that they've made	Top down approach
55	their decision on	
56		
57	….. creates an element of suspicion that there isn't any.	Strong belief undermined by scepticism
58	leads to frustration .. leads to scepticism ….. makes	
59	clinicians less likely to follow the other more important	
60	factors in the protocol. .. makes a nonsense, it rather	
61	trivialises the concept and as the important part of using	
62	scrub which almost certainly does make a difference gets	
63	diluted by other portions where there is no evidence …..	Controversy over policy
64	ridiculous.	
65	I never used to but since all the encouragement … I do try	Reality of adhering to best practice
66	very hard to roll my sleeves up, take my watch off and to	

67 68	follow a protocol even though I don't necessarily agree with the whole protocol.	Controversy over policy
69 70 71 72 73 74	there's no evidence, we don't understand why a reason like stop wearing a tie actually is helpful. I've had problems …. on the ward not wearing a tie ……. being in discussion with a patient over a relatively sensitive matter ……..porter or a League of Friends .. interrupts … didn't recognise I was a consultant ….	Controversy over policy Challenges to professional role
75 76 77 78	problem of not having a uniform which highlights who you are ….. historically either white coats or a suit used to create that label ….. patients like because ..understand who they're talking to.	Challenges to professional role
79		
80 81 82 83 84 85 86 87 88 89	especially if you're a newly appointed consultant .. patients like knowing patients have said to me that they wanted to see the consultant next time and get very embarrassed when they find out that I was the consultant …… embarrassing for me simple sort of thing that could be resolved …. concept of a white coat which is regularly cleaned ……. historically they weren't cleaned …..form of uniform … major issue which doesn't really get addressed is that of cost.	Challenges to professional role Misplaced emphasis
90		
91 92 93 94 95 96 97	[med school] taught through an apprentice system essentially on ward rounds and in the operating theatre. hand hygiene training back in the early/mid 80's .. operating theatre .. prior to surgery and prior to procedures. There was very little education about hand washing in daily practice on the wards because it was not part of daily practice.	Previous experience
98		
99 100	big change 2 years ago ……. recent increase in numbers of MRSA, and recent increase in Clostridium	Misplaced emphasis

101	difficile bacteria. Frustrated though because of course	
102	Staph Aureus has always been changing from the when	
103	Flemming first discovered Penicillin…… became	
104	resistant ……forget just a natural	
105	progression ……..occurring for the last 80 years and not a	
106	new phenomenon which is what the government have	Top down approach
107	turned it into	
108		
109	they keep trying to blame the medical profession for this	Top down approach
110	rather than recognising that ……it's not the doctors	
111	fault ……..it's the clever bacteria …….. makes	
112	clinicians frustrated ……. blamed for a problem rather	Promoting consultans doctors senior role
113	than being asked to help resolve it.	
114		
115	Internet teaching and there are teaching available as part	Approach to mandatory education a& training
116	of the statutory day.	
117	difficult to get to the statutory day as a .. surgeon	
118	surgeons …….have a, such a paranoia of infection	
119	getting into our clinical practice ……. historically we are	Previous experience
120	better than most other practitioners at scrubbing up ……..	
121	knowing and understanding the importance of …. a	
122	surgical scrub….. on the wards we don't do a surgical	
123	scrub but we are still fairly paranoid of cross	Strong belief
124	contamination of patients.	
125		
126	maybe a video where you know a senior, a respected	Need for tailored approach
127	member of staff was shown……	
128		
129	you should all mark his scrub technique rather than trying	
130	to personalise and demonise individuals	Need for tailored approach
131	try and get them to assess other	
132	people ……..sensible useful way and then it	
133	doesn't personalise …….. make the individual feel guilty	
134	but helps to educate.	
135		

136 137 138 139	I'm sure that there's lots of things I miss ….but if I've not touched anything I don't always understand the need ……..so there will be times when I don't and there will be times when I forget .	Reality of adhering to best practice
140 141 142	my hand hygiene has been improved but I don't think it's perfect… when I've touched a curtain when I should probably have washed …gel after that	Reality of adhering to best practice
143		
144 145 146 147	an element of the guidelines is encouraging people to do it as much as possible…….. We could spend all day every day putting, putting gel into our hands until, and washing our hands for the skin to come off……	Reality of adhering to best practice
148 149	it would be interesting to see what the level of hand problems has occurred	
150 151 152	A number of my friends have developed quite considerable skin problems in the last couple of years when the surgeons never used to……..	
153		
154 155 156	we've had this problem also with antibiotics……do we know if we can develop resistance to alcohol gel……if so we should be using alcohol gel more sparingly.	Misplaced emphasis
157		
158 159 160 161 162 163 164	*[Five Moment*] I'm not aware of this. 'reads through' slight difficulty with 4 and 5 because if one follows this you are going to say I have to wash my hands after I have touched a patient and then immediately again because I've now left the surroundings …… otherwise as a concept I don't have a major problem	National hand hygiene campaign
165		
166 167 168 169	I don't think hand hygiene is the only answer ……hand hygiene is important but it's being over emphasised ……forgetting …….. more important thing …… environment . Those bays …….. they've never	Misplaced emphasis

170	in the last 9 years that I've been a consultant been empty,	Misplaced emphasis
171	completely empty for more than a week to allow those to	
172	be deep cleaned …..... don't know - In the old days it	
173	was every week, Fridays	
174	that was a year ago, we've had Clostridium	
175	Difficile ……how quickly do we think that we get	
176	recolonised……	
177	would like to see is that we actually have more bays	
178	available which are left fallow etc	
179		
180	*[discussion over bed occupancy]* just a closed room to be	
181	cleaned properly ……common sense	Misplaced emphasis
182	not taken up by the DOH - something that isn't that can't	
183	be resolved by the doctors and it's not the doctor's	
184	fault ……an element of this is how to blame the	Top down approach/ misplaced emphasis
185	doctors large political angle with this for blame as well as	
186	purely a health issue	
187	very frustrated to hear on the radio today Johnson saying	
188	how there wasn't a problem in the NHS at the	
189	moment ……and yet 2 days ago there wasn't a single	
190	paediatric intensive care unit bed in the whole of the	Misplaced emphasis
191	country …….if a child needed an ITU bed they'd have to	
192	be taken abroad.	
193	*[Ambulance Service - worst 10 days they've had in a*	
194	*decade].*	
195	Complete denial by the manager of the whole Health	Top down approach
196	Service…….the Health Minister …… issues, it's being	
197	politicised	
198	hand hygiene thing is good but it's not the only thing and	Top down approach/ misplaced emphasis
199	I feel that it's being used as a scapegoat.	
200		
201	huge scope for reducing infections in nursing homes and	Misplaced emphasis
202	that's an area that never gets addressed ……feel	
203	frustrated that it's just been seen as a hospital problem	

204	where actually my experience of MRSA I've had two	
205	cases… from that evidence alone you can say that you're	
206	just as likely to get MRSA from being at home as you are	
207	from being in hospital. I'm not sure if that's really the	
208	case and I'm sure that isn't the case, but it goes to show	
209	In my practice where patients are admitted to hospital,	Misplaced
210	operated on quickly, discharged home quickly I think the	emphasis
211	incidence of infection …….is very low	
212	we should be segregating our long stay patients from our	Misplaced
213	short stay patients but again exactly the opposite	emphasis
214	happens here……	
215	Unfortunately the government insisted on closing down	
216	the elective hospitals 15 years ago that we used to	
217	have ……detrimental move.	
218	Completely ring fenced .. reduces the efficiency of the	
219	hospital ……. but at the price of making it work	
220	better…. the difficulty that the hospital has.	
221	Hospital managers crisis manage and ……..means .. you	Top down
222	can't see the big picture ……. decisions are made on short	approach/
213	term results rather than long term results because the	misplaced
214	manager probably won't be there in four or five years	emphasis
215	time……only really important thing to them is what	
216	their immediate target that they have to achieve in the	
217	next 2, 3, 5, 6 months.	
218		
219	there are other issues, things like the computer	Misplaced
220	keyboards……there are keyboard tops that can be cleaned	emphasis
221	and washed and replaced but we don't ever have	
222	those ….It's a quick easy win by having a plastic cover	
223	when it comes to the crunch and you want to actually and	Misplaced
224	it involves money it doesn't get done because blaming	emphasis
225	doctors for not washing their hands is cheap to do it's the	
226	main target.	
227		

228	Further comments off tape on:	
229	potential use of resources used for hand hygiene that	Misplaced emphasis
230	could be used elsewhere	
231		
232	colleagues disciplinary action: concern, makes him	Threat of disciplinary action
234	comply, not right how senior doctors or staff are treated	Reality of adhering to best practice
235	doctors can help with the solution	Challenges to professional role
236		Promoting consultant doctors senior role
237		
238		
239		