

Social Construction of Hand Hygiene as a
Simple Measure to Prevent Health Care Associated Infection

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Abstract

The incidence of Health Care Associated Infection is a major patient safety concern in the United Kingdom and reducing the morbidity and mortality associated with this has become a National Health Service priority. It is generally accepted that this objective will require a multi-factorial approach where infection prevention and control is seen as *everybody's business*. However, some strategies receive greater exposure than others and hand hygiene is widely touted as a common sense solution to a complex problem. This discourse based study combined the techniques of Corpus Linguistics with Critical Discourse Analysis to explore the Textual, Discursive and Sociocultural features of hand hygiene discourse. This took place across three language domains, the Academy, the Newspaper Media and Organisational Policy Makers. These three cultural elites take a consistent account of the *problem* and the *solution*. Broadly hand hygiene is portrayed as effective, compliance is basic, performance is poor and Health Care Workers should be held to account through zero tolerance policies and if necessary disciplinary action. However, not only does this background the messy, contextual factors of implementing a hand hygiene policy it imposes a one size fits all approach and measurement programme on compliance that hides the true nature of performance and this ultimately impacts on patient care. This study calls for junior clinicians for whom policy has the greatest impact to become more engaged in the policy making process. In a spirit of openness trusts should adopt linguistic devices that recognise the dynamic nature of practice and a more educational, sophisticated approach to audit.

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Prologue

My association with the discipline of infection prevention and control began in June 1995 when I was appointed to the position of Infection Control Nurse in a district general hospital. In addition I provided advice under a service level agreement to a local organisation providing services to Community Nursing, Mental Health, Podiatry and Dentistry. My employment coincided with the publication of the Department of Health's (1995) Cooke Report, which in the strongest and most detailed language to date provided a framework for the organisational management of the specialism. If in 1995 Infection Control Nurses cut a somewhat isolated figure working within a *Cinderella Service*, this was to change dramatically over the next five years. Facilitated through the metaphors of superbugs and the dirty hospital, Health Care Associated Infection (HCAI) became a hot political and media topic and reducing the burden of this became firmly established as a health service priority.

While an increase in attention and resources were welcome I became curious how the normative aspects of HCAI were being erased. Expert opinions, estimations and extrapolations were treated as facts. Infection control teams worked increasingly within top down regulatory structures and there was a notable enthusiasm for simple measures like hospital cleanliness and hand hygiene. My interest in the broader landscape of infection prevention and control realised my own modest contribution to the literature. In 2010 I published a paper titled *Cinderella Service to Health Service Priority* that charted the history of infection prevention and control in the United Kingdom (UK) since 1980 (Cole 2010). Chapter one builds upon this work. In 2008 I

proposed that much of the attention given to HCAI was of its time, and to a point, a social construction amplified by a media, who sensed a story, an alarmed, better informed, more demanding public and a receptive, reactive Government (Cole 2008a). In a similar vein I developed the idea of social constructionism and infection control and suggested that what passes as a common sense solution can be an invention or artefact of a particular time, place and culture (Cole 2008b). Similarly I have argued that a narrative has formed around HCAI that situates it as a symptom of a failing health care system and not the consequence of an ageing, high risk population (Cole 2008c). Finally, developing the idea of blame and culpability, I suggested that a just organisation should recognise the difference between poor compliance and system failure, and how it is disingenuous to hold people to account for a failure to meet implausible standards (Cole 2011).

This did not negate my own commitment to improving hand hygiene practice, I simply felt it was more complicated than commonly assumed, This led to a number of publications which considered, among other things, how compliance could be enhanced through motivational interviewing (Cole 2005) strengthened through the use of self-assessment skills (Cole 2009a), and could be enriched through storytelling (Cole 2008b). These were offset by a further paper where I argued that fundamentally hand hygiene policies lacked practical utility and questioned whether nurses should take a *Pragmatic Approach to Hand Hygiene?* (Cole 2007). It was the way health service priorities can be constructed, and the affinity to grasp at simple solutions that forms the backdrop to this thesis.

As a result I will secure three domains of hand hygiene discourse and then explore and interrogate the assumptions made about the topic across its textual, discursive and sociocultural features. In particular the following aims have been developed:-

- To consider how the writers from the discourse domains forefront the importance of hand hygiene and engage the reader in their work
- To examine the explicit and implicit meanings conveyed by the words chosen
- To understand and reflect upon the power and social influence of key stakeholders
- To reveal whether there is a habitually used pattern of representations associated with the topic
- To hypothesise who benefits and who loses from the discourse and the possible consequence of this

To answer these questions a discussion will take place across nine chapters.

Chapter one will provide the background to this study and provide a description on how infection prevention and control became a heavily regulated health service priority. Chapter two will review the current literature on health language and communicable disease and identify how this thesis can contribute to the body of knowledge. Chapter three will introduce hand hygiene, the focus of the study and examine some of the complexities that pervade the topic making it suitable for a language based study. In Chapter four I will identify the corpus assisted methodology that will be used to investigate

hand hygiene discourse. It will identify three sources of data outlining why these were chosen and how the corpus was built. Chapters five, six and seven will present the primary research of this study.

Chapter five will introduce the first data set and consider the discourse of the academic community through the examination of the research article. Chapter six will consider lay discourses of hand hygiene behaviour by investigating national newspaper articles. Chapter seven will then complete the collection of primary data through an assessment of the hand hygiene policies of NHS trusts. If academic and media discourse have an important role in shaping the way hand hygiene is received, hand hygiene policies and their discourse govern the actual hand hygiene behaviour of HCWs. Chapter eight will then draw together key themes from chapters five, six and seven and identify a dominant overarching discourse. In the final Chapter, Chapter nine, I will outline how the dominant discourse impacts on practice and will make three substantive recommendations.

Chapter One

From a Cinderella Service to a Health Service Priority

1.1 Introduction

HCAI can be defined as ‘infections that are associated with interventions, devices or procedures carried out in healthcare facilities’ (Hopkins, Shaw & Simpson (2011: 14). It has become a global health phenomenon that pervades every healthcare facility and system, regardless of the resources available (Pittet, Allegranzi & Storr 2008). The European Centre for Disease Control estimates that annually, 4.1 million patients develop a HCAI within the European Union, (World Health Organisation 2011); this has resulted in up to 37,000 deaths, increased lengths of stay and greater healthcare costs (National Institute for Clinical Excellence (NICE) 2012, National Audit Office (NAO) 2009). HCAI has the power to cause fear and anxiety for patients and relatives and has become a touchstone for public confidence in the NHS (Royal College of Nursing (RCN) 2012).

In an attempt to curb the incidence of HCAI, improve the safety and quality of health care, and meet the requirements of regulatory and accreditation agencies, Memish, Soule & Cunningham (2007) suggest that there has been a steady growth and global expansion of the discipline and practice of infection prevention and control. The purpose of this chapter is to chart the rise of infection control from a Cinderella service (Taylor 2004) to a top five priority issue in the NHS 2007-8 Operating Framework. It will map the awakening of HCAI as a problem, examine the clinical governance agenda and how this has changed the context in which infection prevention and control is delivered; and

finally it will explore the effect of Government and media interest on policy, and how this has created an increased climate of regulation.

1.2 History

European hospitals were first established in the 12th century by religious orders and provided care for the sick, insane and destitute. Morbidity and Mortality was so high that typically property was disposed of and a requiem held when the sick were hospitalised (Smith, Watkins & Hewlett 2012). Despite this, sick individuals continued to congregate and by 1800 20,000 patients were housed in London hospitals (Potter 2001). By the standards of today wards were crowded, dirty, poorly ventilated with multiple patients occupying a single bed. Patients with mild conditions or uncomplicated wounds frequently acquired virulent infections and mortality could be as high as 25% (Smith et al 2012). The physician John Aiken coined the phrase that hospitals were ‘gateways to death’ (Bynum 2001: 1372) and in 1869 the Scottish surgeon Sir James Simpson used the term hospitalism to explain ‘the hygienic evils which the system of huge and colossal hospital edifices has hitherto been made to involve’ (Neuhauser 2005: 67). Nevertheless, from 1900 there were to be significant advances in the understanding of asepsis, the discovery of antibiotics and the creation of new technologies. No longer were hospitals seen as places of last resort but institutions that could increase the survival rates of patients (Wilson 2006).

As Smith et al (2012: 41) point out ‘sophisticated data collection and analysis techniques, molecular epidemiology, multiple vaccinations, potent antibiotics, prevention bundles, performance management methodologies, advances in

sterilisation and disinfection, environmental control measures, and widely available hand hygiene agents' have combined to reduce hospital infection to its lowest levels for 500 years. However, regrettably HCAI cannot be resigned to history; indeed arguably the topic receives greater exposure and critical scrutiny than ever. In essence the nature of HCAI has changed. The aforementioned strategies have done much to improve the health of the nation, so much so that society has an increasingly elderly population with a greater prevalence of chronic disease. Advances in technology have witnessed a concomitant increase in the use of diagnostic and therapeutic procedures, broad spectrum antibiotics and immunosuppressive therapies all of which compromise host defences and promote colonisation by pathogenic strains of hospital bacteria. An ageing, vulnerable population and an increase in the use of invasive procedures, is exacerbated by organisational imperatives that maximise patient flow and implement economical staff to patient ratios. The impact of these factors on the incidence of contemporary HCAI is well documented (NICE 2012, NAO 2009, Department of Health 2008).

1.3 Organisational Management of Infection Control

If HCAI has a long history so too does the organisation and delivery of infection control services in the UK. This has been influenced by a number of reports from government committees and expert bodies and these will now be considered. In 1941, a memorandum on the prevention of hospital infection in wounds advised that hospitals appoint a full time special officer to supervise the control of infection (Medical Research Council (MRC) 1941). In 1944 it was recommended that every hospital should establish a committee

representing doctors, nurses, laboratory workers and administrators to investigate, measure and control cross infection (MRC 1944). The pandemic of hospital infection due to *Staphylococcus aureus* in the 1940s and 1950s led to the production of further advice, which combined the earlier recommendations by suggesting that every hospital should appoint a control of infection committee as well as a control of infection officer (Standing Medical Advisory Committee 1959). The control of infection officer became the infection control doctor who appointed the first infection control nurse in 1959 (Gardener et al, 1962).

The first appointment was thought to be successful and 12 months later a second infection control nurse was appointed in the same health authority. Similar appointments were made in other parts of the UK and by 1985, 89% of the NHS districts had appointed one nurse and almost all had one doctor and these covered, on average, 785 acute beds. 82% of the doctors were the local consultant medical microbiologist (Howard 1988). Two major outbreaks of hospital infection in the UK in 1984 and 1985 (HMSO 1986a, 1986b) led to the Department of Health and Social Security setting up a working group on the organisation and control of hospital infection. Among other things this strengthened the idea that each hospital should have an infection control team and its core should be a doctor and nurse working together as a team. However, the employment of a team to manage infection prevention and control became something of a double edged sword. The team were expected to bear, either explicitly or implicitly, the primary responsibility for all aspects of surveillance, prevention and control of infection in NHS hospitals (Jenner &

Wilson 2000). This meant that few had the benefit of a general managerial and resource input at the level recommended by the joint DHSS/PHLS working group (1988).

1.4 Epidemiological Studies

Alongside the growth of infection control teams, the profile of infection control was given impetus by what Goldmann (1986: 116) called a ‘monumental’ and ‘pioneering’ study, that took place in the United States of America (USA). The Study on the Efficacy of Nosocomial Infection Control (SENIC) is the most comprehensive study of HCAI undertaken to date and is widely attributed to have formed the scientific basis of infection control. SENIC was a nationwide retrospective evaluation of the cumulative index of HCAI in the USA from 1970 – 1976. It spanned 10 years and involved 4000 hospitals. The study concluded that in hospitals where there was an infection control programme conducted by a nurse and one part-time physician trained in hospital epidemiology, and where specified surveillance and control guidelines were complied with, a 32% reduction of the four most common HCAI’s could be achieved. By contrast hospitals where there was no programme, and little or no compliance with specified guidelines, there were an increase in infection rates of 18% (Haley, Culver, White et al 1985a). This conclusion was reached by comparing different hospitals and their infection control provision, but was not confirmed by any intervention in a given hospital. It was nevertheless, highly influential and SENIC provoked an abundance of similar studies throughout Europe (Meeres 1980) including the UK where Meeres and colleagues noted that the absence of credible figures undermined any proposed action at

controlling the problem of HCAI. Subsequently a UK national prevalence survey of hospital infection was planned in 1980 and delivered in 1981. This was repeated in 1996 (Emmerson, Enstone, Griffin et al) in 2007 (Hospital Infection Society 2007) and 2011 (Hopkins et al 2011). Each survey became increasingly bigger and more sophisticated, and each reported a UK prevalence rate of HCAI of around 9 per cent. This figure was broadly consistent with the prevalence rates in other developed countries (Roberts & Cookson 2009). Although the studies did much to scale the extent of the problem it would be wrong to suggest that they profoundly changed the organisational management of infection prevention and control. Up until the early 1990s infection control was seen as something of a parochial discipline that sat outside the mainstream of service development (Taylor, Plowman & Roberts 2001).

However, what SENIC and other similar studies did was add to the legitimacy of infection control as an emerging discipline. Moreover, at the heart of SENIC was the theory that reductions in HCAI were possible and this would deliver decreased lengths of stay and reduced health care costs. The economics of HCAI were given sharper focus by a number of reports which highlighted the socio-economic burden of HCAI. Currie & Maynard (1989) estimated costs in the UK in 1986, were around £111 million, accounting for 950,000 lost bed days. It has been calculated that a reduction in the incidence of HCAI by 20% 32% and 50% would save the NHS £15.6 million, £29.3 million and £50 million, respectively. This was an annual figure that offset the cost of infection control teams and their programmes (Currie & Maynard 1989). Similarly in two further studies, Plowman, Graves, Griffin et al (1999, 2001) estimated that

patients who developed a HCAI incurred costs almost three-times greater than patients who did not. These figures were extrapolated to other NHS trusts throughout England, which led to an assessment of the additional costs of HCAI to be in the region of £1000 million.

1.5 Clinical Governance

Although it may have been widely reported that good infection prevention and control could deliver significant cost savings, Haley, the primary author of SENIC, predicted, somewhat gloomily, that a manager's perspective of the specialty will not fundamentally change until the exigencies of an internal market, competition and the threat of losing contracts on the grounds of quality become clear and more explicit (Haley 1985b). This was echoed by writers like Drummond (1991) and Chaudhuri (1993) who argued that due to the funding arrangements that were in place at the time, the extra days a patient would stay in hospital would have little effect on an administrator's running costs and any cost savings that would be made would be indirect and intangible. Although perhaps overstated, it is true that when the NHS reforms of the 1990s introduced formal risk management structures and procedures into the NHS that organisations were given an incentive to reposition infection control among their priorities. Some of the fundamental changes in the regulation of the NHS and the climate in which it operates can be seen in Table 1.1

Table 1.1: Regulation of the NHS

A loss of crown immunity
The patient's charter and increasing patient expectations
Increased numbers and costs of claims for clinical negligence and personal injury
A move to commercial insurance by NHS trusts for non-clinical risks
The development of standards and accreditation programmes of the Clinical Negligence Schemes for Trusts (CNST) and the Non-Clinical Risk Pooling Scheme
Implementation of clinical governance and controls assurance principles into the NHS

(Farrington & Pascoe 2001).

In 1995 the Department of Health had released a report that made a number of recommendations to strengthen trust board accountability in infection prevention and control (Department of Health 1995). The interpretation of these requirements varied between organisations (NAO 2000) and it was not until the Clinical Governance (NHS 1999/065) and Controls Assurance (NHS 1999/23) initiatives that tentative steps were made to measure an organisation's compliance. If clinical governance provided the NHS with a framework for clinical quality improvement, complimenting this were 19 controls assurance standards, one of which considered whether an organisation fulfilled their statutory responsibilities for infection prevention and control. It now became mandatory for trusts to undertake a prescribed self-assessment and collate evidence of performance against an infection control standard (Watterson 2004). Trusts were required to develop action plans which set out priorities

which would strengthen the framework for the management and control of infection (Committee of Public Accounts 2000).

1.6 Increasing the Regulation of Infection Control

Shortly after the clinical governance (NHS 1999/065) and controls assurance (NHS 1999/23) initiatives *The Management and Control of HAI in Acute Trusts in England* (2000) was published as a function of the NAOs statutory responsibility to provide an independent insight into public services (NAO 2000). The study has been referred to as the seminal moment in the history of infection control in the UK (Kelsey 2000). The NAO report considered the strategic management of HCAI in NHS hospitals and the effectiveness of surveillance in reducing it. The survey examined compliance with the aforementioned Department of Health guidelines and standards, and endeavoured to identify examples of good practice. It used both primary data that it collected from two hundred and nineteen trusts and drew conclusions from previous studies that had investigated the prevalence, morbidity, mortality and socio-economic burden of HCAI (Plowman et al 2001, 1999, Glynn 1997, Emmerson 1996, Department of Health 1995, Haley 1995a, Haley 1985b, Meeres 1981).

Overall the report was critical of many aspects of the strategic management of HCAI and suggested that there was a lack of information about the extent, cost and impact of HCAI. Moreover, it concluded that there was considerable scope to improve prevention, detection and containment measures. The report was generally sympathetic to infection control teams and went on to detail 29 recommendations many of which addressed their daily problems; namely

securing the engagement of key staff, driving effective plans across the organisation and accessing the necessary resources. Key conclusions were as followed:-

- Infection control was not high enough on the agenda of NHS trusts and Chief Executives were responsible for ensuring effective arrangements for infection control.
- HAI cannot be prevented completely: it is important, therefore, that it is readily detected and dealt with.
- There need to be improvements in surveillance and feedback of information to clinicians.
- There was further scope for improvement in education, training and audit of compliance with infection control guidelines.

The NAO report immediately prompted media headlines that between 5,000 – 20,000 deaths could be attributed to HCAI each year making it the primary cause or major contributor to 1% - 3% of all fatalities in the UK (Wilcox & Dave 2000). The British national newspapers went on to develop an extraordinary interest in HCAI compared with the press in other countries. McConnell (2007) searched Google news for one month in September 2006 using the key words MRSA or *Clostridium difficile* and produced 141 hits for the UK population. By comparison, the USA with a population six times that of the UK recorded 219 hits. Headlines of superbugs, modern plagues, forgotten massacres and filthy hospitals became common place (Duerdan 2007). The press selectively focused on reports that discovered ‘faeces on bed rails, pubic hair in the baths, mould and cobwebs in the showers and soiled

commodes' (McConnell 2007: 189). MRSA and the *simple* strategies to prevent it became increasingly politicised in the run up to the 2005 General Election (Washer & Joffe 2006).

While this will be discussed in greater detail in Chapter Two, clean hospitals became a popular if slightly contentious area and it is apposite to touch upon it here. A number of writers including Weaving & Cooper (2006) are critical of some sections of the media and their assumptions that hospital cleanliness is of great importance in controlling HCAI. The position is undoubtedly complex, but basically, environmental cleaning serves two main functions. The first is non-microbiological the purpose of which is to improve or restore appearance, maintain function, and prevent deterioration. The second, microbiological, is to reduce the numbers of microbes present and remove substances which will support their growth or interfere with subsequent disinfection or sterilisation. As part of its star rating for individual hospitals, the Department of Health introduced a numerical scoring system based on environmental aesthetics, and almost by stealth, the first measure became a proxy for the second.

This is problematic as cleaning had hitherto not been regarded or investigated as evidence based science. Moreover, there is little consensus among the scientific community whether routine disinfection is needed to remove environmental contamination (Mulvey, Redding, Robertson et al 2011). An early study by Huebner, Frank, Kappstein et al (1989) could not detect a difference in rates of HCAI when an intensive care unit moved from old premises to a new purpose-built unit. More lately a number of reviews have examined whether there is a correlation between the incidence of MRSA and

cleanliness data and could not determine that there was one (Chan, Dipper, Kelsey & Harrison 2010, Mears, White, Cookson et al 2009, Green, Wigglesworth, Keegan & Wilcox 2006). However, as Gould (2005) points out this and other similar research may not have been sensitive enough to demonstrate the influence of environmental sources on rates of HCAI. In any case an increased focus on dirty hospitals struck a chord with HCWs who had reported deteriorating standards of hospital cleaning for some time (Dancer 2004). The public, it would appear, intuitively think dirty hospitals are unsafe and rates of MRSA are associated with standards of environmental cleanliness (Fraise 2007, Green et al 2006). In a recent National Patient Choice Survey 74% of patients identified hospital cleanliness as an important factor when choosing a hospital (NAO 2009).

Improving hospital cleanliness received considerable political support and the Government went on to make a number of policy initiatives (Department of Health 2000, 2003, 2004a, 2004b, 2008; National Patient Safety Agency, 2009). £31 million was allocated directly to NHS trusts in 2000-01 and £30 million in 2001-02 to secure improvements in the patient's environment. *National Cleaning Standards for the NHS* was published and annual independent inspections were launched (NHS estates 2001, 2002). The Modern Matron was introduced as an identifiable, visible, accessible authoritative figure that would *get things done* (Koteyko & Neirlich 2008, Department of Health 2001). By 2008, 5000 matrons had taken up positions in the NHS (NHS Workforce Census 2008). The interest in cleanliness and infection prevention and control has moved beyond the fabric of the building and transferred to a

burgeoning field of research that has examined, amongst other things, contamination of beds, mattress frames and pillows (Creamer & Humphries 2008), stethoscopes (Schaburn 2006), blood pressure cuffs (Walker, Gupta & Cheesbrough 2006), ties (Ditchburn 2006), computer keyboards (Simmonds 2006), tourniquets (Fellowes, Kerstein & Clark); uniforms (Wilson (2007), mobile phones (Ramesh, Carter & Campbell 2008) and even Bibles (Lloyd-Hughes, Talbot & Jumaa 2008).

The essence of microbial cleanliness is captured by Perry (2001) who argues it is easier to demonstrate contamination than it is to measure cross infection. As such the clinical significance of the microbial load of the inanimate environment remains at best unclear. Nonetheless, an interesting insight came from a headroom analysis of the Government's deep clean that concluded it was very unlikely to be cost effective (Brown & Linford 2009). The point is that even though there is sometimes a lack of reporting evidence patients' perceptions of hospital cleanliness have been used to inform policy decisions and used for benchmarking and standard-setting in individual hospital trusts, through initiatives like the Healthcare Commission's Annual Survey of Adult Inpatients (Edgcumbe 2013). This marked the beginning of what Duerden (2007: 25) called the Department of Health's 'taskforce' that monitored trends in infection numbers and oversaw improvement programmes. In support of this a group of national advisory structures, expert committees and the Department of Health itself produced a plethora of guidelines that increased the priority that was given to the topic. Some of these will now be discussed.

A key component of the clinical governance agenda is that it exemplifies the responsibility of individuals who are all seen as responsible for setting, maintaining and monitoring performance standards (Department of Health 1998). The NAO report noted that although infection control teams lead, facilitate and audit the performance of processes related to their speciality, they do not hold responsibility for the actual delivery of high quality infection control which rests with the individual. This prompted Sir John Bourn, speaking to Parliament on behalf of the NAO, to highlight that infection prevention and control suffered from a lack of evidence-based guidelines and this became a constraint to persuading staff to adopt or change practice and comply with policies (NAO 2000). The Department of Health sought to address this by commissioning national evidence based guidelines for preventing HCAI in the NHS in England (EPIC). Developed during 1998-2000, the team was nurse led and included a multi professional team of researchers and specialist clinicians. Following extensive consultation the guidelines were published in January 2001. During 2000-2002 the same body were commissioned by NICE (2003) to develop a complimentary set of guidelines focussing on preventing HCAI in primary and community care.

The evidence for the EPIC guidelines of 2001 was updated in 2004 and the community guidelines of 2004 were updated in 2012. The intention was that these guidelines should inform the development of detailed protocols and audit tools that could be incorporated into local clinical governance programmes (Taylor et al 2001). To promote this ideal the Department of Health launched Saving Lives (2006a, 2006b) which was revised in 2007b and 2010. Saving

lives provided additional evidence-based practice guidance for key clinical procedures in the form of high impact interventions and standardised audit tools to measure compliance. The Department recommended that NHS organisations in England should conduct these audits on a regular basis to embed good practice and continually improve compliance.

In 2002 the Chief Medical Officer released the Strategy for Infectious Disease in England, *Getting Ahead of the Curve*, which outlined the global spread of infectious diseases and the changing public health/health protection issues that are potentially a threat to people's health in England. It proposed a clear strategy for making sweeping changes throughout the present service, including the creation of the Health Protection Agency to prevent, investigate and control the threat of infectious diseases and address health protection more widely (Department of Health 2003b). In December 2003 the Chief Medical Officer published a strategy for HCAI, *Winning Ways* (Department of Health 2003a) which made a number of recommendations in relation to the organisation and management of infection control including the proposal that each trust should appoint a Director of Infection Control who reports directly to the Chief Executive. The Director of Infection Control would assume responsibility for overseeing the production of infection policies and their implementation, have responsibility for the infection control team, the authority to challenge inappropriate hygiene practices, assess the impact of existing policies, be an integral member of patient safety teams, and produce an annual report on the state of HCAI in their organisation, and then release this to the public (Spencer & Perry 2004).

Further regulation came in the form of Surveillance, defined as ‘the ongoing, systematic collection, analysis, and interpretation of data essential to the planning, implementation and evaluation of public health practice’ (Pittet 2005: 259). SENIC placed great store on the importance of surveillance and it had become the foundation of infection control in the USA (Haas 2006). However, historically the UK had been slow to develop surveillance strategies arguing that this type of data is difficult to collect, a strain on resources and difficult to interpret (Kelsey 2000). Although a National Surveillance Scheme (NINSS) had existed from 1996 this was voluntary and surveillance activity tended to be low key, reactive and laboratory based. The NAO identified that routine surveillance was important for the detection, management and reduction of infections and encouraged by the preliminary results of NINSS the Department of Health introduced a programme of mandatory surveillance.

This began in April 2001, with the mandatory reporting of MRSA bacteraemia and extended to isolates of Glycopeptide Resistant *Enterococci* in 2003. In 2004 all Orthopaedic surgical site infections were added and similarly mandatory reporting of *Clostridium difficile* in patients over 65 was introduced. This was extended to patients over the age of 2 from 2007. Bacteraemia of sensitive *Staphylococcus aureus* and *Escherichia coli* were to be subjected to mandatory reporting from 2012. In short what started as a small initiative has grown exponentially. Moreover, in November 2004 the Secretary of State for Health announced a target to halve the number of MRSA bloodstream infections by 2008. In October 2007, a 30% reduction target was set for *Clostridium difficile* infections, which was to be achieved by 2010/11.

Part of the reason why there was an increase in surveillance activity and performance management of trusts was a critical follow up report by the NAO as to whether the management and control of HCAI had improved. This report concluded that the implementation of its recommendations had been ‘patchy’ (NAO 2004: 8). It noted that while progress had been made in establishing systems of accountability and strengthening infection control teams wider factors continued to impede good infection control practice. The Committee of Public Accounts (2005) stated that there had been a distinct lack of urgency on issues such as hospital cleanliness, good hand hygiene, improving isolation facilities, reducing high bed occupancy rates or calculating the costs of HCAI. This became the catalyst for further regulation. In July 2004 the Department of Health produced and published an action plan, *Towards Cleaner Hospitals and Lower Rates of Infection* which re-emphasised the importance of hand hygiene and environmental cleanliness. *The National Patient Safety Agency Clean Your Hands Campaign* was launched in 2004 which aimed to minimise the risk to patient safety resulting from low compliance with hand hygiene by targeting NHS staff through a national strategy of improvement.

In 2008 the Department of Health published the *Health Act* which introduced a statutory code of practice in relation to HCAI (Department of Health 2008b). The Health Act requires all NHS trusts, NHS foundation and primary care trusts and NHS Blood and Transplant services to adhere to a Code of Hygiene Practice (Department of Health 2009). To help NHS trusts follow good practice and meet the requirement of regulation, the Department of Health published an updated version under the Health and Social Care Act titled *A code of practice*

for health and social care on the prevention and control of infections and related guidance. Failure to comply with certain criteria, assessed through an annual programme of inspection, allows the Care and Quality Commission to impose a number of sanctions which can include giving the provider time to remedy failures; placing the provider under scrutiny; issuing a warning notice; imposing conditions for registration; issuing a monetary penalty notice; suspending or cancelling registration as a provider and prosecuting to a maximum of £50,000 (Randle & Clarke 2011).

In July 2009 the NAO published its latest report – *Reducing Healthcare Associated Infections in Hospitals in England* (NAO 2009). On this occasion the report noted that ‘there has been a perceptible change in leadership, performance management and clinical practice in most trusts’ (ibid: 13). By March 2008 there had been a 57% reduction in MRSA bloodstream infections and since 2006 a 41% reduction in *Clostridium difficile*. The NAO estimated that since the introduction of targets the NHS has saved between £45 and £59 million by reducing numbers of MRSA and between £97 and £204 million by reducing the numbers of *Clostridium difficile* infections. This was offset by the £120 million it had spent on the national initiatives which have helped to bring about these reductions. However, reductions in MRSA bacteraemia and *Clostridium difficile*, which are high profile but low incidence HCAI, stand in contrast to the results of the fourth national prevalence survey that concluded that there was no statistically significance difference in the prevalence of HCAI between the 2006 and 2011 surveys (Hopkins et al 2011).

This does not mean that there has not been a reduction merely that it is very difficult to calculate. The NAO report did go on to make further recommendations including the increased use of surveillance, extending root cause analysis, reporting all HCAI which contribute to death, significant disability or injury; promoting the philosophy that infection, prevention and control is the responsibility of everyone in the trust and ensuring that there is effective control over antibiotic prescribing. Despite any ambiguities in the reduction of HCAI, the latest NAO report supports the Department of Health's view that a comprehensive reduction strategy, including the provision of information and education materials, self-regulation, national standards and incentives and inspection by the Care and Quality Commission is *bearing fruit*. Moreover, there appears to be no let up. The 2012/13 Operating Framework for the NHS in England states that 'protecting the safety of our patients is of paramount importance and the zero tolerance approach to all avoidable HCAs will continue' (Department of Health 2012: 20). Moreover, the Department of Health has set the NHS the target of reducing the numbers of MRSA by a further 29% and *Clostridium difficile* by 17% (ibid).

1.7 Summary and Conclusion

Although the notion of HCAI was not new, landmark studies in North America and Europe in the 1970s and 1980s did much to scale the nature of the problem. Before the turn of the century there were some fairly loose advisory structures on how hospitals should manage infection prevention and control. In what was considered a *Cinderella Service* small teams of doctors and nurses were given primary responsibility for managing all aspects of HCAI and

worked, in the main, autonomously and independently on their respective programmes. However, a plethora of factors, including the NHS reforms of the 1990s, the media's interest in superbugs and a concerned public, provided the catalysts that accelerated reform. Not only were trusts given incentives to reposition infection prevention and control amongst their priorities but HCAI became increasingly politicised with the Department of Health introducing a number of regulatory structures. The important thing here is that the HCAI was not a new problem but a problem that was being responding to in new ways.

Reducing the burden of HCAI is undoubtedly a laudable objective but this intention needs to take a number of factors into account. Health care is delivered to an ageing society who has a greater incidence of chronic disease and requires the use of more invasive procedures. Poor hygiene standards and non-compliant staff may exacerbate the problems and incidence of HCAI but so does an ageing, compromised population, high bed occupancy rates, increased workload, low staffing levels, inadequate skill mix and a lack of isolation facilities (NAO 2009). A combination of these factors makes a patient vulnerable to infection and this is why the NAO (2000) estimated that as little as 15% might actually be preventable. The problems of a vulnerable population are then exacerbated by the wider objectives of the NHS that treats one million patients every 36 hours (NAO 2011) and has a quest for increased efficiency and economic rationalisation. In essence a higher throughput of patients, shorter turnaround times and increased occupancy rates undermine many of the philosophies and principles of infection control. As a result critics have argued

that organisations seek out quick fix solutions, cheap sound bites and eye catching strategies to what are complex problems (Dancer 2010a).

The key premise of this study is that the increased attention afforded to HCAI has not necessarily evolved out of an objective assessment of risk. People's experience of, and responses to, HCAI are mediated through language and this has the power to highlight certain ways of conceptualising a problem and identifying and implementing different common sense solutions. If the relationship between the dirty hospital and HCAI is unclear, it did not prevent a 100% increase in spending between 2002 and 2009 (Jones 2009). In the next Chapter I will consider the contribution that health language has made to communicable disease.

Chapter Two

Literature Review

2.1 Introduction

In Chapter One I mapped how reducing the burden of HCAI has become a health service priority and examined some of the regulatory structures that have been put in place since the 1990s. In addition the chapter proposed that while the concept of iatrogenic communicable disease is not new the increased attention it has received from the government and the media has produced a seismic shift in how the topic is brought to, and understood by, the general public. This is not to suggest that HCAI is merely a social construction, an artefact of language, but rather to argue the way information is delivered to the public, how some content is fore-grounded and others eschewed, has contributed to a compelling narrative that highlights blame and retribution and offers apparently common sense solutions to complex problems. These common sense solutions can, at times, be captured as an organisational policy and policy discourse has become a burgeoning field of research (Jones 2009). The primary focus of this literature review is to examine the body of work that surrounds discourse and communicable disease, however, before this some observations regarding policy discourse will be made as this topic will become increasingly influential as the thesis is progressed.

2.2 Healthcare Policy

Policy has been defined in a number of ways but essentially it involves a set of principles that govern the actions needed to achieve a defined goal. It represents the choices that a society or organisation makes to reach a desired

action and reflects the values and beliefs of those who develop the policies (Leavitt 2009). Policies can transform the social world by changing the positions of actors, altering relations of accountability and foregrounding or back grounding pre-existing hierarchies (Timmermans & Berg 2003). Important to the development of Policy, is Politics as it influences the allocation of resources that are needed to enable a policy and it involves the strategies that are required to achieve the desired goal. This will inevitably involve influence and choice and is often based on power dynamics. That is, who has the greatest power, money, connections, resources, or knowledge, usually has the greatest influence (Leavitt 2009).

A recent working paper by a leading independent think tank examined the link between policy making and knowledge and found that knowledge will often reflect and sustain power structures, and is used to contest, negotiate, legitimise and marginalise (Jones 2009). Work in this area will often focus on the way 'technical' knowledge can be used to gloss over the more contested or contextual areas of practice. An analysis of power and policy is typically centred in three areas, the actors who use knowledge 'tactically' as ammunition; institutions that shape the formal and informal 'rules of the game' and discourse as considerable power can be held in concepts and ideas (ibid). Exploring policy as discourse draws heavily on the work of the French philosopher Michel Foucault and his ideas that socially produced forms of knowledge sets limits upon what is possible to think, write or speak about (Bacchi 2009).

The importance of Foucault's work on power in health services links to his concept of Governmentality and the mechanisms through which life is first problematised and then managed (Gilbert 2003). Broadly, Governmentality is a conceptual framework which suggests that modern states reject social control by purely oppressive interventions, but instead foster the notion of self-governing ethics. The idea here is that self-discipline achieves 'action at a distance' as it makes people perceive problems in similar ways, accept responsibility, embrace accountability and thus transform their own positions (Flynn 2002). In relation to this study the way a 'culture of audit' has been allowed to develop in infection prevention and control and clinicians are expected to subscribe to it as intrinsically worthwhile is notable and will be returned to in this study. As a result there have been a number of studies that have examined the discourse and power dynamics of health care policies.

For example, drawing on a number of archived policy documents related to the publication of a NICE guideline for the early management of chronic lower back pain, Wilson, Pope, Roberts & Crouch (2014) uncovered a discourse that enabled doctors to expand their jurisdiction, assert their professional authority, allow them to claim resources and protect their autonomy. Hue & Stickley (2007) explored the concept of user involvement in mental health policy and proposed that although these documents emphasised notions of partnership and the shifting of power they were characteristically written with caution which diminished the ideology of service users as equal partners. The role of the nurse has received considerable attention in the discursive effects of policy. Bail, Cook, Gardner & Grealish (2009) took a group of policies in one tertiary

hospital and coded them for particular words, textual structure and theory content. The authors concluded that the discourse of hospital policy situates the nurse as obedient to organisational requirements by limiting practice to a performance of actions without explicit recognition of professional autonomy.

Studies in a similar vein suggest that nurses within health centres are subject to computerised algorithms that determine an appropriate plan of action and remove their subjective responses (Larson 2005). Following an analysis of four UK critical care documents Pattison (2006) argued that power dynamics between professionals, families and patients were evident with nurses at risk of assuming the dominant medical model and paternalistic decision making. Horsfall and Cleary (2000) considered the terms and phrases prevalent within an observational nursing policy and opined that these reinforced the traditional medical hierarchy of power relations. On a slightly different note Manias and Street (2000) focused on the policies and power relationships in the Intensive Care Unit and discovered that while doctors preferred to rely on scientific knowledge and previous experiences, nurses regarded policies as vital knowledge sources and would use them to legitimise their decision-making and to resist orders that breached the accepted standards of the unit.

As facilitators of workplace learning for clinical nurses and nursing students, Boogaerts, Grealish & Ranse (2008) resolved that policy is an important part of managing institutional risk, that there is often an uncritical acceptance of this and commonly caused mounting tensions that render a policy limited when applied to context specific situations. Overall it would appear that a number of researchers have investigated the way policy works to influence nursing

practice and have concluded that rather than support practice, policy works to control and limit nurses.

2.3 Health Communication

A key premise of this study is that communication plays a significant role in healthcare delivery and mediating people's experience of, and beliefs about health and illness. The argument is that the way the public engage with emerging and re-emerging infectious diseases creates an understanding of their aetiology, prevention and control. Health communication is however, a broad field that encompasses the analysis of a variety of spoken, written and computer mediated texts (Harvey & Koteyko 2013). This can take place across a number of contexts including, 'relations between health professionals and patients, individuals use of and search for health information, the construction of public health messages and campaigns, the dissemination of individual and population health risk information, images of health and illness in the mass media and the culture at large, and the development of e-health tool and applications' (ibid: 2).

The biological basis of communicable disease is abundantly clear. Despite the now infamous, some say apocryphal declaration made by General William H Stewart in the late 1960s that it was time to close the book on infectious disease and declare the war against pestilence won, humans remain engaged in a constant evolutionary struggle with microorganisms, with the latter poised to exploit changing circumstances. A quarter of all worldwide deaths result from infectious diseases with morbidity and mortality disproportionately affecting the young, elderly and the poorest sections of society (Head, Fitchett, Cooke et

al 2013). However, emerging diseases and the clustering of communicable infection is also a social event, given that contagious agents threaten not only individual health, but the integrity of a collective social body (Abeyasinghe & White 2010). Developing this argument Brown, Nerlich, Crawford et al (2009) opine that one of the insights learnt from studying discourse and infectious disease is that the way people communicate a threat largely determines how they are likely to understand and behave towards it. That is, we communicate ourselves into a particular way of thinking and acting.

2.4 Searching the Literature

Searching the literature can be challenging, primarily because the volume of healthcare material is enormous. Moreover rapid technological change means that new methods of searching evolve continuously. Because of this the search began with a personal tutorial with the Universities academic librarian. Searches were then completed by using the library catalogues (Liberas and Bids Isi Dataservices) and accessing a number of databases. This can impose organisation on what Boswell & Cannon (2011) call the chaos of the journal search. No single database can cover all worldwide healthcare journals but MEDLINE and CINAHL are among the best known and comprehensive, and can arguably be described as representing the scientific knowledge base of healthcare (Mazurek Melnyk & Fineout-Overton 2010). The focus of MEDLINE is biomedicine and it encompasses the fields of Medicine, Dentistry, Nursing and other Allied Health Professionals. It houses 20 million records from more than 5,500 biomedical journals across 70 countries. CINAHL provides authoritative coverage of more than 100 million records

from over 3000 nursing and allied health journals (Holly, Warner & Saimbert 2012). Comparing MEDLINE and CINAHL Chambers, Boath & Rogers (2007) found that MEDLINE assigns more index terms to each article, but CINAHL uses index terms that are more focussed on nursing and therapy topics. They conclude that in order to ensure a comprehensive search, both MEDLINE and CINAHL should be used.

Google Scholar is a database that provides a subset of Google and is helpful in finding scholarly literature across many disciplines and sources, including journal articles, abstracts and thesis. In Google Scholar retrieval is ranked based on where the full text articles were published, who wrote it, and how often and how recently it has been cited in other scholarly literature (Blessing, Forister & Glenn 2013). Applied Social Sciences Index and Abstracts (ASSIA) is an indexing and abstracting tool covering health, social services, psychology, sociology, economics, politics, race relations and education. Updated monthly, ASSIA provides a comprehensive source of social science and health information for the practical and academic professional. The preliminary search began with MEDLINE, CINAHL, Google Scholar and ASSIA as no database provides access to all journals. In addition to searching the main databases the search engines of specialist journals relevant to the area of interest were searched. These included the *Journal of Hospital Infection*, *American Journal of Infection Control*, *Infection Control and Hospital Epidemiology* and *Social Science and Medicine*.

2.5 Keywords

All citations in a database have to be coded so that they can be retrieved, and databases and programmes use their own systems of categorising entries. Databases commonly use controlled vocabulary which is one of the most powerful ways a researcher can control a search and maximise their results. Controlled vocabulary means that information is catalogued according to specific words or subject headings as in a dictionary. For example, MEDLINE uses MeSH and CINAHL uses CINAHL subject headings. MeSH consists of a set of terms or subject headings that are arranged in both alphabetic and hierarchical order. It uses a tree structure whereby terms are grouped under broad headings, which then have more specific subject headings under them. CINAHL is based on MeSH but includes terms and phrases that are tailored to meet the needs of nursing and allied health professionals.

If exact subject codes are not available most software has mapping capabilities. Mapping is a feature that allows the researcher to search for topics with their own keywords, rather than the exact subject heading in the database. The software translates the keywords into the most plausible subject heading, and then retrieves citation records that have been coded with that subject heading (Pollitt & Beck 2011). Where available the Boolean operators of databases were used to expand or restrict the search. A time limit of 1990 was placed on the search as this was the point at which HCAI became popularised (see Chapter One). The subject terms/keywords used were *Health Language* or *Language* or *Linguistics* or *Health Communication* or *Discourse* or *Discourse Analysis* AND *Infectious Disease* or *Infection* or *Communicable Disease* or

Contagion or Health Care Associated Infection or Hospital Acquired Infection. Additional synonyms and alternate spellings were explored to enhance the scope of the search. As work was retrieved the reference list of studies were examined to identify additional citations that may have been missed from the primary search. Ridley (2012) calls this as an ancestry approach. Moreover, during retrieval it became clear that there were well cited authors who were authorities in the field. As such author searches were expedited to capture any of their previous work that may be relevant to this study. My main objective in searching the literature was to identify a body of work that was commensurate with what is known in the field of health language and communicable disease and identify how this study could build and contribute to knowledge in this domain.

2.6 The Social Representation of Emerging Infectious Disease

This literature review revealed a discreet body of work that exploits the tenets of Social Representation Theory to examine how the public engage with Emerging Infectious Diseases (EID). The term EID, was coined in recognition of the fact that since 1973, the United States Centre for Disease Control in Atlanta has identified over 20 new infections (Washer 2005). Social Representation Theory originates from the work of Durkheim in 1898 and was developed by Moscovici in 1961. Broadly, the theory proposes that when a society is faced with a significant or new phenomenon, shared ideas emerge that help people explain and understand the event. This works as a collective coping mechanism that enables people to impose order on something that is seemingly chaotic and unpredictable (Perencevich & Treise 2010). According

to Heffernan, Misturelli & Thomson (2011) the media, who will become dominant in this literature review, are particularly influential in producing and reproducing ideas through the use of specific terms, images, metaphors, models and linguistic devices. Many of these EID's, like Ebola, SARS and Avian Influenza are what Joffe & Haarhoff (2002: 955) term 'far flung illnesses' in that they are seen as remote from the UK mainland. However, it is this novelty that makes them an ideal vehicle to study how social representations emerge and are spread (Mayor, Eicher, Bangerter et al 2013). This literature review will begin with an examination of far flung diseases. It will then focus on a pathogen that has a good deal more currency in the UK health care system, MRSA. The social representation of MRSA is inextricably linked to the simple solutions that will prevent it. These will be discussed and this will lead onto the rationale for the study.

2.7 Anchoring

Social Representation Theory proposes that when individuals, be they scientists, journalists or lay people, build representations of events they use a number of processes, the first to be considered is anchoring. Anchoring involves integrating and aligning a new phenomenon into a pre-existing worldview or cultural wisdom this imbues a previously unfamiliar object with social meaning (Jonas & Morton 2012). While anchor representations allow for pre-existing knowledge of one pathogen to be transferred to another, the choice of anchor can influence whether a new occurrence is regarded as serious or benign (Joffe 1999). Since the beginning of the epidemic about 70 million people has been infected with the HIV virus and about 35 million have died of

AIDS (World Health Organisation 2011). In the early press coverage AIDS was anchored to the term *plague* (Joffe 1998, Wellings 1988). While this could have escalated the seriousness of the disease, because it was combined with word *gay* it had the opposite effect in that the heterosexual community were made to feel safe (Joffe, Washer & Solberg 2011). The use of the word *plague*, rather than *epidemic*, is in itself a telling lexical choice as the figurative meaning of *plague* refers to a scourge, or an act of divine anger and punishment. *Plague* can mean disease serving a moral purpose, namely to cleanse the world of undesirables (Murphy 1995). This heightens the stigmatisation of AIDS sufferers and fits with the early metaphorical framing of the disease as something that was evil, sinful and a judgement on society (Sontag 1991).

Severe Acute Respiratory Syndrome (SARS) emerged near the end of 2002 in a province in Southern China and spread to countries in North America, South America, Europe and ASIA before the global outbreak was contained in July 2003. 8098 people became sick and 774 died. SARS was commonly anchored to the Black Death, AIDS or the Spanish epidemic of 1918, which killed an estimated 40 million people (Washer 2004). Because of its catastrophic impact the 1918 pandemic is often considered the gold standard to which all modern pandemics are measured (Panter-Brick & Fuentes 2011). The relatively moderate death rate of SARS suggests that much of the coverage was excessive, sometimes inaccurate, and sensationalist. Part of the problem was that in the formative period of the outbreak little was known about the disease other than it was airborne, had a high mortality rate and there was no vaccine.

Scientific theories as to what caused SARS were widely reported but often lacked clarity and this added to the confusion (Eichelberger 2007). Moreover, unlike earlier pandemics like AIDS, SARS was fuelled by the internet and was socially constructed on a global scale, facilitated by 24-hour global news (Heffernan et al 2011).

How scientific uncertainty impacts on the choice of anchor was something that Washer (2006) drew upon in his study of Bovine Spongiform Encephalopathy (BSE). He argued that early representations minimised the threat by anchoring BSE to Scrapie, a disease in sheep that posed no risk to human health, or to Salmonella something unpleasant, but not life threatening. As the threat to human health became more established, Washer (2006) discovered that the anchor changed and BSE was compared to AIDS with speculation that it could be the next plague. Avian influenza was again anchored to the 1918 influenza pandemic possibly because the symptoms and medical histories of people who died from H5N1 and H1N1 are disturbingly similar (Garrett 2005). Despite this, Herring & Lockerbie (2010) contend that there are other less alarming and destructive pandemics that could have been more appropriately anchored to avian influenza, notably the 1957 (Asian), 1968 (Hong Kong) and 1977 (Russian) pandemics. Although the small numbers of actual cases was out of kilter with the viral panic associated with Avian Influenza (ibid) newspapers fed off a climate of fear and uncertainty and journalists constructed some dire storylines replete with disaster metaphors all of which conjured up the politics of fear and blame (Scoones 2012).

2.8 Otherness

According to Washer (2005) when a novel infectious disease appears in a community, the *usual* response is that the new threat has to be externalised, and consequently someone or some group has to be blamed. By using the term *gay plague* AIDS was associated with homosexual men who were blamed for the disease and became the *other*. However, *otherness* is not a static concept. If blaming a particular collective is no longer strong enough to symbolically cope with a threat, new out-groups can come to the fore (Mayor et al 2013). If homosexual men bore the brunt of blame in the early stages of the AIDS epidemic, later *foreigners* and other marginal groups like intravenous drug users were similarly impugned. Moreover, when it was discovered that AIDS was transmitted by heterosexual sex as well as homosexual sex the target again changed and the *other* became people with *loose morals* and *hedonistic lifestyles*, alternately those who had purportedly high moral standards were made to feel safe (Washer 2010).

In phase one of the SARS outbreak the illness was branded as something that was terrifying and caused by clever microbes on the rampage (Smith 2006). By phase two this anxiety had been dissipated as public assurances were given that danger would only befall those in a geographically and/or culturally distant population (ibid). Washer (2004) revealed that the UK press would simultaneously represent SARS as a threat but suggest that it had been *contained* because it only affects the Chinese *who are different to us*. To make the narrative more compelling words were frequently combined with powerful images of Chinese farmers living in unsanitary conditions and in close contact

with disease-carrying animals. Similarly China was considered the epicentre of the avian influenza virus and was blamed on poverty and the *backward practices* of rural farmers (Heffernan et al 2011). To foreground this as a *Chinese* disease, journalists would use maps and other visual aids to pinpoint the problem to its geographical terrain (Gilles, Bangerter, Clemence et al 2013). The media can also construct a sense of danger around the threat of globalisation. In 2008 approximately 50 million people lived outside the country of their birth, and about 2 million people cross an international border each day (Coker, Atun & McKee 2008). This creates a real threat to *export* a distant disease. China endured heavy criticism for hiding information from international institutions regarding the number and magnitude of outbreaks from avian influenza. In broad terms the Western media were critical of developing nations who did not share their *well-honed defences* and *neglected their responsibilities* (Abeysinghe & White 2010).

Joffe & Harhoof (2002) found that the UK public conceived Ebola as an African disease. In their study one respondent alluded to its mythical properties by declaring “it just seems like a science fiction type thing that happens in places like Africa, it doesn’t come here” (ibid: 965). Depicting the virus in a magical way can heighten the microbe’s surreal and uncontrollable qualities as well as distancing it from the public giving them a sense of immunity. *Othering* can also be extended through the West seemingly flexing their cultural superiority. If the unhygienic Chinese were responsible for SARS and avian influenza, Joffe & Harhoof (2002) and Ungar (1998) both described how journalists and lay public would depict Africa as a single country built around a

culture of poverty, tribal rituals, poor hospital hygiene and water quality, monkeys, and forests. Reviewing Ebola literature Semmler (1998) suggests that Africa is typically described as *jungle like, dark, impenetrable* and *mysterious*, thus creating a symbolic association between the continent and Ebola. However, *otherness* can also be transient as indicated by Ungar's (1998) contagion-mutation and containment package. Amongst other things the contagion-mutation package proposes that because of globalisation a person from an exotic location could get on a plane and arrive in the West where the virus could start a pandemic. At this point the illness ceases to be confined to its distant place and the news media mobilises its discrimination against individual carriers (Gwyn 2002).

2.9 Objectification

Objectification refers to the transformation of an abstract concept into something more concrete and comprehensible. Based on the idea that disease language can evoke certain expectations, attitudes and ways of acting, metaphors in particular have become a prominent subject within the sociology of health and illness (Nerlich & Halliday 2007). Among the most prominent writings on the use of metaphor in health is the work of Susan Sontag and her seminal book entitled: *Aids and its Metaphors*. Published in 1989, Sontag explored how metaphors were used to describe AIDS in terms of popular themes of war, conquering and invasion. Christened military metaphors, the virus is portrayed as an enemy and science, whether it be antibiotics, immunisation or other strategies becomes society's weapons. Advocates of military metaphors argue that they can have a positive effect as they animate

societal support and symbolise the patient's courageous struggle to fight the disease. Critics counter that combat metaphors can be problematic as referencing the disease as an enemy exacerbates or entrenches the stigma associated with being HIV positive (MacLean, Black & Shaw 2006). Despite this the use of military metaphors have become a popular method to describe infectious diseases and a dominant framing device employed by governments, journalists, and the public (Larson, Nerlich & Wallis 2005).

Wallis & Nerlich (2005) examined how the UK media used metaphors to frame the 2003 SARS outbreak. Two themes emerged; one was that SARS is a *killer*. This was used primarily to outline the characteristics and effect of the disease, so *killer virus*, *killer plague*, or *deadly bug lingers* on door handles, *ravaged* cities, *claims victims* and *kills* people. The second, *control*, was used to signify the response to the disease, as epidemiologists were said to *hunt down* or *track the virus*. Although the authors note that there was some overlap, they were surprised by the relative absence of military metaphors. Hypothesising the reason why, they posit that this may have been a UK phenomenon as military metaphors were heavily used in other parts of the world. Wallis & Nerlich (2005) concluded that war metaphors may be more prominent where the threat was more immediate. Echoing this point, in Canada, who had first-hand experience of SARS, the media would frequently identify nurses as heroic, courageous, self-sacrificing *soldiers* who were *fighting* the invisible *enemy* (McGillis Hall, Angus, Peter et al 2003).

Exploring the media's representation of avian influenza, Koteyko, Brown & Crawford (2008) described how three metaphor scenarios, *journey*, *war* and

house, ran through the storyline and worked to make the narrative more intelligible. During its *journey* the virus was regularly depicted as being on its way to the UK. The further the virus travels along its path and the closer it gets to its imagined goal, the risk to the population becomes greater and military metaphors became more abundant. The virus was then portrayed as the *monster at the door*.

Another way of exploring how risk is communicated in the media is to study how experts such as scientists and public health authority figures are represented and quoted (Harvey & Koteyko 2013). Nerlich & Halliday (2007) performed a linguistic analysis on the way experts and public health officials convey health risks to the public. They found authorities can contribute to the *rhetoric of fear* by using scare statistics like *two million British could perish*, pragmatic markers such as *warn and fear* and the verbs *threaten* and *frighten*. Not only does the expert signify authority and authenticity, negative predictions and overstated expectations can provide an opportunity for policy makers to mobilise resources and mount an efficient co-ordinated response to a problem (ibid).

Joffe & Harhoof (2002) consider the broader role of the media and how it can penetrate the public consciousness and help create a shared understanding of communicable disease. In 1994 Richard Preston authored the bestselling book *the Hot Zone* that sold two and a half million copies. Primarily a work of non-fiction it traced the history of the Ebola virus, but gave a greatly embellished account with ghoulish attention to detail (Gwyn 2002). Interestingly, despite some general inaccuracies it was generally welcomed by scientists working on

EID as they believed it would gain the attention of a dangerously complacent medical establishment, government and public (Wald 2007). Indeed the increased public interest, augmented by a fear of globalisation resulted in increased government expenditure and the creation of policies at national and local levels (Dry & Leach 2010).

2.10 Meticilin Resistant *Staphylococcus Aureus*

The *far flung diseases* of AIDS, SARS, Avian Influenza, Ebola and BSE are not in the true sense of the word HCAI in NHS hospitals. Indeed it is their remoteness from UK borders that makes Social Representation Theory a compelling model to examine how the public assimilate risks that are brought to them by a media who are prone to exaggeration. Taking a weak constructionist position Social Representation Theory is less concerned with the material threat of a risk and more with the meanings that people attach to it and the consequences for themselves, others and society (Joffe et al 2011). In contrast to the aforementioned remote conditions, MRSA has become something of a *cause celebre* for HCAI in the NHS. It first appeared in the UK in 1961 and then spread to hospitals in Europe, the USA, Australia and other parts of the world.

MRSA causes a broad spectrum of disease ranging from benign superficial skin infections to severe life threatening conditions such as bacteraemia, endocarditis, pneumonia, abscesses and soft bone tissue infections. The pathogen's clinical significance rests with its resistance to B-lactam antibiotics, and a number of other antimicrobials, as this makes MRSA infections difficult to manage and costly to treat (Orsi 2008). It has received extensive media

coverage, causing considerable public anxiety and has been the subject of national improvement programmes (Weston 2013). An additional body of work has examined MRSA through the lens of Social Representation Theory.

2.10.1 MRSA and Anchoring

As discussed earlier, anchoring is a mechanism that allows the categorisation of new or novel information to an existing social order. It functions to render the unfamiliar, strange and potentially frightening, familiar and understandable (Joffe 2003). Anchoring and MRSA took on multiple forms. There appeared to be little or no anchoring to past plagues or epidemics, a traditional trope in media reporting of EID. There were some references to past diseases that could create a sense of alarm, for example AIDS, Flesh-Eating Disease and Tuberculosis. However, this was offset by anchoring to less serious, *everyday-type* conditions, like the common cold (Washer & Joffe 2006). In many cases MRSA was not anchored at all. Instead it was portrayed as something new, something without a history or a strong link to a past event. The absence of an anchor is interesting as this can amplify danger by making a microbe more frightening and unknowable (Joffe et al 2011).

If the use of *othering* was a little erratic, MRSA was made familiar via key symbols, particularly the metaphor *superbug*. Stockert & Mahfouz (2012: 276) offer a scientific definition of superbug as ‘a bacterial organism that has either inherent or acquired resistance to at least one of the antibiotics that is typically used to treat it’. Overtime, based on often partial or misleading information, the term superbug has taken on additional meanings grounded in the premise that they are uniquely contagious, potentially fatal and not treatable with current

medicines (ibid). Joffe et al (2011) interviewed a sample of 30 lay public and revealed that the *superbug* was conceptualised as super primarily because of its invincibility and the inability of antibiotics to conquer it. In addition Washer & Joffe (2006) noted that the media would use additional pejorative phrasing to escalate the rhetoric of fear. *Killer* superbugs were reported in the tabloid press and *potentially fatal superbugs* in the broadsheets. Throughout the ten year period of their study the press were found to make allusions to the serious implications of MRSA, and how it was a *major threat* to public health a *doomsday scenario* and an *impending health crisis*. Broadly in the early reporting of MRSA the emphasis on superbugs and their impending danger was entwined with an end of the golden age of antibiotics (ibid).

The superbug narrative ran alongside an additional and complimentary body of discursive work that foregrounded an antibiotic apocalypse and the personification of bacteria. In their analysis of mutation, monstrosity and MRSA, Brown & Crawford (2009) identified a strong collocation between the words MRSA and mutation. The media explained drug resistance as a series of random Darwinian mutations where microbes achieve progressively greater resistance and versatility. Nerlich & James (2009) explored the phrase *post antibiotic apocalypse* in newspaper articles and amongst the scientific community. They discovered a long list of military metaphors that depicted HCAI as a war, bacteria as an enemy and science as the weapon. These and other studies exploit the idea that humankind pale in comparison with the adaptability of a microbe. As Spellberg, Guios, Gilbert et al (2008) argue microbes have had 3.5 billion years to adapt to the various environments on

earth. Outnumber humans by a factor of 10^{22} , outweigh them by a factor of 10^8 and undergo as many as 500,000 generations in the time it takes humans to make one. In essence the war is depicted as an uneven contest between bacteria and their intelligent design and doctors with their ineffective antibiotics. Metaphoric expressions of killer superbugs are given additional credence through their personification as active and malevolent agents imbued with agency that prey on their victims (Larson 2005). In a study by Crawford, Brown, Nerlich & Koteyko (2008) the media would write how superbugs *stalk, lurk* and are *at large* in hospital corridors and *under patients beds*.

2.10.2 MRSA and the Other

When an EID appears society commonly constructs a boundary between the *self* and *other*. This symbolises illness in terms of affected others, leaving the self with a sense of immunity to the threat (Joffe et al 2011). Instinctively MRSA would seem to be immune to many of the traditional *othering* devices already discussed in this chapter. It is not geographically distant to Britain, is not associated with particular cultures and is not prevalent in marginalised groups like gay men, sex workers, drug users or the poor and unhygienic. Despite this, a number of writers have noted a different type of *othering* located within a growing trend to highlight the plight of the most vulnerable members of society (Joffe 2011, Brown & Crawford 2009, Washer & Joffe 2006). In short MRSA has developed its own marginalised group, the old, the young, those with compromised immune systems and patients who have had surgery. While this may relieve some of the moral connotations that usually underpin the spread of EID it works in much the same way, to distance the

perceived threat of MRSA from oneself onto other people (Washer, Joffe & Solberg 2008). Interviewing the public, Joffe et al (2011) found that they had much to say about the threat of MRSA but reasoned that they were not at risk from it. This highlights the delicate nature of *othering*. While it may be the case that the public's current identities and home location reduces their personal risk, in the future they may become elderly and require hospital admission.

Despite this example of *othering* the UK print media depicted MRSA as a strictly British problem. Blame has become a core theme of *othering* and this was widespread throughout the coverage. Koteyko, Nerlich, Crawford and Wright (2008) proposed that there were two broad discourses of blame the 'basic hygiene discourse' focusing on the errant behaviours of health care staff and 'government targets discourse' centred on poor management, NHS cuts and a lack of cleanliness. These two themes were not mutually exclusive but provided an elaborate tapestry of blame and victimhood. In two comprehensive reviews of UK newspaper coverage of MRSA, Washer & Joffe (2006) found that doctors and nurses were presented in a mixed light; often, within the same article. Criticised for their *sloppiness* and berated for their *poor hygiene* doctors and nurses were also praised for their *dedication* and *humanity*. This chimed with Crawford, Brown, Nerlich & Koteyko (2008) who found an abundance of criminological metaphors pervading the MRSA literature that targeted HCWs, hospitals and microbes as perpetrators of crime.

There is a sense that if HCWs were overtly criticised in the early throes of MRSA reporting, NHS management and the government took a greater share

of the blame as the topic became politicised in the run up to the 2005 general election. Wallis & Nerlich (2005) point out that during turbulent times it is common for opposing political groups to voice their criticisms of public health decisions in the media and in this way shift the public attention from the disease threat to matters of accountability and blame. The full force of NHS cuts became more visible and the NHS was depicted as neglected and underfunded. Figures were released that indicated since privatisation the number of cleaners had been reduced from 100,000 to 55,000 (Washer & Joffe 2006). The unhygienic hospital became a symbol of a breakdown of a wider established order and managers and politicians were berated for the poor standards of cleanliness in NHS hospitals (Gould 2005).

2.10.3 MRSA and the Dirty Hospital

Dominated by the metaphor of the *dirty hospital* the media emphasised shortcomings in hospital cleanliness and the failures of the government and NHS management. Cleaning evolved as a possible, plausible and above all *common sense* weapon to beat MRSA. This is perhaps an unexpected policy direction, given the equivocal evidence base of the inanimate environment and HCAI outlined in Chapter One. Two studies have examined the specifics of how the media made the link between MRSA and hospital cleanliness. Chan et al (2009) analysed UK press coverage, medical journals including the Lancet and the British Medical Journal and press releases to detect whether there was a bias towards hospital cleanliness and MRSA. The results suggest that prior to 2000 there was little reference to cleanliness, but this became a dominant theme after 2004. A concurrent analysis of medical journals indicated a

different story with greater explanations around antibiotic use and hand washing. Boyce, Murray & Holmes (2009) explored the relative influences of commonly cited academic articles on the media and discovered that they had a negligible influence on newspaper coverage. Both studies concluded that journalists eschewed the *scientific* explanations for MRSA in favour of a discourse that was more general and accessible. This they argued had the effect of driving policy away from scientific evidence towards popular, common sense solutions.

In addition to their analysis of media coverage Chan et al (2009) interviewed a number of journalists and discovered that while they understood that HCAI may have a complex aetiology the metaphor of the dirty hospital held an evocative power for them and became a convenient vehicle to express public concern, and attack NHS managers and politicians. Moreover, the journalists argued that there was little actual opposition to the media's focus on cleanliness and mused that perhaps the medical establishment and the government had something to gain from the continuing belief that hospital cleanliness underlies the problem of MRSA (ibid). This echoes the thinking of Crawford et al (2008) that cleaning is something that everyone can engage in and offers a cheap solution for the cash-strapped NHS. Nevertheless, Joffe et al (2011) found that the dirty hospital struck a chord with the public and audience readings of MRSA largely reflected the media representations. This is perhaps little surprise as Gould, Drey, Millar et al (2009), Madeo, Shields & Owen (2008), Washer et al (2008) and Gill, Kumar, Todd et al (2006) all suggest that

the media has the greatest impact on the public's perceptions of HCAI. That is the public merely repeat what they have been exposed to through the media.

However, as important as the media is, Whatley, Jackson & Taylor (2012) established that personal experience, the things that a person sees, hears, smells and tastes when they access health care services shape their perceptions as to whether something is clean. The Department of Health concur and elaborate on the subjective nature of cleanliness. They advise NHS organisations that patients will use what they can see, to make assumptions about what they cannot. The argument goes that if patients see a dirty front entrance they assume the operating theatres are dirty (Jones 2013). Picking up on the importance of smell, in their study Washer et al (2008) found that the public reverted to a pre-scientific understanding of contagion by associating *bad air* and *bad smells* in hospitals with the threat of MRSA. Conversely the *sterile* smell of disinfectant was an important signifier of hygiene.

This can be traced back to Mary Douglas's classic study in comparative anthropology, *Purity and Danger* (Douglas 1966). In her theory of dirt Douglas works with a structural definition of dirt as *matter out of place*. Douglas proposes that an awareness of dirt indicates the existence of a system: nothing is inherently dirty; dirt is simply *matter* that within a particular framework, appears in the wrong location, and so violates a sense of order in the world (Cohen & Johnson 2005). Regardless of the evidence it would appear that the public believe that the absence of strong odours and clean, tidy and unstained floors, ceilings, doors and toilets are integral to the reduction of HCAI (Whatley et al 2012). The risk analyst John Adams argues that when science is

inconclusive, such as the relationship between hospital cleanliness and HCAI, then people are liberated to argue from, and act upon, pre-established beliefs, convictions, prejudices and superstitions (Adams 2005). Not only does this appear to be the case for the media and the lay public but it seems to have been widely accepted by government who have adopted cleanliness as a policy by furnishing a significant increase in expenditure on hospital hygiene.

2.11 Hand Hygiene

MRSA has been strongly allied with calls for *basic cleanliness* and *proper cleaning*. The media and others, paint MRSA as a problem that is amenable to simple solutions if only things were managed properly (Crawford et al 2008). To date this chapter has focussed exclusively on the impact of the environment where, in truth, hospital hygiene signifies something broader than this. If the fabric of a building has little legacy as evidence based practice (Dancer 2009), the role of hand hygiene dates back to 1846 and is widely accepted as the single most important measure to prevent HCAI (WHO 2009). The studies that make up this review comment on hand hygiene; *deficits in hand-washing practices* (Joffe et al 2011), *asking staff to wash hands* (Boyce et al 2009), *crimes of omission by not cleaning hands* (Crawford et al 2008), *alleged violations-not washing hands* (Brown et al 2008) *not washing their hands between patients* (Washer & Joffe 2006), but there is little in the way of sustained discussion or critique.

Although hand hygiene may boast a dominant position within the arsenal of infection prevention and control, to date it has received limited attention in the body of work that has focussed on discourse, hygiene and HCAI. It does

however receive unflinching support from eminent physicians and the academic community. It is *simple* and *basic* so holds a strong appeal to a media and public who crave common sense solutions to challenging problems. What is more, in the current NHS hand hygiene behaviour is policy driven and heavily regulated. Overarching all of these propositions is the near certainty, whether calculating performance, improving compliance, or measuring effectiveness, hand hygiene is a good deal more complicated than is generally assumed. It is this cocktail of a must do, powerful others, common sense, regulation and inherent complexity that make hand hygiene ripe for a language based study. There is a growing body of literature that deals with the way people engage with, and assess the risks associated with EID. An examination of hand hygiene discourse can contribute to this work by providing further insights into how simple solutions are mobilised by powerful discourse coalitions, the effect this can have on the wellbeing of staff, but perhaps more importantly the unintended consequences it has on practice and therefore the burden of HCAI.

2.12 Summary and Conclusion

Research into health language is an eclectic mode of enquiry that is gaining in popularity. In this literature review a number of comprehensive and well trusted data bases have been accessed to identify a body of work that examines how the public engage with *Emerging Infectious Diseases*. These studies have provided an insight into how, primarily, the media construct images of communicable disease and how the public engage with and use this information. Key ideas taken from Social Representation Theory suggest that

the people do not take wholly objective positions when assessing risk, but use strategies like *anchoring*, *othering* and *objectification* to make sense of something that is unfamiliar. This phenomenon is popular in the media and amongst lay public, but is also seen in, and used by, scientists and policy makers who may have their own motives for pursuing a particular policy direction. Unlike SARS, Avian Influenza and Ebola, MRSA is not *remote* from the UK health care system; rather it has become synonymous with the problems associated with HCAI. Nevertheless, similar themes emerge, particular around *others* and a discourse of blame. The blame for MRSA tends not to be centred on its genesis, the overuse of antibiotics, but on how it is spread, through poor hygiene standards in NHS hospitals.

Despite an indeterminate evidence base the domestic cleaning standards of organisations has received enormous attention from the media, public, politicians and policy makers. An examination of the language that reverberates around a topic can provide an understanding of how some measures become accepted and propagated as conventional wisdom and others do not. Hand hygiene is a clinical procedure considered the single most important measure to prevent HCAI but has received scant attention from discourse analysts. Yet it hails many of the required characteristics, it is dominant within the speciality of infection prevention and control. It receives fulsome support from powerful coalitions, it imbues common sense ideology, is easy and cheap but at the same time highly complex. To elaborate on the rationale for this thesis in the next chapter I will consider some of the complexities that pervade the topic of hand hygiene.

Chapter Three

A Simple Measure with Big Effects

3.1 Introduction

Chapter One of this thesis plotted how reducing the burden of HCAI has become a health service priority and it examined some of the regulatory structures that have been put in place in the latter part of the 20th century. Chapter Two then turned to the discourse of Emerging Infectious Diseases and HCAI and identified that despite an indeterminate evidence base, the cleanliness of hospitals has been constructed as a common sense solution to a complex problem. I then introduced hand hygiene, the focus of this study, which conventional wisdom has it, holds a more dominant evidence based position within the genre of infection prevention and control. To date hand hygiene may have received scant attention from discourse analysts but its simple, cheap representation masks multiple complexities that make it particularly apposite for the constructing effects of language. The purpose of this chapter is to briefly outline the history of hand hygiene and how from humble beginnings it has attained the dominant position it now holds in the armoury of infection prevention and control. I will then discuss some of the complexities in relation to the topics evidence base as this will form an important and valuable backdrop to the rest of the study.

3.2 The Hand

The human hand is a highly developed, extremely adaptable piece of anatomy that serves humanity extremely well in a multitude of ways. As a major sensory tactile organ the hand allows us to identify and extract a wealth of information

about the texture, weight, orientation and thermal properties of objects in our immediate environment (Jones & Lederman 2006). It demonstrates impressive manual dexterity when reaching for, grasping, and subsequently manipulating objects. For the visually impaired the hand can partially compensate for the loss of sight. For a person who has impaired hearing sign language can offer a valuable mode of communication. In addition, the hand can also be an important creative tool from a variety of aesthetic and cultural milieus including writing, drawing, music, sculpture and dance. However, it is the dexterity of the evolved human hand, its ability to make finely controlled movements in space and time, and its aptitude to explore and manipulate objects and people within its environment, that make it a primary agent in the transmission of HCAI.

3.3 History of Hand Hygiene

As far back as the 12th century, the Spanish physician and Jewish scholar Rabbi Moses Maimonides, produced a treatise on hygiene where he instructed physicians to *wash their hands after touching a sick person*. He describes his habits when making house calls thus, ‘I dismount from my animal, wash my hands, (and) go forth with my patients’. This may be the first documented event of handwashing related to clinical care (Delaney & Gunderman 2008: 15). Other key landmarks include Charles White, a surgeon and obstetrician in England, who in 1733 published a paper stressing the importance of surgical cleanliness to prevent puerperal sepsis. Similarly in 1795 Dr Alexander Gordon published a paper echoing the importance of surgical hygiene to prevent disease (Prescott, Harley & Klein 1999). In 1822 a French pharmacist named

Labarraque reported that a solution containing chloride of lime or soda could mask or remove the noxious odours on the hands associated with handling human cadavers, and as such solutions could be used as disinfectants and antiseptics. In 1825 he hypothesised that attendants of patients with contagious disease might benefit from hand washing with a liquid chloride solution (DePaola & Fried 2007).

However, in 1846 Ignaz Phillip Semmelweiss was the first man to demonstrate that handwashing could prevent the spread of disease (Noakes, Borresen & Huw-Butler 2008, Harbath, Albrich & Pittet 2004). Semmelweiss is widely credited as the founder of contemporary hand washing and his legacy is well documented. But briefly, he was a Hungarian obstetrician who worked at the Vienna Lying-in wait hospital, one of the largest teaching institutions in Europe with over 6000 annual deliveries. The obstetric ward was divided into two divisions. The mortality rate in the medical student delivery room was three times higher than that in the midwifery delivery room. Ignorant of the cause, though sceptical of the traditional explanations, which included changes in the air, overcrowding, extra-terrestrial influences and earthquakes (Boyce & Pittet 2001), Semelweiss methodically examined the differences between the two divisions.

Painstaking to begin with, the breakthrough came when a colleague died from an illness similar to puerperal fever after being accidentally cut during a necropsy. Semmelweis deduced that physicians and medical students who took part in pathological anatomy went straight from post-mortems to the maternity ward where they examined childbearing women. In what could now be

considered an intervention trial using historical controls (Pittet, Allegranzi & Sax 2006), Semmelweis introduced a policy of hand washing with chlorinated lime solution and the mortality rate in the first division dropped ten-fold (Neville 2003). Noakes et al (2008) and Broemeling (2007) have both applied contemporary statistical analysis to Semmelweiss's data. They concluded that there is sufficient evidence to support his hypothesis that the excess mortality in division one was due to the transfer of an infective agent on the hands of doctors and medical students. Working independently in the American Colonies in 1843, Dr Oliver Wendell Holmes made a similar hypothesis that infectious disease was passed to pregnant women by the hands of doctors. He too advocated improvements in handwashing.

However, the work of Semmelweiss and Holmes predated that of Pasteur (1860, 1864), Lister (1870) and Koch (1890) and the germ theory of disease. Because medical science lacked any notion that microbes could cause disease, Semmelweiss and Holmes could describe but not fully explain their results. Indeed for suggesting that doctors were responsible for puerperal fever they were treated as pariahs by the medical community. Holmes experienced decades of attack and dissension and Semmelweis was committed to a psychiatric hospital where he died of blood poisoning and brain lesions (Larson 1997). Nonetheless, when Lister read Semmelweiss's report of the effects of hand washing alongside an article about Pasteur's germ theory he apprehended that Semmelweiss's hand washing policy with a chemical such as bleach might have killed the germs that led to infection.

Throughout the 1890s William Halstead along with William Osler, William Welch and Howard Kelly popularised hand hygiene within the surgical community (Delaney & Gunderman 2008). Gradually hand hygiene became accepted as one of the most important measures for preventing HCAI. In 1961 the USA public health service produced a training film that demonstrated hand washing techniques for use by HCWs (Coppage 1961). However, it was not until 1981 and then 1986, 1995 and 1996 (Simmons 1981, Garner & Favero 1985, Larson 1995, Garner 1996) that a series of international guidelines were published. In 2002 the literature was reviewed, and further recommendations were produced under the auspices of the Healthcare Infection Control Practices Advisory Committee (CDC), the Society for Healthcare Epidemiology of America, the Association of Professionals in Infection Control and Epidemiology, and the Infectious Diseases Society of America (Boyce & Pittet 2002). The Department of Health produced its own EPIC guidelines inclusive of hand hygiene in 2001, 2004 and 2013.

North American publications were considered the seminal work until the WHO assembled more than 100 international experts and charged them with the objective of providing a comprehensive overview of the essential aspects of hand hygiene in health care (Pittet, Allegranzi & Boyce 2009). Their consensus-based recommendations were released in 2009 and are now seen as the most extensive review of hand hygiene to date (WHO 2009). The value of comprehensive, international guidelines rests with the assumption that they translate research findings into clinical policy (Roland & Stock 2005). It is now a requirement that trusts in England have written policies, procedures and

guidance that promote timely and effective hand decontamination (Department of Health 2008c, National Patient Safety Agency 2008a).

3.4 Hands and the Spread of Communicable Disease

Typically, HCWs have 3.9×10 to 4.6×10 aerobic colony-forming units on their hands (Schub & Caple 2011). These microbes represent a complex ecosystem consisting of resident and transient flora. Resident flora, for example, coagulase-negative *Staphylococci*, and *Diphtheroids* are deeply embedded in the deeper folds of the skin and are difficult to remove. They feed on lipids and cellular debris, and are seen as *good* as they rarely cause disease and produce their own lipids and bacteriocins that resist colonisation by more pathogenic species (Barash, Cullen & Stoelting 2009). Conversely transient flora, like MRSA and *Clostridium difficile*, colonise the superficial layers of the skin. They are the source of most HCAI as HCWs acquire them on their hands through contact with people or contaminated surfaces. Because transient flora are situated on the superficial layers of the skin they can be easily removed through hand hygiene (Sax, Uçkay, Richet et al 2007a). Despite this, it is not necessarily straightforward or linear as according to the WHO (2009) guidelines hand mediated transmission of HCAI from one patient to another requires five sequential stages.

- 1, Microbes should be present on the skin or must have been shed onto inanimate objects immediately surrounding the patient.
- 2, Microbes must be transferred to the hand of HCWs.
- 3, Microbes must be capable of surviving for at least several minutes on hands.

4, Hand hygiene by the HCW must be inadequate or entirely omitted, or the agent used for hand hygiene is inappropriate.

5, The contaminated hand(s) of the HCW must come into contact with another patient or with an inanimate object that will come into direct contact with the patient

The WHO guidelines go on to offer a robust critique of the evidence at each sequence and suggest: health care associated pathogens can be recovered from the normal, intact skin of patients, their mucous membranes, health care devices, wounds and the inanimate environment. The transmissibility of transient flora to the hands of HCWs occurs, but depends upon the species, the number of micro-organisms on the surface and the skin moisture. For example, it is at its highest following sustained contact or following contact with body secretions, but still possible following contact with clean, intact skin and inanimate surfaces. Micro-organisms will survive on the hands of HCWs but this is dependent on the species and the inoculating dose. Different hand hygiene products, the different volumes used, and the hand hygiene technique employed, will result in the removal of different levels of transient flora from the hands. Cross transmission of microbes from the hand will occur, but again this is dependent on the type of organism, the source and destination of the surface, the moisture level and size of inoculums (WHO 2009). The WHO concluded that ‘the above mentioned studies clearly demonstrate that hands **could** (my emphasis) be vehicles for the spread of certain viruses and bacteria’ (WHO 2009: 13).

The caution inbuilt in the assertion rests with the idea that the transmission model is capricious and not always efficient. This means that poor hand hygiene does not necessarily result in cross infection. Indeed because of methodological and ethical concerns there are few studies that explicitly focus on the actual transmission of microorganisms from the hands of HCWs to a patient. Some have examined artificially contaminated hands and the transmission of microbes to inanimate objects (Lingaas & Fagernes 2009), while others focus on the dynamics of hand contamination. These studies, again often simulated, describe how the hand may become colonised with pathogenic micro-organisms during the delivery of healthcare and demonstrate that this will increase linearly overtime if not interrupted by hand hygiene (WHO 2009). As Barash, Cullen & Stoelting (2009) contend there is limited evidence of the actual transmission of infection to patients because of inadequate hand hygiene. Despite this the current position is best summed up by NICE (2012) who conclude that a combination of evidence, expert opinion and common sense means that clean hands are less likely to transmit infection.

Nonetheless, the precise impact that good or bad hand hygiene has on the incidence of HCAI is something that has vexed researchers for some considerable time (NICE 2012, WHO 2009, Backmann, Zoutman, Marck et al 2008, Pratt et al 2007, Larson 2004, Boyce & Pittet 2002, Pratt et al 2001, Larson 1999, Larson 1988). The aforementioned reviews note the considerable methodological and ethical problems associated with producing reliable and valid data from hand hygiene studies. In essence the aetiology of HCAI is multi-factorial and study designs inevitably include uncontrolled confounding

variables that change over time, for example, antibiotic use (types and quantities), length of stay in hospital, promotional campaigns, media campaigns and the use of barrier nursing (Ferguson 2008). In addition they often present inadequate statistical analysis, small sample sizes and have limited follow up (Gould, Drey, Moralejo et al 2008). These factors combine to make it difficult to isolate the specific effects of hand hygiene or any other component of an infection control strategy (Backmann, Zoutman, Marck et al 2008). Indeed a recent evaluation of the national Clean Your Hands Campaign stated it was impossible to disentangle the impact of a package specifically intended to promote hand hygiene from other policy initiatives introduced to reduce HCAI (Stone, Fuller, Savage et al 2012).

A different approach that is used to shed light on the problem of hand hygiene efficacy is the use of mathematical models. Seville, Chevret & Valleron (1997) estimated that if the presence of MRSA colonisation in an ICU was 30% without any hand hygiene, it would decrease to 22% if compliance increased to 40% and 20% if hand hygiene increased to 60%. Cooper, Medley & Scott (1999) predicted that increasing hand hygiene compliance from very low levels to 40% would significantly reduce transmission, but improving compliance to levels above 40% would have very little impact. Similar studies have been performed by Silvestri, Petro, Sarginson et al (2005), McBryde, Pettit & McElwain (2007) and Beggs, Shepherd & Kerr (2008). These studies support the importance of hand hygiene but suggest that it may suffer from the law of diminishing returns. That is the greatest benefit is accrued from the first 20% - 40% of compliance activity; thereafter the effect becomes greatly reduced.

Indeed Sivistri et al (2007) point out that although Semmelweiss's study is still cited as the prime evidence for the effectiveness of hand disinfection, the circumstances were extreme and do not mimic the current standing in NHS hospitals. Semmelweis described doctors performing non-gloved autopsies, becoming heavily contaminated with a high-level pathogen, *Streptococcus pyogenes*, performing no hand hygiene, and then taking part in an invasive procedure, for example, delivering babies. Under these circumstances it is little wonder that modest hand hygiene would have a dramatic effect. It is a far cry from the multiple, minimal contacts that require hand hygiene in contemporary healthcare. Nevertheless, when the research is taken as a whole, expert opinion is consistent with the view that there is a temporal relationship between hand hygiene and HCAI. Moreover, 'effective hand decontamination results in significant reductions in the carriage of potential pathogens on the hands and logically this decreases the incidence of preventable HCAI leading to a reduction in patient morbidity and mortality' (NICE 2012: 63). However, the exact strength of the relationship is unknown and difficult to predict.

3.5 Reasons for Poor Compliance

Despite the currency given to good hand hygiene, compliance with guidelines has been an enduring topic and problematic across all health care settings since the findings of Semelweiss. More recently a systematic review of 96 studies reported that the average overall compliance rate is in the region of 40%. Levels were lower in intensive care units (30 – 40%) than in other settings (50 – 60%). Lower among physicians (32%), than nurses (48%), and lower before patient contact (21%) than following patient contact (47%) (Erasmus, Daha &

Brug 2010). In what is an extremely congested area of study the reasons why HCWs do not comply with hand hygiene guidelines is comprehensive but often ambiguous and contradictory (Table 3.1). Nevertheless, key themes do emerge. Traditionally non-compliance has been attributed to situational factors like busyness, sore hands and poor facilities. Workload is widely considered the single most important barrier to good hand hygiene with an abundance of studies demonstrating an inverse relationship between the activity index of the HCW and compliance rates (De Wandel, Mase, Labeau et al 2010, Noritomi, Chierogo, Byl et al 2007, Pan, Domenighini & Signorini 2008, Beggs et al 2008, Bittner, Rich, Turner et al 2002, Pittet, Mourouga & Perenger 1999).

Workload is exacerbated by a contemporary healthcare system that has witnessed an increased throughput of patients, shorter turnaround times and higher occupancy rates all of which multiply hand hygiene opportunities and this inevitably impacts on performance (Dancer 2010a). Alongside the operational changes in the NHS there have been some fundamental shifts in hand hygiene policy that have required an increase in mean frequency rates. The 1985 guidelines advised that hand hygiene was not necessary following low levels of contamination or after superficial contacts, such as touching an object not visibly soiled or taking a blood pressure (Garner & Favero 1985). In 1995 this was amended and it was advised that a ranking scheme should be used that considered the intensity of contact with patients or fomites, the degree of contamination that is likely to occur with that contact, the susceptibility of patients to infection, and the procedure to be performed (Larson 1995).

By 2002 any notion of risk assessment was removed and the updated guidelines decreed ‘that in the past, attempts have been made to stratify patient-care activities into those most likely to cause hand contamination, but such stratification schemes were never validated by quantifying the level of bacterial contamination that occurred’ (Boyce & Pittet 2002: 4). Moreover, the 2002 guidelines cited a number of studies that revealed how hands became contaminated during clean activities. The subsequent recommendations were detailed and unequivocal. If the 1995 guidelines recommended that hand hygiene was only necessary following contact with inanimate objects that are likely to be contaminated, by 2002 the word contaminated was removed and there was a call for ‘hand decontamination after contact with inanimate objects in the immediate vicinity of the patient’ (ibid: 32). The 2009 WHO guidelines, replicated those of the 2002, with their 5 moments of hand hygiene.

Table 3.1: Reasons for Poor Compliance with Hand Hygiene

No	Reason for Poor Compliance
1	Skin irritation by hand hygiene agents
2	Inaccessible hand hygiene supplies
3	Interference with HCW patient relationship
4	Patient needs take priority
5	Wearing of gloves
6	Not thinking about it/forgetfulness
7	Lack of knowledge of guidelines
8	Lack of scientific evidence to support hand hygiene
9	Too busy or insufficient time
10	High work load
11	Professional group - Being a doctor rather than a nurse
12	Gender – male rather than female
13	Working in high risk area
14	Activities with high risk of transmission
15	Working on weekdays Vs weekends
16	Lack of role models
17	Lack of an institutional policy
18	Lack of administrative sanctions
19	Lack of hand hygiene promotion at an institutional/individual level
20	Lack of an institutional safety climate

Although the change may seem subtle, from 2002 decision making was removed from the HCW and situated with the policy maker. If the rationale for the change was *evidence based* and convincing, there was scant consideration for its utility in practice. Indeed in 1995 and 2002 the guidelines already stated that compliance was problematic with average figures of 40%. Here recommendations were being activated that were likely to make the situation much worse. Hand hygiene frequency is dependent on a particular clinical area, but taking a literal stance in an Intensive Care Unit, McArdle, Lee, Gibb & Walsh (2006) estimated that in order to comply with all contacts, a HCW would need to decontaminate their hands in excess of 120 times in a given shift. In a similar vein Scheithauer, Haefner, Schwarz et al (2009) reported that in 3 high dependency units, over a 24 hour period, there were 188, 163, 124 hand hygiene opportunities per patient. To illustrate what they see as the impracticalities of a literal interpretation of hand hygiene guidelines, Chou, Achan & Ramachandran (2012: 443). Outlined the following post-operative review of a patient who has had a total hip replacement ‘wash hands – shake patient’s hand – adjust patient’s bed to help them sit up – wash hands – review wound – wash hands – assess sciatic nerve function – wash hands – prepare cannulation equipment – wash hands – apply tourniquet to patient – wash hands – insert cannula – wash hands’.

These problems of increased compliance rates are recognised by the WHO (2009) and the Joint Commission (2009) who question whether full compliance with traditional soap and water is actually achievable. Using a mathematical model Voss & Widmer (1997) calculated that in a 14 bedded ICU, with 12

staff each working eight hours, it would take 16 hours, or two whole time equivalents a day to achieve 100% compliance. They projected that it would take four hours using alcohol hand rub (AHR). Although 4 hours is still considerable, improving hand hygiene facilities at the point of care has become a key policy direction (WHO 2009). Indeed although AHR has some limitations it is now considered the gold standard for hand hygiene in healthcare settings as it has improved microbial efficacy, is quicker to use and better tolerated by hands (Sax et al 2007, Widmer, Conzelmann, Tomic et al 2007, Tivolacci, Merle & Pitrou 2006). A case in point is that up to 85% of HCWs report that they have experienced occupationally acquired skin problems (WHO 2009). In 2004 the National Patient Safety Agency instructed that all NHS acute trusts in England and Wales should make AHR available at the point of care. In 2008 the same trusts were required to undertake an audit to review the placement, accessibility and suitability of hand hygiene products at the point of care (National Patient Safety Agency 2008a). Action plans were required to address shortcomings and detailed guidance was supplied on how organisations should do this (National Patient Safety Agency 2008b).

A further barrier to compliance is thought to be poor knowledge of infection control policies, procedures and guidelines which exacerbate sub-optimum performance (Pessoa-Silva, Posfay-Barbe & Pfister et al 2005, Askarian, Mirzaei, Mundy et al 2004, Shralkar, Rennie, Snow et al 2003). According to WHO (2009) successful infection control improvement programmes invariably have a strong educational component and mandatory infection control training is now common throughout all NHS organisations (Healthcare Commission

2007, Department of Health 2005). However, learning styles and the relationship between infection control knowledge and behaviour is complex (Pittet 2004). Paley (2007) coined the phrase *educational reflex* to describe an organisations assumption that education will automatically correct poor performance. The research is ambiguous and difficult to interpret (Rose, Rogel, Redi et al 2009, Hanna, Davies & Dempster 2009). This is exacerbated by cursory descriptions of the educational interventions in research studies that make it impossible to determine precisely what was delivered or how (Gould & Drey 2013). Nevertheless a comprehensive review, 1995 to 2009, concluded that there was little evidence to suggest that infection control education improves compliance (Ward 2011). Or if it does the change of behaviour tends to dissolve once the educational component has ceased (Dancer 2010b). According to WHO (2009) education is unlikely to be successful if it is an isolated event and seen as a quick fix solution, rather it should be seen as an initiator of change and the foundation on which multimodal designs are based (Whitby, Pessoa-Silva, McLaws et al 2007). WHO give detailed guidance on how to organise educational programmes to enhance hand hygiene.

However, functional approaches like education and improving facilities often fail to deliver significant, sustainable improvements in hand hygiene performance (Abela & Borg 2012, Gould, Moralejo, Drey & Chudleigh 2011). Compliance varies significantly, 5-85%, among HCW's who share the same resources and experience the same barriers. As a result there has been a considerable shift in attention to the behavioural sciences to explain hand hygiene behaviour. A number of social cognitive models have been applied to

infection control and hand hygiene including the Health Belief Model, Health Locus of Control, Protection Motivation Theory, Theory of Planned Behaviour, Self-Efficacy Model and Social Norms Theory. The Theory of Planned Behaviour is perhaps the most common (Nicol, Watkins, Donovan et al 2009, Sax et al 2007a, Pessoa-Silva et al 2005, Pittet 2004, Jenner, Watson, Miller et al 2002, O'Boyle, Heney & Larson 2001).

This model supposes that behaviour is driven by intention which can be determined by the desired outcome, the subjective norm and the perceived behavioral control. Although it has some utility, it can also be problematic. In relation to the desired outcome, when asked, HCWs invariably articulate a positive attitude towards hand hygiene, because ultimately it benefits patient care (Cole 2009a, Creedon 2005, Pessoa-Silva et al 2005). Nursing is repeatedly identified as one of the most trusted professions (Ludwick & Cipriano 2006) and complying out of a sense of professional ethics and altruism fits well with a nurse's duty of care (Nursing & Midwifery Council 2009). However, Le-Grand (2006) believes that depending on context, public servants act out of self-interest more than is commonly thought. This is echoed by Hardin & Noonan (1998) who used the phrase 'paradox of commons' to suggest that whenever there was a tension between individual and organisational goals generally people tend to optimise their own interests.

Moreover, self-evaluation is not a cold cognitive process and HCWs have been found to systematically over assess all aspects of their hand hygiene behaviour (Jenner, Fletcher, Watson et al 2006, Snow & White 2006). A number of writers within infection prevention and control suggest that the premise of

altruism is flawed and self-interest/protection is a stronger driver for compliance than a sense of duty (Novoa, Pi-Sunyer & Sal 2007, Mah 2006). This is supported by Pan, Domenighini, Signorini et al (2008) who found that while there may be an inverse relationship between the intensity of care and hand hygiene behaviour, no such association was observed for glove usage. The significance of this result sits with the idea that wearing gloves primarily protects the HCW, while hand hygiene protects the patient. Subjective norms relates to the perceived social pressure to engage in good hand hygiene behaviour. The Washington Programme (Larson, Early & Cloonan 2000) was a leading edge infection control strategy that targeted cultural change as a way of improving hand hygiene. The Department of Health's idiom *infection control is everybody's business* and the strategy of *board to ward*, are attempts by the NHS to do something similar (Department of Health 2008a). The importance of role modelling has received considerable attention in the literature (Schneider, Moromisato, Zemetra et al 2009, Erasmus, Brouwer & van Beeck 2009, McGuckin, Waterman & Shubin 2006). However, who acts as a role model and how this is played out in practice is unclear.

Infection control champions like Directors of Infection Control, Modern Matrons, Consultant Microbiologists and Infection Control Nurses give the topic the corporate stamp of approval, but each of these disciplines are far removed from the *daily grind* of compliance activity. Advancing the idea of Social Norms Theory, Wilson (2009) argues that people's behaviour is strongly influenced by their perception of how other members of their social group behave and their level of desire for conformity with the group. She uses this to

argue that compliance with hand hygiene policies has simply become the social norm and an 'accepted violation' within the healthcare community in NHS trusts in England and Wales (Wilson 2009: 120). Notwithstanding the importance of intention and social norms, O'Boyle et al (2001) who completed the first and most detailed critique of the Theory of Planned Behaviour to hand hygiene, concluded that it was perceived behavioural control and the activity index of the HCW that was the strongest determinant of behaviour. Forester, Bryce & Media (2010) agree and argue that knowledge and intention to comply with hand hygiene guidelines are important but will not be sufficient to sustain engagement in the behaviour if seen in isolation.

Advancing another theory, it is thought that hand hygiene behaviour is established at a young age and encompasses ritualised actions that are carried out as a means of self-protection (Curtis, Danquah & Aunger 2009). This fits with the Health Belief Model that posits that HCWs would adhere to hand hygiene guidelines if they believed that they were susceptible to a particular infection and would acquire this infection if they did not wash their hands (Maskerine & Loeb 2006). However, because microbes cannot be seen with the naked eye it has been argued that the drive to clean hands is not microbiologically based but derived out of an emotional concept of cleanliness (Whitby et al 2007). This becomes problematic in healthcare where hand hygiene is indicated following a wide range of clinical contacts, much of which are brief and social in nature. To illustrate the point further, it is well documented that compliance is better following contact with body fluids (Wendt 2004) and performed more effectively after patient care than before

(Bearman, Marra & Sessle et al 2007). Theories taken from social marketing suggest that a behaviour is more attractive if it is tangible, certain, immediate and direct (Burnett 2009).

This is problematic for hand hygiene because cross infection takes place at a microscopic level and offers an intangible benefit. That is an infection that does not occur, or an uncertain or deferred benefit, an infection that may or may not be prevented at some uncertain time in the future. In essence the contribution of behaviour to infectious diseases is nonlinear as behaviour is necessary but insufficient to cause most HCAI (Larson & Aiello 2006). The lack of association between preventive behaviour and adverse outcomes is often cited as reason for non-compliance (Porzig-Drummond, Stevenson, Case & Oaten 2009). The aforesaid theories have helped advance the notion that the hand hygiene practices of HCWs are learnt behaviours from childhood, continued as professionals, and reinforced in daily life (WHO 2009, Whitby et al 2007). As such, changing behaviour and improving compliance is difficult, complex and uncertain.

3.6 Improving Compliance

In their Cochrane review of intervention studies Gould et al (2011) concluded that the quality of the work was disappointing. They stated studies were invariably small scale, poorly controlled and follow-up data collection is abandoned too soon to establish impact in the longer term. Furthermore, designs were insufficiently robust to attribute any observed changes to the intervention and seldom describe the intervention in sufficient detail, the change management process or contextual information about the organisation

in the depth necessary to explain success or lack of it. While Gould and Colleagues were unable to draw firm conclusions, they advised that multifaceted campaigns with social marketing or staff involvement appear to have an effect. This echoes the views of WHO and is grounded in the 2004 National Patient Safety Agency, Clean Your Hands Campaign in England and Wales. Funding from this campaign came from the Department of Health and suppliers of hand hygiene products, with additional support from the NHS supply chain and the Infection Prevention Society (Magiorakos, Suetens, Boyd et al 2009). The Clean Your Hands Campaign draws on the multi-modal methods of the Geneva programme (Pittet 2005) and targets the behaviour of HCWs through the provision of AHR at the point of care, posters, press releases, leaflets, education, training resources and a dedicated web site. Involving patients is also part of the campaign, using materials featuring the message *it okay to ask*. This means that patients should be encouraged to challenge HCWs regarding their hand hygiene behaviour.

The Clean Your Hands Campaign was the first national approach to hand hygiene improvement and is cited as an example of good practice in the WHO guidelines. Subsequently a number of other countries have adopted a similar approach (Pittet et al 2009). Nevertheless, despite the general acceptance of multi modal programmes a group of opinion leaders in the UK Gould, Hewitt-Taylor, Drey et al (2007a) and Stone, Slade, Fuller et al (2007a) locked horns in the *Journal of Hospital Infection* in relation to the evidence that underpins the campaign. Gould et al (2007a) critiqued its methods and Stone et al (2007a) who were the architects of the campaign, critiqued Gould's critique. Gould et

al argued that the campaign was a hastily prepared quick fix solution. Stone et al countered that planning was meticulous and the campaign is a pragmatic health and research policy that makes the best use of limited epidemiological evidence.

While there is a semblance of truth in both arguments, the Clean Your Hands Campaign has been adopted by all 188 acute trusts in England and Wales and 218 (97%) of primary care, mental health, ambulance and care trusts. An independent evaluation of the campaign based on self-report questionnaires, procurement of hand hygiene products, bed occupancy and surveillance data concluded that the campaign has been associated with sustained change in hand hygiene behaviour in acute trusts (Fuller, Slade, Charlett et al 2006). Despite the misgivings around its evidence base the campaign has been central to the development of hand hygiene policy in England and Wales. Multi-faceted campaigns with elements of social marketing and staff involvement are currently in-vogue and seen as the best way to enhance hand hygiene behaviour (Gould et al 2011, WHO 2009, Bastian, Edgecombe & Bowden 2008, Ritchie, Iqbal & Macpherson 2005). The logic of this presumably rests with the idea that a complex, sophisticated, behaviour change activity like hand hygiene, requires a total system change and is best served through an attack on multiple fronts including AHR at the point of care, HCW education, performance monitoring and feedback, reminders in the workplace, and culture change at organisational level (Pittet, Panesar, Wilson et al 2011).

3.7 Dress Code

A further addition to hand hygiene policy, initiated by the Department of Health, was the introduction of a bare below the elbows (BBE) dress code in trusts in England and Wales (Department of Health 2007b). This included a ban on long sleeves, wristwatches and jewellery with the aim of producing more effective hand and wrist cleansing and decreasing the bacterial transfer from cuffs (Johnson 2007). In one study Farrington, Rabindran, Crocker et al (2010) found that BBE made no difference to the quality of hand hygiene. While, it may improve wrist washing the clinical significance of this is uncertain. In a similar study Jeanes, Moore, Nicol et al (2010) found that wearing a wristwatch results in an increase in bacterial contamination of the wrist but does cause excess hand contamination unless the watch is manipulated. Farrington and colleagues concluded that there was no evidence that a BBE policy prevented HCAI.

This is a theme taken up by a number of commentators who argue that BBE is nothing more than a cheap sound bite that diverts attention away from the real underlying causes of HCAI (Magee 2008, Dehn 2008, Magos 2007). It has been argued that rather than hand hygiene initiatives hospitals need more space, more beds, more isolation rooms, more nurses and more cleaners, not targets, clipboards and a culture of blame (BMA news 2008). However, the nub of this, as with many aspects of hand hygiene knowledge and practice, is that despite the attempts made above, it is actually very difficult to measure the impact that dress code might have on the incidence of HCAI.

3.8 Measuring Compliance

In their systematic review of the literature Gould, Chudleigh, Drey et al (2007b) reported that attempts to measure hand hygiene performance were limited in scope, focussing on Critical Care Units, and were so poorly described that it was difficult to accept the findings as reliable or valid indicators of HCW performance. Indeed the WHO (2009) acknowledges that there is wide variation in compliance in different settings. In part this is due to health care institutions not having standardised criteria for establishing a compliance episode (Boyce 2008, Haas & Larsen 2007). Latterly there has been considerable work in their area. Basically there are four main methods for measuring hand hygiene performance.

- 1 Direct observation, this involves watching and recording the hand hygiene behaviour of a HCW.
- 2 Product measurement, which indirectly assesses compliance by measuring the amount of soap, AHR or paper towels that are used.
- 3 Surveys that gather information on HCW's perceptions, attitudes and practices related to hand hygiene
- 4 The use of technology through the use of wearable devices and intelligent computerised systems.

Each method has advantages and disadvantages (for a full review see the Joint Commission Report 2009). But direct observation is considered the gold standard (WHO 2009, The Joint Commission 2009, Haas & Larsen 2007) because as Boyce (2013: 95) alludes "it is still the only method currently available that can determine compliance with all 5 major indications for hand

hygiene, evaluate hand hygiene technique, and determine the frequency of hand hygiene before and after glove use”. Moreover, it can provide compliance rates by type of HCW and establish situations in which further education of health care personnel is required. Despite this, direct observation has a number of problems. First, it is expensive and labour intensive (Bittner 2007). Second, there are marked problems with inter-rater reliability (Gould et al 2007b, Haas & Larsen 2007). Boyce (2008) found that compliance rates were reported as 40% when undertaken by an infection control professional, but increased to greater than 80% when performed by a ward based professional. Third, the results are often an extrapolation of a small, unrepresentative sample (Van de Mortel & Murgo 2006).

A fourth problem is the selection bias that might contaminate or directly manipulate the data that is being selected. Moving from a contaminated body site to a clean body site during patient care is frequently unrecognised by health-care workers in their daily practices and often fails to be recorded in most studies on the epidemiology of hand hygiene compliance (Pittet, Allegranzi, Sax et al 2006). Similarly it is well documented that compliance will be enhanced following contact with body fluids (Pan et al 2008). Choosing what to record would thus possibly lead to higher compliance rates. There are also practical problems. It is highly dependent on when and where observations occur, which are influenced not only by the workload of the unit under observation but also by the physical structure of the unit itself. This problem could be overcome if the auditor closely shadowed the HCWs; however, this

would potentially infringe the patients' privacy creating a clear ethical dilemma (Gould, et al 2011).

The final point raises the particular problem of the Hawthorne effect. Observations may be overt (Earl, Jackson & Rickman 2001), covert (Rosenthal, McCormick, Guzman et al 2003) or in some cases the participants are deliberately misinformed (Whitby & McLaws 2004). How the Hawthorne effect works in relation to hand hygiene is contentious. Gould et al (2007) argue that this is the direct result of being observed. This is questioned by the authors of the Clean Your Hands Campaign who contend that individuals habituate to stimuli overtime, so the stimulus (presence of an observer) gradually has less impact on the response (handwashing compliance). As such Stone et al (2007a) believe that observation must be associated with immediate feedback. Nevertheless, Eckmanns, Behnke, Gastmeier et al (2006) demonstrated the power of the Hawthorne effect by employing overt and covert observations in simultaneous studies. Compliance was recorded as 45% in the overt group and 29% in the covert group.

All of the above could explain the variation in compliance rates. Following consultation with the National Patient Safety Agency, McAteer, Stone, Fuller et al (2008) developed a hand-high observation tool and an associated standard operating procedure. The tool was successfully evaluated from a feedback intervention trial and has been adopted by the Clean Your Hands Campaign. Although the tool is a welcome addition to hand hygiene, it reinforces the point that obtaining rigorous compliance data is extremely labour intensive and problematic.

Despite the difficulties of accruing accurate data, as a part of the greater openness and transparency that has infused the NHS, a large and growing amount of information pertaining to HCAI is in the public domain (Health Protection Agency 2009). This includes hand hygiene rates which trusts routinely display on their web sites and has become something of a standard bearer for the quality of infection control practice (Fletcher 2009). Notwithstanding the difficulties of measuring performance, poor compliance and implementing improvement programmes, the legitimacy of hand hygiene and the emphasis it receives returns to its efficacy of reducing HCAI. The complexity of this is well illustrated by a second evaluation of the Clean Your Hands Campaign that took place in 2012 (Stone et al 2012). On this occasion the study investigated an association between the procurement of AHR and soap with trends in selected HCAI. Using patient bed days as the denominator hand hygiene agents tripled in use from 21.8 ml to 59.8 ml, MRSA bacteraemia fell from 1.88 to 0.91 and *Clostridium difficile* 16.75 to 9.49. Stone and colleagues concluded that after adjustment there were strong independent associations between the use of soap and alcohol hand rub and a reduction of two particularly high profile HCAI. In other words they attributed the fall in MRSA and *Clostridium difficile* to improvements in hand hygiene.

However, offering an alternate view Edgeworth (2011) argues that while the enforcement of basic infection control practice, isolation and screening have been important in the steep decline of MRSA there are probably other contributing factors. One put forward by Lindsay, Budd, Whitney et al (2012) a group of microbiologists working in London, is that the fall has less to do with

improvements in hygiene and more to do with changes in antibiotic prescribing, particularly the reduction in use of ciprofloxacin. Lawes, Edwards, Lopez & Gould (2012) merely state that the reason why MRSA bacteraemia has seen a steep decline is poorly understood. In other words hand hygiene may have made a contribution to the reduction of MRSA but it is not possible to know by how much or to measure it.

3.9 Summary and Conclusion

This chapter has outlined the special place that hand hygiene holds in the specialism of infection prevention and control. Seemingly a *common sense* topic I have highlighted how much of the evidence based, whether this be the level of compliance, the reasons for poor performance, or how to improve practice is ambiguous or difficult to interpret. There is compelling evidence, supported by expert opinion, that pathogenic micro-organisms do colonise the hands of HCWs during clinical care, these are spread on to vulnerable patients and do go on to cause HCAI. However, the amount of HCAI that can be implicated through hand mediated cross infection and the possible reductions as a result of very high levels of hand hygiene compliance is difficult to predict. Some advocate the highest possible standards on the understanding there is little benefit to partial compliance. Others counter that hand hygiene may suffer from the law of diminishing returns.

Notwithstanding the merits of these respective arguments Norman Fairclough (2006) a leading writer in discourse analysis, argues that some ways of *meaning making* become dominant or mainstream in a particular order of discourse. Others he suggests become marginalised, or are seen as

oppositional, or *alternative*. Certain discourses, for example, the important role hand hygiene plays in reducing HCAI, then rule the universe of discourse. The truths that the dominant discourses establish can and often do seem *natural* or *normal* particularly in contrast to alternative truths (ibid). I will develop this point In Chapter Four of this study where I will outline the proposed methodology that will be used to explore how hand hygiene has been socially constructed as a simple measure to prevent HCAI and the impact that this has on practice.

Chapter Four

Methodology

4.1 Introduction

For any novice researcher embarking on a piece of primary research there is an eclectic mix of methodological tools to choose from. In what is a congested area of scholarly activity there are a plethora of textbooks and journal articles that extol the virtues and explicate the weaknesses of different approaches to research. For some this has become an intellectual battlefield where researchers contest philosophical positions (Tashakkori & Teddie 2003). However, as Baker (2006) points out all methods of research have associated problems and are limited in terms of what they can achieve. Therefore a good research design, broadly conceived, involves a clear focus on the research aims, the purpose of the study, the information that will most appropriately answer the specific research aims, and the strategies that are the most effective for obtaining it (Denzin & Lincoln 2008). This chapter will outline the research problem, the research aims and the methodology that will be used to investigate this. The methodology will be discussed and the methods of data collection will be outlined.

4.2 The Research Problem

As argued in Chapter One, despite the problems of an ageing society, an increased incidence of chronic disease, a greater use of invasive procedures, a higher throughput of patients, shorter turnaround times and increased occupancy rates; reducing the incidence of HCAI through mandatory surveillance, target setting, professional support, performance management and

legislation has become a health service priority. HCAI maybe a multi-factorial problem that requires a commitment from *board to ward* and a programme that promotes infection prevention and control as *everybody's business* (Department of Health 2003a), but this philosophy does little to relieve the notion of the non-compliant, troublesome HCW. Much of this discussion is centred on hand hygiene, examined in Chapter Three, as it is considered the first chapter and verse of the healthcare worker bible (Cantrell 2008).

The efficacy of hand hygiene as a strategy to prevent HCAI is complex, but the language is powerful to the point of being a polemic. Indeed some have called it a dogma (Silvestri et al 2005), a bandwagon (Woollard 2008) and a self-important merry go round (Dancer 2010b). As important as hand hygiene is, I would like to advance the notion that focussing on a simple, behavioural solution to a multifarious problem could be considered overtly political. That is foregrounding the responsibilities of the individual can work to draw attention away from the more difficult structural and system failures of the NHS. The aim of this study is to explore and interrogate language domains in relation to hand hygiene. In particular how these articulate the importance of the topic and engage the reader; how explicit and implicit meanings are conveyed by the words chosen; To better understand the power and social influence of key stakeholders; to reveal whether there is a habitually used pattern of representations associated with the hand hygiene and to hypothesise who benefits and who loses from this discourse and the consequence of this.

4.3 Philosophical Underpinnings

At a fundamental level all forms of research and inquiry develop from the human desire to understand and make sense of the world (McEvoy & Richards 2006). However, the researcher's choice of paradigm(s) and their accompanying ontological, epistemological and methodological assumptions may become influential guides as to how they think and act during the research process (Norton 1999). Ontology refers to the nature of being or existence; epistemology to the theories of knowledge and methodology to the research approaches that structure and rationalise epistemic concepts for investigatory purposes (Lipscombe 2008). Dew (2007) argues these three terms represent three distinct facets to knowledge, but are closely related as the principles or assumptions of an approach to a methodology is an outcome of our understanding of what the world is (ontology) and our understanding of what we can know about the world (epistemology). Nonetheless, the exact nature of the different philosophies, paradigms or worldviews can be difficult to pin down with different texts using different terminologies to advance similar ideas. Here, I will briefly contrast the doctrine of positivism with constructionism to make clear some key considerations that will inform this study.

In 2000 in their report to the Comptroller and Auditor General the National Audit Office made the following recommendation:-

‘Develop evidence based guidelines on the cost-effectiveness of intervention measures to reduce hospital acquired infection, and if necessary commission further research. The Department then needs to disseminate the results to NHS

trusts to ensure that they have the evidence based information needed to determine the best approach to reduce the extent of hospital acquired infection' (NAO 2009: 10).

Since then, if not before, infection prevention and control has been firmly rooted in a positivist paradigm that extols the virtues of measurement, truth, logic, absolute principles, and prediction (Bryman 2008). Positivism is seen as the traditional core of the evidence based movement and is associated with quantitative research as they share, a need for objectivity; prioritisation of observation; measurement and sensory data; development of general laws; theory testing; reductionism; isolating cause and effects; controlling variables; and testing hypothesis (Weaver & Olson 2006). For example, direct observation is considered the gold standard in compliance studies, because it is assumed that social phenomenon, like hand hygiene behaviour, confront us as external facts that we record by using our senses in an unbiased way. Moreover, it can take us to the truth of how and when people comply with policies. However, as discussed in Chapter Three hand hygiene studies that attempt to measure compliance or indeed other phenomenon such as the efficacy of hand hygiene, or interventions to improve performance, are hampered by methodological considerations. In 2009 the NAO concluded that changing behaviour was constrained by the lack of evidence of the impact of different intervention strategies.

All of which is not to suggest that the positivist paradigm has not had its successes in indicating compliance rates, identifying temporal relationships between hand hygiene and the incidence of HCAI or the impact of multi-modal

programmes on the behaviour of HCWs. But these results, and their conclusions, will always be offset by the limitations placed on researchers who undertake these types of studies, and what it is possible to know. It is here that an alternative paradigm, constructionism becomes influential in this study. Constructionism has its ontological roots in relativism which precludes the notion of an objective truth which, through inquiry processes, we receive or discover. Rather, it proposes that people act to construct truth(s), or make sense of our experiences in, and of, a complex world, relative to our interactions with that world and independent of any foundational reality (Bryman 2008). This naturally opens constructionism to a well-rehearsed criticism. If all things are merely social constructions, then constructionism itself is simply another discourse and cannot make claims to some privileged reality (Clapham 2009). Importantly however, I do not make such claims of superiority but merely suggest that there are different ways of examining what is a well-entrenched topic. In the WHO (2009) guidelines, for hand hygiene in health care settings, it is acknowledged that the recommendations come from a consensus of international experts. Putting to one side the idea that experts working in the field of infection control, and more specifically hand hygiene, may have their own ideological reasons for adding weight to the empirical findings, the essence of constructionism is that an individual's subjective meaning is not simply imprinted on them but formed through the historical and cultural norms that operate in their lives.

Hand hygiene is learnt from a young age, it is habitual, ubiquitous and something that draws opinion. The internet abounds with studies that are

located in public toilets and record whether people wash their hands after visiting the lavatory. In one follow up opinion piece Torrey (2012) claimed *some real eye-opening results*. Basically she compared the hand hygiene behaviour of the public after toileting with that of HCWs working in an intensive care unit. In the former 85% of adults wash their hands in public restrooms while in the latter it was 51%. The point of the piece was to bemoan the standards of care in hospitals. In essence the argument is a fallacious one as the two sets of circumstances are not comparable. Hand hygiene after visiting the toilet is a single event with a high degree of potential contamination. Whereas, working in intensive care consists of multiple low risk, social contacts.

An interesting aside is that surveys of the hands of healthy adults have demonstrated slightly higher bacterial colony counts when compared with healthcare workers (Banfield & Kerrb 2005), nonetheless, it demonstrates how some common sense topics have the ability to transcend technical, expert knowledge. When the WHO then go public and stress that hand hygiene is a simple, practical and cost-effective means of reducing HCAs and make a commitment to *galvanize* hand hygiene at the point of care (Kilpatrick 2009) it fits with the existing schema that the public may hold. The focus of this thesis is not what is indomitable about hand hygiene, but what is not, how people create accounts that bridge what we know to be true and what we believe to be so. It is for that reason that it is located within a constructionist paradigm. The focus will now turn to discourse how this plays an important part in the study and the methodology that will be used to collect and analyse the data.

4.4 Discourse

Attempting to answer the question *what is discourse* is a complex and contested area. Indeed van Dijk produced a two volume 700 page set (1997a, 1997b) attempting to address this very question (Philips & Hardy 2002). While some authors use the terms discourse and language interchangeably, it is important to make a clear distinction. Language refers to a set of abstract patterns and rules which operate simultaneously in what linguists call a system of systems. For example, phonology, is the system of sound, grammar refers to a set of structural rules that govern the composition of clauses, phrases, and words in any given natural language and semantics is devoted to the study of meaning. Discourse, however, works above the level of these sub systems and captures what happens when these language forms are played out in different social, political and cultural arenas (Simpson & Mayr 2009). In other words discourse concerns itself with what happens when language gets done.

A traditional realist model of discourse is that it is a neutral servant of people; a transparent medium that simply conveys from one person to another, the nature of the world, and people's thoughts, impressions and opinions (Gill 2007). In short the reason why hand hygiene is discussed and accentuated is because there is good empirical evidence to believe that it reduces HCAI. Conversely, an alternate view of discourse, supported by this thesis, is that discourse does more than this. Researchers who examine the interconnections between language and ideology build from the premise that patterns of discourse are framed in webs of belief, opinions and interests. A text's linguistic structure functions as discourse, to privilege certain ideological positions while

downplaying others. As well as reflecting the world as it is, discourse also constructs the world by building objects, worlds, minds and social relations. As accounts of hand hygiene begin to populate a health community certain potent social realities become efficacious in future events and other positions can be stifled and marginalised.

Developing this idea the thoughts of van Dijk (2001), a leading writer in language studies, are particularly apposite. If controlling discourse is a major form of power for organisations, controlling people's minds is another way to reproduce dominance and hegemony. He contends that *mind control* involves more than just acquiring beliefs about the world through discourse and communication. van Dijk argues, first, recipients tend to accept beliefs, knowledge, and opinions from what they see as authoritative, trustworthy, or credible sources, such as scholars, experts, professionals, or a reliable media. Second, in certain situations participants are obliged to be recipients of a discourse, because an institution or organisation determines it so. Third, in many situations there are no media or public discourses that provide information from which alternative beliefs may be formed. Fourth and closely related to the previous points, recipients may not have the knowledge and beliefs needed to challenge the discourses or information they are exposed to. These core principles will be influential and returned to throughout this study.

4.5 Discourse Analysis

Discourse analysis is an umbrella term for a range of methodological approaches that analyse the use and functions of talk and text within social interactions. It is an increasingly popular approach to research and has been

adopted across a range of social science disciplines including public health, psychology, sociology, linguistics, education and communication studies (Wiggins 2009). There are many competing traditions (and combinations of traditions) within discourse analysis that may be utilised according to the epistemological positioning of the researcher and their research aims (Morgan 2010). Philips & Hardy (2002) suggest that approaches to discourse analysis can be broadly categorised along two theoretical dimensions.

The first concerns the relative importance of text versus context in the field and the second dimension concerns the degree to which power dynamics or social construction form the focus of the research. Power is a complex, dynamic concept that is difficult to define. At its broadest it can be understood as the “control or influence over the behaviour of other people with or without their consent” (Mullins 2007: 688). Centered on a constructionist paradigm a key aim of this study is to better understand the power and social influence of stakeholders in the discourse. Importantly power is not only signaled by grammatical forms within a text, but by a person’s control of a social occasion. Apposite to this study is the idea that symbolic elites can take charge of public discourses and play a special role in the reproduction of dominant knowledge and ideologies in society (van Dijk 2005). In addition, power is a feature of organisations and is often the underlying reality behind the decision making process. Again relevant to this study is the notion that power is central to the framework of order and is a system of command through which the work and activities of an organisation are carried out; for example, the implementation of policies, rules and procedures (Mullins 2007:688).

4.6 Critical Discourse Analysis

Possibly the most comprehensive attempt to develop a theory of the interconnectedness of discourse, power, ideology and social structure can be found in the large and loosely grouped body of work collectively referred to as Critical Discourse Analysis (CDA) (Simpson & Mayr 2009). Although mainly associated with the work of Norman Fairclough, Ruth Wodak, and Teun van Dijk, there is no single unitary version of CDA but a range a critical approaches which have been classified in this way. Despite its flexibility a common theme running through CDA is that it is less concerned with the individual and the meaning of their story and more on how language has been used to persuade, negotiate, influence and represent the world and ourselves (Traynor 2006). Of particular interest is the taken for granted and unquestioned ways in which language is used to reproduce and transform dominant ideas. In their seminal paper Fairclough & Wodak (1997: 258) name eight principles that govern CDA.

- 1 CDA addresses social problems
- 2 Power relations are discursive
- 3 Discourse constitutes society and culture
- 4 Discourse does ideological work
- 5 Discourse is historical
- 6 The link between text and society is mediated
- 7 Discourse analysis is interpretative and explanatory
- 8 Discourse is a form of social action

To discuss these principles too fully at this stage would run the risk of predicting or pre-empting the results of the study. But suffice to say HCAI is a medical problem that has become a social problem. Alarmist discourse around the topics of superbugs and dirty hospitals have led to, at times, irrational fears as patients report they are scared to have surgery because of the risk of acquiring an infection (Boyce et al 2009). Similarly, the president of the Patients Association, Claire Rayner, revealed how she privately nursed her injured husband at home, rather than going into an NHS hospital because of the risk of catching MRSA. HCAI is not new but the context in which it happens, an NHS operating a clinical governance agenda, is. The efficacy of hand hygiene and compliance are difficult to determine but the discourse is powerful. Hand hygiene can be loosely separated along the lines of powerful elites who shape policy and those who comply with it. There is some indication that policy is unworkable but there is an ideology around compliance levels and what is acceptable behaviour.

The genres that will be used in this study, academia, media and policy draw from each other, for example, authority is given to policy through the citation of academic references. Academia shapes policy and also uses it as reference point for its studies. Journalists enhance the credibility of their pieces through the strategic use of policy and academia. Organisations have orders of hand hygiene discourse and this is reflected in policy, audit, annual reports and web sites. Ultimately the aim of this study is to identify how embedded and entrenched these discourses are, examine their power patterns and the impact that this may have on practice.

However, CDA is not without its critics. Within this approach the analyst is given considerable freedom to choose their own texts and because there is no homogenous version of CDA, the researcher can use any number of different analytical techniques to study these, and in any order (Baker & Ellece 2011). This freedom in combination with the interpretivist nature of the analysis can open a researcher to the accusation of bias. This point is picked up by Cheek (2004) who argues that during the analysis the researcher has great power to impose meaning on another person's text. Basically investigators can *cherry pick* their observations to bear out their own preconceptions (Orpin 2005). A further problem with CDA it is that it is commonly seen as a qualitative method and this typically calls for a close, reading of a small dataset. For example, applying discourse analysis to policy documents, Pattison (2006) examined four key Department of Health papers in relation to end of life care; and Horsfall and Cleary (2000) explored one nine page observational nursing policy. The size, selection and biased reading can combine to provide an account that does not necessarily represent the variety of language under investigation (Paltridge 2006).

Researchers from CDA have answered these criticisms in two ways, first through the importance of reflexivity. Reflexivity is the continuous process of reflection by the researcher on their values, preconceptions and behaviours and how these may impact on the interpretation of the data (Parahoo 2006). The notion of the neutral researcher is widely contested as it can be difficult to stand back and examine your own preconceptions particularly if you are not always aware of what they are. Nevertheless, to be considered trustworthy the

research should uncover the researcher's own interests and background and how these have influenced the research strategies and procedures (Holloway & Freshwater 2007). From an early stage I understood that this could be a problem in my study and have attempted to be transparent in Chapter One as to my background and interests. The second answer is perhaps a more pragmatic approach to eradicating bias. And that is that many of the weaknesses of CDA can be addressed if the researcher builds a much larger and varied data set and subject this to additional empirical testing (Stubbs 2006).

4.7 Corpus Linguistics

Although relatively new to the field of healthcare research corpus linguistics is one of the fastest growing methodologies in contemporary linguistics (Gries 2009, Anderson 2008). It is not a single method, rather it utilises a collection of different methods which are related by the fact that they use computers to analyze large collections of electronically stored, naturally occurring texts (Baker 2006). The strength of corpus linguistics rests with the idea that enormous amounts of data can be used as computers are tireless tools that instantaneously process and manipulate enormous amounts of textual data by searching, selecting, sorting and formatting (McEnery, Xiao & Tono 2006). The software from any number of corpus tools will enable the systematic identification of keywords, concordances and collocates without recourse to the author's intentions, and recurrent patterns not recognized by manual analysis can be identified. This can produce empirical evidence for how the object of discourse has been formed (Koteyko 2006). The text of interest can then be

compared with a larger reference corpus to elucidate stylistic, grammatical or other characteristics unique to that body of material.

With the advancement of corpus linguistics research in the past few decades, there has been a proliferation of corpus software to choose from (Römer & Wulff 2010). Some of these are commercial and require a licence, for example, WordSmith Tools, Wmatrix, MonoConc Pro and others are free of charge, TextSTAT, Compleat Lexical Tutor, and AntConc. Diniz (2005) completed a comparative review of TextSTAT, Compleat Lexical Tutor, and AntConc and reported that all three programs were user friendly, straightforward and had the tools to perform a standard text analysis. Each had their own nuances and associated limitations but Diniz concluded that the best program would depend on the needs of the researcher. For my part I purchased Wordsmith, took Wmatrix on a one month trial and downloaded Antconc free of charge. I appraised the three tools and found that Antconc was the most intuitive. In addition Professor Laurence Anthony, who developed the antconc software, was extremely approachable through e-mail correspondence. Supporting this were a number of particularly helpful online guides and video tutorials accessed from @ http://www.antlab.sci.waseda.ac.jp/antconc_index.html.

Despite the obvious advantages of computer software, there are also a number of criticisms of corpus linguistics. One is that they lead to an atomized, bottom up investigation of language use (Baker, Gabrielatos Khosravini et al 2008, Flowerdew 2004). Another is that the corpus based studies do not take account of the contextual aspects of texts. That is, it is a method that privileges the surface of a text, often discarding what is *hidden beneath* (Koteyko 2006). Part

of the problem here is that corpus linguistics tends to be conceptualised as a quantitative method of analysis that foregrounds empiricism at the expense of interpretation. This is only partially correct. While computers do make it possible to exploit a wide range of sophisticated statistical techniques and accomplish laborious, mechanical tasks with a greater degree of accuracy, human analysts are required to make decisions in relation to what texts should go into the corpus and what needs to be analysed. They then need to determine which corpus based processes are to be applied to the data, and what the cut off points of statistical significance should be. Despite this, the empirical/interpretive dichotomy is omnipresent in language studies, as with other types of research. The conundrum was neatly summed up by Alan Partington, a leading writer in mixed method, corpus assisted studies. In his piece titled the armchair and the machine Partington (2008: 181) puts it like this:-

‘There are two types of linguist the armchair, introspective linguist who sits in a deep soft comfortable armchair, with his eyes closed and his hands clasped behind his head. Once in a while he opens his eyes, sits up abruptly shouting, Wow, what a neat fact!, grabs his pencil, and writes something down. Then he paces around for a few hours in the excitement of having come still closer to knowing what language is really like. Conversely the observational linguist has all the primary facts that he needs, in the form of approximately one zillion running words, and he sees his job as that of deriving secondary facts from his primary facts. At the moment he is busy determining the relative

frequencies of the eleven parts of speech as the first word of a sentence. These two don't speak to each other very often, but when they do the corpus linguist says to the armchair linguist, 'Why should I think that what you tell me is true?', and the armchair linguist says to the corpus linguist, 'Why should I think that what you tell me is interesting?'

4.8 Mixed Methods Studies

Partington has identified the problems associated with using CDA and corpus linguistics in isolation but argues this can be managed by fusing the two together. Conflating epistemologies can of course cause considerable controversy, with McEvoy & Richards (2006) calling it a methodological minefield. Despite this Mautner (2009) opines that none of the guiding principles of CDA are inherently inimical to a corpus linguistic approach. Baker (2006) agrees and suggests CDA allows for a flexible approach and can adopt any method as long as it realises the aim of CDA inspired research. That is, how do more powerful groups control public discourse, how does such discourse control the mind and action of less powerful groups and what are the consequences of such control. Similarly corpus linguistics is not a single method, but a collection of methods, united by the fact that they are performed on collections of electronically stored, naturally occurring texts (Baker et al 2008). Because of their versatility and the perceived weakness of using either in isolation, fusing corpus linguistics and CDA provides numerous advantages: namely, "larger, more diverse and representative data types; verifiable results; quantitative and empirically based information about frequency and typicality;

easier computerised coding, retrieval and analysis; and ‘bolder, fresher, data-driven observations and hypotheses about language

Gabrielatos has compiled an ongoing list of publications that relate to the use of corpora and corpus linguistic techniques in discourse studies and reports an increasing number of studies are adopting this approach. Already in this study I have demonstrated how Crawford et al (2008) fused quantitative and qualitative approaches to language studies by examining “The ‘moral careers’ of microbes and the rise of the matrons: An analysis of UK national press coverage of methicillin-resistant *Staphylococcus aureus*”. Similarly Koteyko et al (2008) took a mixed methods approach to “Not rocket science or No silver bullet? media and Government Discourses about MRSA and Cleanliness”. On a related HCAI topic Koteyko & Carter (2008) examine transformational leadership within infection prevention and control. Corpus tools were used to generate keywords and concordance lines and this was followed by a coding and interpretation of data more associated with discourse analysis. The authors reported that matrons appear to dissociate themselves from the role of an empowered manager who has control over human and financial resources to resolve problems in infection control.

Widening the field of health and social care Mauntner (2007) focussed on a discourse of ageing by applying methods of corpus linguistics within a sociolinguistic framework. Accessing a large, computerised corpus, Mautner discovered that the word elderly was less a marker of chronological age but more associated with its social consequences; care, disability, and vulnerability. Performing a secondary analysis of qualitative data Goberman-

Hill, French, Dieppe & Hawker (2009) accomplished a comparative keyword analysis (CKA) on how men and women experienced osteoarthritis of the hip and knee. CKA is an approach pioneered by Clive Searle and involves comparing two bodies of words or texts. This differs from a standard quantitative content analysis that examines the frequency of words within a single body of data. Nevertheless the meshing of corpus linguistics and discourse analysis is similar as words with keyness were identified and an examination of concordance lines enabled the researchers to categorise the precise ways in which the keywords were being used. The results suggested that all participants described concerns with their bodies, activity limitations, and pain management, but details of their concerns differed. People with knee pain focused on stairs, weight and stiffness, while those with hip pain were concerned with sidedness and groin pain. Both men and women discussed activity and interaction with spouses. However, men used more factual words, especially relating to enumeration, while women offered more explanation without prompting from others.

Searle & Charteris-Black (2008a, 2008b) contributed to the fields of language, gender, and illness by comparing, amongst other things, men's experience of prostate cancer with women's of breast cancer. It was found that men's performance of conventional masculinity is threatened by experience of illness. In particular high social class men would adopt what was once termed "women's language" to maintain their social distinction and authority. In the same study lower class women demonstrated an intensification of pre-existing informal family support and a support group culture (Seale & Charteris-Black

(2008a). In a second study by the same authors older men with cancer demonstrated a greater involvement with medicine as an expert system. The authors concluded that this stemmed from their social confidence when interacting with doctors and their interest in treating their illness as a “problem” to be fixed by medico-scientific solutions (Seale & Charteris Black 2008b). These studies offer some examples of how mixed methods approaches to applied linguistics can contribute to language-related concerns in various fields (Crawford et al 2008). In this study I intend to adopt this approach by developing a number of specialist corpora that will then be analysed using the quantitative techniques of corpus linguistics with a more qualitative approach based in the school of CDA. I will now introduce the corpora, explain how they were built and how the analysis will be conducted.

4.9 Introduction to Corpora

The term corpus simply refers to a body of electronically encoded text (Baker 2006). However, typically a corpus that is used for a corpus assisted study will have four features:-

It is empirical, analysing the actual patterns of use in natural texts

It utilises a large and principled collection of natural texts

It makes extensive use of computers, using both automatic and interactive techniques.

It depends on both quantitative and qualitative techniques.

(Reppen & Simpson-Viach 2010: 89).

Broadly speaking there are two types of corpora: *general* and *specialised*.

General corpora are pre-existing and tend to be very large; the British National

Corpus contains approximately 100 million words. A general corpus can be useful if the aim of the research is to provide an overall description of a language or language variety (McEnery et al 2006). However, they are unhelpful if the researcher is interested in a particular genre of language, like the discourse surrounding the topic of hand hygiene. In contrast specialist corpora tend to be domain (medicine or law) or genre (newspaper text or academic prose) specific (McEnery et al 2006). If the researcher is interested in the latter, which is the case in this study, and the corpus does not already exist, they will have to build their own. Baker (2006) suggests that there is no ideal size for a corpus but this is dependent on the needs and purpose of the investigation, and often, pragmatic factors such as how easily the data can be obtained. In addition, the genres that were selected for this study, academia, newspapers and policy documents were not pre-determined but evolved and were refined within the work.

Nevertheless, the first commitment was to policy discourse, in particular the hand hygiene policies of trusts in England. These are important as they represent the end point at which discourse is translated into the organised behaviour of staff. Interviews with infection control nurses were considered, however, the discourse of individuals and how they wrestle with the tensions of championing infection control while observing the structural failings of the NHS was rejected as it was seen as a study in its own right. A corpus from Department of Health material was also contemplated, but hand hygiene is thinly spread in a number of documents and was not thought to offer a requisite body of material to analyse. In the event two more genres were added to

policy; academia and the media. Academia and Newspapers were selected as both add legitimacy to hand hygiene discourse but in different ways. Academia can underpin the rhetoric with evidence and the newspaper press can be inclusive as it speaks directly to the public. I will now go on to describe how the Corpora were built.

4.10 Building the Corpus

4.10.1 Policy

An initial search established that there were 370 Acute, Primary Care and Mental Health Trusts in England (NHS Choices web site accessed October 2009). Under controls assurance directives all NHS trusts are required to have up to date policies and procedures. The 2000 NAO report stated that 91% of trusts had a hand hygiene policy with the recommendation that the remaining 9% should do so. An assumption was made that most if not all trusts would now hold a policy and the initial aim was to obtain 100% of these policies. At this point this was not tied to the specific research aims and was arbitrary in as much as it was unclear at this stage whether all trusts had a policy, whether they would share this with me, how large they were and whether this would translate into a word count that would be satisfactory for a robust analysis. However, the rationale was that the greater number obtained would circumvent any potential criticisms around representation.

There is a move towards greater openness and transparency across the NHS and trusts routinely display a wealth of infection control information on their websites (Fletcher 2009). In what proved to be a painstaking process all 370 trust websites were entered and links were followed to try to locate the

organisation's hand hygiene policy. 124 (33%) of policies were secured in this way. Further policies were then obtained through the Freedom of Information Act (2000) which came into force in 2005. Under part 1 of the Act anyone may make a request for information to any public authority providing it is in writing, states the name and address of the enquirer and describes the information that is requested. Requests can also be made electronically so long as they are legible and are capable of being used for subsequent reference. The authority has the duty to confirm or deny whether it holds the information, and if it does, supply it within 20 working days from the receipt of the request. There are a number of exceptions which are made explicit within the act. FOI was intended to overturn the strict information control that has long been a feature of British central government (Worthy 2008).

The request can be made directly to the organisation by following FOI links or through the charity WhatDoTheyKnow.com. If the request is made through an intermediary the request and response are published on the internet. Between the 22nd October 2009 and the 14th January 2010, 262 FOI requests were made by me; 158 through WhatDoTheyKnow.com and 104 direct to the Trust. It later transpired that although there were 370 trusts there were 360 policies as two PCT's were commissioning only and a small number, mostly PCT's and mental health trusts shared policies. 100% of the available hand hygiene policies were secured. 87% of trusts replied within 20 days and 93% within 30 days. The shortest time was 14 minutes and the longest was 52 days. The mean was 9 days and the mode was 1 day.

4.10.2 Media

LexisNexis UK is a comprehensive newspaper database that provides full text access to all UK national newspapers, plus regional international news providers and a number of trade journals and magazines. It is updated daily and offers an impressive coverage with approximately 12,000 publications. Most titles have a twenty year archive. LexisNexis employs a Boolean operator that allows the researcher to combine words and phrases using the words AND, OR, NOT and NEAR, to limit, widen, or define a search. There are a number of options through which the node word(s) can be sought:-

- Anywhere: this is a broad search for anywhere in the text
- In the Headline: in the title of the news article
- Company: in the company name field
- In the Indexing: within the Index Terms of a document
- Major Mentions: in the headline, lead paragraph or indexing
- 3 or More Mentions: finds articles where the word or phrase at least three times.

An ideal corpus for this study would be one that spanned a number of years, included a wide range of titles and would be amenable to quantitative and qualitative examination. Thus, the time frame selected was ten years from 2000–2010. The rationale for this was threefold. First the NAO report in 2000 is generally seen as an important landmark in infection control in the UK. Second media exposure to HCAI increased dramatically from 2000 as the topic

became increasingly politicised (Chan et al 2010, Koteyko et al 2008, Washer & Joffe 2006). Third the time frame would offer a substantial data set that could be sensitive to how hand hygiene reports change, and/or become more salient overtime. The search was restricted to all *UK National Media* as this would achieve a large and varied readership. Five search terms were developed and each was cross referenced with *and hospital* (Table 4.1). The addition of the word *hospital* was for two reasons. Primarily because the intended focus is the media’s representation of hand hygiene in NHS hospitals. Secondly without the addition of this keyword the search terms were too broad and achieved too many results.

Table 4.1: Search Terms for Media Section

‘Hand Hygiene’	Or
‘Hand Washing’	Or
‘Handwashing’	Or
‘Wash Hands’	Or
‘Washing Hands’	And
‘Hospital’	

As the Boolean operator of LexisNexis offers a number of options when conducting a search, a large number were considered and rejected. For example, when the node word was restricted to *in the headline*, it resulted in only 19 articles and this was considered too small for the studies purpose. At the other end of the spectrum when the node words were sort *anywhere* in the text this resulted in 2,398 hits. While this would have provided a good body of material for quantitative evaluation, the corpus would be too large to analyse qualitatively, and more importantly many of the texts would have a fleeting or

cursory focus on the node words. That is, they included hand hygiene or equivalent within a broader discussion of HCAI. A third option, and the one selected for this study, was to search for the keywords as *major mentions*. This resulted in 235 articles that fulfilled the studies criteria. It was felt that a corpus of this size was small enough to code and analyse qualitatively but large enough to accurately reflect how the media represents the topic of hand hygiene.

4.10.3 Academic

Hand hygiene is a topic that has provoked a prolific research agenda, culminating in the production of the WHO guidelines (2009) which is the most comprehensive and detailed document produced to date (Cookson, Mathai, Allegranzi et al 2009). The WHO guideline has 262 pages and includes 1168 references. Accordingly hand hygiene research is a heterogeneous body of work that is drawn from the hard disciplines of laboratory experiments to the softer social sciences of clinical practice. Within practice, observational studies have been awarded the premium of the gold standard (WHO 2009, Joint Commission 2009) as they are the only method capable of measuring what a HCW actually does. Because this study is particularly focussed on the discourse that surrounds compliance of actual behaviour a corpus based on observational research studies was seen as the most fitting as it would fulfil the following criteria:

- Deliver a comprehensive data set from which generalisations could be made
- Represent a homogenous strand of material that would enable comparison and analysis
- Identify ideological positions concerning the compliance of HCWs and the utility of the policies being observed.

To capture a corpus of observational research studies the following inclusion and exclusion criteria was set:-

- A date of 2000 – 2010. This is consistent with the Media Corpus
- The study should evaluate hand hygiene behaviour through direct observation
- Completed in a health care institution
- Written in English and completed in a broadly comparable to that of the UK.

The initial search was useful for two reasons. Firstly it allowed an overview of where, when and by whom compliance studies were published. Secondly it enabled the construction of the corpus. The search was performed in a manner similar to that of the media corpus by generating keywords and entering them into the Boolean operator of the Cumulative Index of Nursing and Allied Health Professionals database. *CINAHL* is the world's most comprehensive source of full text articles for nursing & allied health journals, providing

indexing for more than 3,000 journals from the fields of nursing and allied health. It offers complete coverage of English language nursing journals and publications from the National League for Nursing and the American Nurses' Association and covers nursing, biomedicine, health sciences librarianship, alternative/complementary medicine, consumer health and 17 allied health disciplines. Although this did not produce an exhaustive group of studies, this was not the intention of the corpus. This was not a systematic review whose purpose was to assess the reliability and validity of the studies in question, rather it was to acquire a representative body of work that would be amenable to a qualitative and quantitative examination of its discourse. In the first trawl 80 studies were identified. After a brief initial preliminary read, this was reduced to 30. In doing this, as far as possible it was assured, that the remaining 30 was a good representation of the initial 80. Only one primary author, Pittet, was used more than once and this was because of his standing and influence within the genre, there was both representation in terms of the year published and the journal the manuscript was published in.

4.11 The Results of the Search

Once all of the documents had been checked and extraneous detail removed, they were converted to a text format so that they would be machine readable. At this point the definitive sizes of the corpus were revealed (Table 4.2). Using the estimations of Flowerdew (2004) that 1,000,000 words is substantial and 250,000 is small, I had obtained one substantial corpus and two that were very small. At this stage one option was to complete a second search of the newspaper and academic literature and try to acquire a corpus with a higher

word count. However, this was unlikely to achieve anything comparable to 1,000,000 million words. Moreover, both corpora already included 10 years of representative material containing around 100,000 words. Indeed seeing 100,000 words as a compatible size, and to facilitate a qualitative analysis of the policy corpus, I divided this into 10 smaller sub corpora (Table 4.3). To ensure consistency each sub sample included large, medium and small policies; acute, community and mental health trusts, as well as policies from diverse geographical locations. The latter was important because it was possible that adjoining trusts may share the same policy. The aim was for each sample to broadly represent the large corpus.

When completed a comparative keyword analysis was performed on each sample by testing them against each other for the frequency of five keywords; *policy, must, should, audit and compliance*. These words were selected as they were indicative of important indicators as the study progressed. So Sample 1 was tested against Sample 2, Sample 2 against Sample 3 and so forth. In effect each sample was tested against 2 other samples. The exercise demonstrated that the samples were remarkably similar suggesting, in the case of the policy corpus, once a certain threshold had been met there was little advantage increasing the word count. The same logic was used to infer that the academic and newspaper corpus already offered substantial, representative samples.

Table 4.2: Size of Corpora

Corpus	Word Count
Policy	1,001,863
Media	108,269
Academia	91,364

Table 4.3: Samples of Policy Corpus

Sample	Number	Word Count
Sample 1	36	101,369
Sample 2	36	100,734
Sample 3	36	100,588
Sample 4	36	102,377
Sample 5	36	100,861
Sample 6	36	100,391
Sample 7	36	100,676
Sample 8	36	101,717
Sample 9	36	101,419
Sample 10	35	96,994

4.12 Analysing the Corpus

In her review of corpus studies Taylor (2008) found that they often lacked clarity in relation to their methodological framework, or indeed the way they blended qualitative and quantitative components together. However, she did find that writers would typically align themselves with different approaches and would use titles like corpus based, corpus driven or corpus assisted to present their work. Tognini-Bonelli (2001) has made a distinction between the first two. A corpus based study, she argues, uses the corpus as a source of examples to check researcher intuition. Whereas corpus driven investigations adopt a more inductive process whereby the corpus itself is the data and the patterns in it are noted as a way of expressing regularities and exceptions in language. The first approach illustrates the ‘theory then research approach’, or deductive reasoning and the second the research then theory approach.

However, the author does go on to acknowledge that there is no such a thing as pure induction (ibid: 85), and intuition inevitably plays a part in any kind of research, from the selection of the phenomenon to be investigated to the interpretation of the results.

A third term, Corpus Assisted Discourse Studies (CADS) has been coined by the previously discussed Alan Partington. CADS tend to be noted for a methodological eclecticism that allows the researcher to shunt between quantitative and qualitative analysis in a flexible way (Mautner 2010, Jucker, Schreier & Hundt 2009). Therefore as far as the distinctions between corpus based, corpus driven and corpus assisted are useful or meaningful (Gabrielatos 2014), CADS is the preferred term for this study. As well as their flexibility CADS tend to take a critical slant to data analysis that places great importance on providing explanations for findings that take into account contextual information regarding the production and reception of texts (Baker & Ellece 2011). This fits well with this study and Fairclough's overarching three dimensional framework which will be discussed shortly.

Although there may be little consensus regarding how an analysis should blend qualitative and quantitative elements of analysis, or where they should start, Adolphs, Brown, Carter et al (2004) proposed two options. One is to start with the techniques of corpus linguistics to provide a preliminary *map* of the corpus, identify quantitative indicators, like word frequencies, and then use these as entry points into the data, that can then be pursued through qualitative examination. A second way is to begin with a qualitative reading of a sample of texts, and then follow up ideas with the assistance of computer software to

make generalisations. In this study I began by reading the academic corpus, the media corpus and a sample of the policy corpus. This was manageable and allowed me to familiarise myself with the material and form an initial intuitive impression of its content. According to Flowerdew (2004) this type of preliminary work is invaluable as it allows the compiler of the corpus to act as a kind of mediating ethnographic specialist.

From there I adopted a well-established inductive procedure from Corpus Linguistics which identified keywords in the corpus through the assistance of antconc software. The lists were stripped of function words. Function words are the words that are used to make sentences grammatically correct but seldom provide important information. Keyword tables were produced for each corpus and ordered through the strength of the log-likelihood. Scott & Tribble (2006: 108) suggest that this allows the aboutness of the study to "float to the surface as a result of statistical processing". It also provided an entry point for my analysis. From there concordance lines were generated for selected high and medium low frequency words to explore their contexts in use. Each corpus provided its own challenges and required some flexibility and to a point its own nuanced approach. For example, in the academic corpus separate word lists were produced for introduction and discussion section and these were examined separately. In the media corpus the headlines had their own qualitative examination. In policy the analysis was enhanced by breaking the content down into some key themes. The rationale for these decisions will be provided in the respective chapters.

4.13 Norman Fairclough's Analytical Model

To give additional shape to the analysis, I drew heavily on the framework espoused by Norman Fairclough (1995, 2003). Fairclough is one of the main protagonists of the CDA method and his three tiered model is heavily represented in the literature, is accessible, and fits well with an analysis of policy related issues in health care (Richardson 2006, Smith 2007). The model proposes that there are three dimensions to a discursive event; a *text* (like the ones in this study), *discourse practice* (concerning the production and consumption of the text) and *sociocultural practice* (the social and cultural structures which give rise to the communicative event). This elucidates three components; description, interpretation and explanation. The linguistic properties of texts can be described, the relationship between the productive and interpretative processes of discursive practice and the texts interpreted, and the relationship between discursive practice and social practice explained (Fairclough, 1995). This provides a compelling and systematic method for exploring the relationship between a text and the social context in which it operates. How these components relate to the current study will be briefly outlined.

4.13.1 Text

The *computer* software used in this study will enable a rich textual analysis of the patterns and frequencies of specific words and provide a useful starting point for the analysis. Words carry connoted and denoted meanings; if we accept the premise that everything present in a text comes from a choice, the words used in this study, and those that could be, but are not, can provide an

understanding of the values and judgements of the writers. Moreover, examining the key word in context will allow an examination of what heads the sentence, so what is it about; who does what to whom, who has the authority and power to act and what agents are erased or see their roles diminished (Paltridge 2006).

However, the strength of Fairclough's model is that it does not analyse solely at a textual level. For example, a content analysis would assume that if a word is used 20 times this is significant. But how it is used is equally important. In relation to hand hygiene the word *basic* could refer to the equipment required to perform hand hygiene such as water, soap a sink and towels. Alternately it could be a more ideological statement about how the writer portrays the activity. The word *discipline* may only be used once, but that single occurrence maybe telling in terms of the meaning it brings to the text. An interpretation of how the texts are produced and consumed and an explanation of how they are inextricably linked to their context will add to the depth of the study.

4.13.2 Discursive Practice

Discursive practice refers to the various aspects of text production and consumption (Fairclough 1992). In short, the analyst should consider how a document is created, what rules govern their language, how they are read and who reads them. The concept of Intertextuality is central to this. The idea is that texts are not produced or consumed in isolation, but form part of a web of existing material on the same subject. In essence *new* texts incorporate, reformulate, re-interpret or re-read previous material (Bloomaert 1999). As such an enquiry needs to consider the impact of this existing web on their

results. A second point is the authors of the texts in this study have necessarily encoded their documents with meaning that work to shape the readers understanding of an event in one way or another. Readers for their part may accept this meaning, misinterpret the manifest content of a given text, or have their own perspectives, agendas and background knowledge that resist the encoded message.

This idea of encoding and decoding is made more complex by the assertion that people tend to trust and believe in the testimony of those in authority thus extending notions of hegemony and power (van Dijk 2001). An additional thought worthy of attention relates to the production and consumption of text as a dialectical relationship. As stated earlier writers act upon their texts by choosing topics, methods, and words that represent their *stories*. But texts act back by requiring the writers to observe the historical and socially generated conventions that dictate the form, content and consumption of the product (Smith 2007). For example, the research article, policy documents and newspaper pieces all have preferred formats and rules and the producer is at the behest of its editorial control.

4.13.3 Social Practice

The social practice dimension of Fairclough's model refers back to the social context in which the text is produced and asks questions like what are the social and cultural *goings on* which the communicative event is a part of? It deals with the broader issues that are important for a social analysis, such as the power relations and ideological struggles that discourses produce, challenge or transform in some way (Simpson & Mayr 2010). The reduction of HCAI has

been a health service priority in a state operated system where historically professionals have had considerable clinical freedom and where their performance was seldom actively measured or managed (Walshe 2009). Walshe argues that over the past two decades the position has shifted but become more complex. On the one hand government seems to have placed itself at arm's length from its own health care system. But at the same time it has increased regulation and provided organisations with the mechanisms to achieve policy goals by employing and then investing considerable power in a number of independent, autonomous bodies (ibid). The priority that has been afforded to reducing HCAI alongside a climate of regulation, described in Chapter One, is likely to have a strong bearing on why the texts were created and how they are used and received. This needs to be examined as an integral part of the overall text (Smith 2007).

A central tenet of CDA concerns how discourse relates to and is implicated in the reproduction of social relations, particularly unequal, iniquitous and discriminatory power relations. Power is a theme that reverberates throughout Fairclough's model and in this dimension he borrows from Gramsci's concept of hegemony. Hegemony is not simply about the domination of subordinate groups but how these groups are integrated through their consent to the moral, political and cultural values of the dominant group (Simpson & Mayr 2010). Ultimately the question here is what impact will these texts have on the social relations between groups and will it further inequalities or break them down.

4.14 Summary and Conclusion

As Infection Prevention and Control and reductions in HCAI have become a health service priority, there has been a concomitant interest in the production of evidence based guidelines. Hand hygiene in particular has spawned a prolific research agenda. This is firmly rooted in a positivist paradigm that privileges attempts to measure behaviour, or the cause and effect of hand hygiene, in a reductionist, unbiased and objective way. This body of work has brought important insights into hand hygiene compliance but is limited in what it can achieve because of methodological constraints. Therefore how the discipline builds on its empirical findings through discourse is highly relevant to how *truth* unfolds.

This Chapter has revisited the research aims and argued why an exploration of hand hygiene discourse sits within a constructionist paradigm. A fusion of Critical Discourse Analysis and Corpus Linguistics has been advanced as the preferred methodological approach. This synergy facilitates an examination of how language is used to persuade, negotiate, and influence the world, but does this across a large body of texts with the assistance of computer software. Three sources of data have been identified, academia, the newspaper media and hospital policy makers. After the presentation of data it will be argued that each play an important part in how ideas of hand hygiene and its efficacy are reproduced and transformed. I have described how the three corpora were built and how these will provide a coherent, representative sample. The next Chapter will introduce the first of these datasets, the discourse of the academic community.

Chapter Five

Discourses from the Academy

5.1 Introduction

Academic discourse, broadly conceived, refers to the ways academics think and use language within the academy. The significance of academic prose rests with the idea that complex social activities like delivering education, disseminating ideas, constructing knowledge and verifying learning, are accomplished through language (Hyland 2009). As research into academic discourse has gained momentum, it has begun to lose its traditional tag as an objective, faceless and impersonal form of discourse. Hyland, a leading authority in the domain of academic language, regards academic discourse as a persuasive encounter that involves interaction between the writer and their readers. He suggests that in presenting their work writers will, out of necessity, adopt interactional and evaluative strategies as they anticipate the expectations and responses of their audience (Hyland 2010). Coetzer (2009) develops this point and proposes that information in the academy can be presented as *facts*, or alternatively can be articulated more tentatively. The former, he argues, is made when it is assumed that the information is regarded as being *true* by experts in the field, the latter is preferred when information is contestable and can either be accepted or rejected.

Nonetheless, academic discourse is not a homogenous genre, but calls upon an eclectic group of devices including textbooks, essays, conference presentations, dissertations, lectures and research articles. The corpus for this study is based on the research article. In part this was due to their accessibility, but also

because the research article is considered the pre-eminent genre of the academy. It holds this premium because it has a central role in circulating academic knowledge and impacting on practice (Jallifar 2010). In addition it is often the outcome of a prolonged, tortuous, writing process which has withstood several drafts and the input of eminent colleagues (Hyland 2009).

As outlined in Chapter Four, 30 research articles that take direct observation of hand hygiene compliance as their primary methodology form the corpus for this element of the study. This type of study is particularly apposite to the research aims as direct observation is not only considered the gold standard methodology for measuring hand hygiene behaviour (WHO 2009, Joint Commission 2009) but, as I will show, authors who engage in this type of work invariably sustain a position that foregrounds the importance of hand hygiene as a measure to prevent HCAI. This would make them well placed to communicate ideological positions around the behaviour of staff and importantly, the utility of policy.

How writers energise what could be described as an enduring topic, the means by which they promote their work and how they intrude into the discourse to stamp their personal authority onto arguments, has the potential to reveal interesting insights into how the academy contributes to the discourse of hand hygiene compliance. The Chapter will begin with a contextual overview of the corpus and this will consider the background of authors, why some disciplines write for publication and others do not and why particular outlets are favoured. Following this the text will be scrutinised with a particular focus on genre analysis and the analysis of some key lexical frequencies.

5.2 The Authors of Hand Hygiene Publications

The authors of the 30 research articles can be seen in Table 5.1. This indicates that typically publications in this area of practice have multiple authors. This finding is consistent with the thoughts of Wren, Kozak & Johnson (2007) who suggest that there is empirical evidence that the number of authors per research paper is increasing. Table 5.2 illustrates the precise breakdown of the corpus. One article had a single author; Rupp's study was the largest with 12 accredited writers. The average author count was 5 researchers per paper. The reasons why collaboration is increasing is unclear but Wren et al (2007) went on to speculate why and their thoughts are pertinent. On the one hand academic papers may attain greater rigour through a number of colleagues *bouncing* ideas off each other. It may also reflect the way research teams distribute a busy and complex workload. A hand hygiene study may require several individuals with different skills. Some might be needed to collect data, another to process this or perform statistical tests on it. A third may have the writing skills to pen the draft. A different perspective is that multiple authors may be a symptom of the growing tendency to offer *gift authorship*. That is manipulating the number of contributors by adding authors who have had little input. This is seen by some as a tactical method of increasing a department's Research Assessment Exercise returns.

According to Wren et al (2007) there is no evidence to suggest that enhancing authors dilutes the credit given to any one individual, but there is a general assumption that those that are listed first and last, should be apportioned more credit for the work than the middle authors. The professional background of the

first author was investigated. The name was located on the original article and if necessary an additional online search was performed.

Table 5.1: Authors from Academic Corpus

	Authors	No
1	Bahal A, Karamchdani D, Fraise A, McLaws M 2007	4
2	Boscart V, Levchenko A, Fernie G 2010	3
3	Creedon S 2005	1
4	Duggan J, Hensley S, Khuder S, Papadimos M, Jacobs L 2008	5
5	Erasmus V, Kuperus M, Richardus J, Vos M, Oenema A, van Beeck E 2010	6
6	Eveillard M, Hitoto H, Raymond F, Kouatchet A, Dube L, Guilloteau V, Pradelle M, Brunel P, Mercat M, Guillou J 2009	10
7	Haas J, Larson E 2008	2
8	Harbarth S, Pittet D, Grady L, Zawacki A, Potter-Byone G, Samore M, Goldmann D 2002	7
9	Helder O, Brug J, Looman C, van Goudoever J, Kornelisse R 2010	5
10	Hugonnet S, Perenger T, Pittet D 2002	3
11	Kohli E, Ptak J, Smith R, Taylor E, Talbot E, Kirkland K 2009	6
12	Korniewicz D, El Masri M 2010	2
13	Larson E, Albrecht S, O'Keefe M 2005	3
14	Laustesen S, Lund E, Bibby B, Kristensen B, Moller J, Thulstrup A 2009	6
15	McCardle F, Lee R, Gibb A, Walsh T 2006	4
16	Mertz D, Dafoe N, Walter S, Brazil K, Loeb M 2010	5
17	Patarkul K, Tan-Khum A, Kanha S, Padungpean D, Jaichaiyapum O 2005	5
18	Pessoa-Silva C, Hugonneet, Pfister R, Touveneau S, Dharan S, Posfay-Barbe K, Pittet D 2007	7
19	Picheansathian W, Pearson A, Suchaxaya P 2008	3
20	Pittet D, Hugonnet S, Harbarth S, Mourouga P, Sauvan V, Touveneau S, Perenger T 2000	7
21	Pittet D, Simon A, Hugonnet, Pessoa-Silva C, Sauvan V, Perenger T 2004	6
22	Randle J, Arthur A, Vaughan N 2010	3
23	Rupp M, Fitzgerald T, Puumala S, Anderson J, Craig R, Iwen P, Jourdan D, Keuchel J, Marion N, Petwerson D, Sholtz L, Smith V. 2008	12
24	Sahay S, Panja S, Ray S, Rao B, Onio A 2010	5
25	Sahud A, Bhanot N, Radhakrishnan, Bajwa R, Manyam, Post J 2010	6
26	Saint S, Bartoloni A, Virgili G, Mannelli F, Fumagalli S, di Martini P, Conti A, Kaufman S, Gensini G, Conti A 2009	10
27	Schneider J, Moromisato D, Zemetra B, Rizzi-Wagner L, Rivero N, Mason W, Imperial-Perez F, Ross L 2009	8
28	Sharek P, Benitz W, Abel N, Freeburn M, Mayer M, Bergman D 2002	6
29	van der Vegt D, Voss A 2009	2
30	Venkatesh A, Lankford M, Rooney D, Blanchford T, Watts C, Noskin G 2008	6

Table 5.2: Numbers of Authors from Academic Corpus

Authors	Occasions	Authors	Occasions
1	1	6	7
2	3	7	4
3	5	8	1
4	2	10	2
5	4	12	1

There are countless reasons why individuals may want to publish their work. At a professional level it can enhance patient care by changing practice; additionally it could be to improve the standing of the profession. At an individual level writing for publication can de-clutter the brain, help work out what you think, persuade others of your outlook or simply permit a rant (Murray 2009). Suffice to say publishing is not the preserve of any one discipline with both academic and clinical staff facing increasing pressure to publish their work (Keen 2007). Indeed it would appear that journal editors actively court the contributions of clinicians as they can generate novel ideas that could potentially change and improve clinical practice; moreover, they can bring an authentic voice to research (Higgins 2010). Despite this the results of this study seem to support the thoughts of Cook, Brismee, Courtney et al (2010) who suggest that clinicians, particularly those operating at a more junior level, often fail to publish their work. Of the thirty articles used in the corpus, twelve authors were doctors who worked in infection control or the related specialties of microbiology or epidemiology. Seven could be classed as senior doctors who worked in other specialties, for example, paediatrics and anaesthesiology. Three were senior nurses who work in infection control and eight were academics who were working within higher education.

A failure to publish work may in part reflect the priorities of the operational clinician which sit with the exigencies of a busy clinical environment and the provision of safe, competent practice. Giving guidance for publications, Cook warns against producing *meaningless information*. He goes on to define *meaningful information* as publications that provide value through contribution, corroboration, contradiction or critical review. While few would disagree the presence of the aforementioned qualities is largely subjective, and sits with a reviewer and an editorial board. Brinn & Jones (2008) argue that editors and editorial boards wield considerable power and influence as they can be seen as authenticators of knowledge. Rather than encourage the fledgling writer this may exacerbate the problems of inexperience, or reluctance as they ask four fundamental questions of themselves. Can I write, what should I write, who is going to read it and if I can write, can I write in such a way that satisfies the requirements of the academic club (Thonney 2011). This opens the argument that the academy, and by association writing for publication, has its own language and its own expectations of scholarship and rigour. Although Fahy (2008) attempts to demystify academic writing and encourage new writers, discussions of Scientific Arguments, Tone, Emphasis, Verb Tense, Thesis Statements and Question Definition are arguably emblematic of the problem rather than the solution.

A clinician's possible antipathy towards publication sits in stark contrast to the incentives and rewards that may be on offer to other disciplines. In essence, the livelihood of many contemporary academics is bound up with writing and research, as it is through publication that tenures can be granted, funds awarded

and professional reputations made (Ketefian, Dai, Hanucharunkul et al 2010). For some, modern researchers are less concerned with the philanthropic advancement of knowledge and more interested in their individual standing and self-promotion. In this environment publication is seen as a cut-throat business and peers as *colleague-competitors* (Berkenkotter & Huckin 1995)

While these arguments may be a little overplayed, a key principle in discourse analysis is that some have the authority to speak and some do not. In relation to this corpus those who *speak* are academics, researchers, specialists and senior doctors. As such the charge that publication can be an elitist, competitive environment that favours some at the expense of others has some truth. A further problem is the common perception that those who write about care and those who deliver it on a daily basis, come from very different worlds. Although a generalisation it is plausible to suggest that those who have conducted the research are often insulated from the harsh realities of practice and may hold a streak of intellectualism, and unrealistic ideals, inappropriate for a clinical setting (Holmes 2002).

5.3 The Source Journal

The next stage was to consider the source of the article. The initial search located 80 studies from 23 journals (Table 5.3). To assist analysis, this was reduced to 30 articles. These derived from 18 different journals (Table 5.4). The spread of journals in the final corpus broadly represented the initial search. Four of the journals, *Journal of Hospital Infection*, *American Journal of Infection Control*, *Infection Control and Hospital Epidemiology* and the *British Journal of Infection Control* are specialist journals within the genre of infection

prevention and control. The first three are international and multidisciplinary; the latter is more focussed on the UK and has a stronger readership of nurses. Seven of the journals could be loosely described as medical journals that target a specialist audience, for example, *Paediatrics* and *Academic Emergency Medicine*. Three serve a more generic medical audience like the *Lancet* and the *Archive of Internal Medicine*. The final four were broad international nursing journals, for example, the *Journal of Advanced Nursing* and *International Journal of Nursing Studies*.

These results suggest two things. First specialist infection prevention and control journals are a popular choice for compliance studies. One explanation for this is that the discourse community who read publications like the *American Journal of Infection Control*, *Infection Control and Hospital Epidemiology* and *Journal of Hospital Infection* are likely to be particularly interested in hand hygiene studies because of the currency given to hand hygiene in reducing the incidence of HCAI. However, compliance studies are also commonplace in other journals and appear in disciplines as diverse as mental health, paediatrics, surgery and critical care. This goes some way to confirm the topicality of HCAI and how the academy has embraced the subject as *everybodies business*. In addition it highlights how hand hygiene improvement programmes become particularly prevalent in these discussions.

Table 5.3: Initial Search of Academic Corpus

Journal	No
American Journal of Infection Control	21
Journal of Hospital Infection	19
Infection Control and Hospital Epidemiology	18
British Journal of Infection Control	2
Paediatrics	2
Accident Emergency Medicine	1
American Journal of Critical Care	1
Annals of Internal Medicine	1
Applied Nursing Research	1
Archive Internal Medicine	1
Australian Critical Care	1
Clinical Nursing Research	1
International Journal of Nursing Practice	1
International Journal of Nursing Studies	1
Issues in Mental Health Nursing	1
Journal of Advanced Nursing	1
Journal of Critical Care	1
Journal Medical Association Thailand	1
Journal of Perinatology	1
Lancet	1
Paediatric Critical Care Medicine	1
Paediatric Infectious Disease	1
Radiology Medicine	1
Total	80

Table 5.4: Secondary Search of Academic Corpus

Journal	No	Journal	No
AJ Infection Control	5	J of Advanced Nursing	1
J of Hospital Infection	5	J M Association Thailand	1
IC & Hospital Epidemiology	5	Journal of Perinatology	1
Accident Emergency Medicine	1	I J of Nursing Practice	1
A J of Critical Care	1	I J of Nursing Studies	1
Annals of Internal Medicine	1	Lancet	1
Applied Nursing Research	1	Paediatrics	1
Archive Internal Medicine	1	Paediatric Critical Care Med	1
B J of Infection Control	1	Paediatric Infectious Disease	1
Total: 30			

Despite the broad reach of journals that is represented in the corpus, this is minimal when compared to what a writer has available. Currently there are over 25,000 scientific, technical and medical journals and the number of international, scientific publications has grown rapidly, with an increase from 1.09 million in 2002 to 1.58 million in 2007 to 1.94 million in 2010 (The Royal Society 2011). As such how writers make the choice of where to publish their work required a little more attention. Writing in the *Journal of Clinical Nursing*, Jackson, Haigh & Watson (2009) proposed that this has transformed overtime. Historically, a good journal was considered to be any journal that would publish the work. However, as publication became more competitive opinion shifted and it was seen as important that a paper was subject to a double-blind peer review. Now authors may favour a journal that has a high impact factor. Knight & Steinbach (2008) develop this argument and propose that likelihood of acceptance, credibility and prestige of the journal, potential impact of the article and the timeline from submission to publication are key factors when targeting a journal. They go on to draw on three studies and identify eleven factors that contribute towards a journal's reputation, and thus determine its credibility and prestige (Table 5.5). Of these a journal's impact factor would seem to be particularly influential (Knight & Steinbach 2008).

The impact factor of a journal is thought to be important, and is calculated as the number of citations of papers published in the previous 2 years divided by the number of papers published in those 2 years. Thus, the impact factor for 2010 (issued in 2011) is based upon the number of citations during 2010 of papers published in a particular journal in 2008 and 2009 divided by the

number of papers published in that journal in 2008 and 2009 (Calder 2011). The impact factor is important because it is frequently used as a proxy for the relative importance of a journal within its field. Journals that have a high impact factor are deemed to be more credible than those with a lower one. The topic is contentious and many authors point to the flaws of impact factors and the way they can be manipulated (Reeves, Kenaszchuk, Sawatzky-Girling & Goldman 2012, Punjabi 2010, Davis 2010). Nonetheless, the same writers acknowledge that it is probably the most reliable metric available and note that it wields considerable power. As a result some believe that British researchers are actively encouraged to publish fewer papers, but ones of greater quality in high impact journals (Yngve 2011). The impact factor of the journals in this corpus can be seen in Table 5.6

Table 5.5: Factors Important to a Journals Reputation

	Brorsen (1987)	Klinger (2005)	Robey et al. (1998)
1	Older		
2	Larger Circulation	Wider Circulation	
3	Lower Acceptance Rate	Lower Acceptance Rate	Review Process & Lower Acceptance Rate
4	Less specialized		
5	Technical or theoretical		
6		Well-known editor and editorial board members	Institutional affiliations of editor and board members
7		Often quoted over time	
8		High impact factor	
9		High visibility in multiple computerized databases	
10			Affiliation with a prestigious organization
11			Higher rating in articles that compare different journals

Table 5.6: Impact Factor of Academic Articles

Journal	No	Impact Factor
American Journal of Infection Control	5	3.036
Journal of Hospital Infection	5	3.078
Infection Control and Hospital Epidemiology	5	2.77
Academic Emergency Medicine	1	2.197
American Journal of Critical Care	1	1.593
Annals of Internal Medicine	1	16.7
Applied Nursing Research	1	1.111
Archive Internal Medicine	1	10.64
British Journal of Infection Control	1	-
Journal of Advanced Nursing	1	1.54
Journal Medical Association Thailand	1	0.4
Journal of Perinatology	1	2.003
International Journal of Nursing Practice	1	2.103
International Journal of Nursing Studies	1	2.103
Lancet	1	32.683
Paediatrics	1	5.391
Paediatric Critical Care Medicine	1	2.672
Paediatric Infectious Disease	1	3.064

Although there may be a degree of scepticism in relation to the impact factor, a review of journal websites suggests that some may wear this as a badge of honor. For example: - The *Annals of Internal Medicine* 2010 states that an impact factor of 16.7 makes it ‘one of the most cited general medical journals in the world’. Similarly, *PEDIATRICS* announces that it has ‘the highest 5-year impact factor and highest total citations among all journals in the field of pediatrics’. The Lancet, which had the highest impact factor in this corpus at 32.683, proclaims it is ‘the world's leading independent general medical journal’. The relatively high impact factor of the three specialist infection control journals may provide a further explanation of why authors target them for their compliance studies. Moreover, on the respective home pages the journals state the following-

*The official **scientific** publication of the Association for Professionals in Infection Control and Epidemiology and the foremost resource on infection control, epidemiology, infectious diseases, quality management, occupational health, and disease prevention (American Journal of Infection Control).*

*The **scientific** publication of the Healthcare Infection Society (Journal of Hospital Infection)*

*An original, peer-reviewed journal for **scientific** articles, for professionals in epidemiology or infection prevention and control programs in hospitals and healthcare facilities (Infection Control and Hospital Epidemiology)*

The word scientific is notable. According to Hyland & Salager-Meyer (2008) the label of science confers reliability on a method and prestige on its users; it implies academic knowledge built on the realist model of experiment, induction, replication and falsifiability. While the abovementioned journals draw heavily on the biomedical science of microbiology, the softer more rhetorical forms of human enquiry like hand hygiene compliance are also included and possibly advance their cause through their association with the biological sciences.

5.4 Titles

The titles given to research articles have been the subject of a good deal of attention in both empirical studies and opinion pieces (Cheng, Kuo & Kuo 2012, Langdon-Neuner 2007, Hartley 2007a, Hartley 2007b, Soler 2007, Hagan 2004). Among other things, researchers have considered the presence of content and function words, punctuation marks, the titles length, differences between genres and their overall structure. Titles are thought to be important as they hold a prominent position in the article and are the most frequently read part of a journal (Jacques & Sebire 2012, Hays 2010). They can arouse interest, draw attention, indicate content and contribute to a reader's selection or

rejection of the paper. The importance of a title is highlighted by Siso (2009) who cites a wealth of material to propose that the behaviour of a scholar is practically identical to that of newspaper reader in that they draw on schema knowledge to read selectively and search for the most important information and novel results. In addition to how articles are read, titles are important as they are searchable by every major indexing service and thus weigh strongly in computer-based literature searches and information retrieval systems (Hartley, 2005, 2007b). In a recent study academics bemoaned how long it took them to retrieve the *right* information from searchable archives (Tenopir, King, Spencer & Wu 2009). As such presumably an accurate title would help resolve part of this problem.

Although there is little empirical evidence that bears out what makes a good title, the Publication Manual of the American Psychological Association (APA, 2009) suggests that titles should have simplicity and style. It goes on to argue the best titles identify the manuscript's key variables, theories, and the relationships among them. The APA proposes that an effective title should be fully explanatory while standing alone and omit extraneous words and abbreviations (APA 2009). Whilst stating that titles should be concise the APA is also prescriptive in advocating that a title should be no more than 12 words. This level of precision is rarely reflected in the guidelines that journals make available to authors, however, the *American Journal of Infection Control* agrees with the principle of concision by advising that a title should be brief and not laden with too much detail. Despite this a recent study by Habibzadeh & Yadolihie (2010) into the titles of scientific papers indicated that articles

with longer titles were cited more often. Their explanation for this is that long titles negate the problems associated with short titles that lack detail and may mislead the reader. The average number of words in the titles of this corpus can be seen in Table 5.7.

Table 5.7: Number of Words in Titles of Academic Corpus

Words	No
20+	6
15-19	8
10-14	12
-10	4

The longest title was 29 words the shortest was 8 words. The mode was 12 with 10 articles and the mean was 14; slightly higher than the APA's recommendations.

Smallest: Hand hygiene among Physicians: Performance, Beliefs and Perceptions (Pittet)

Largest: Effect of an Evidence-Based Hand Washing Policy on Hand Washing Rates and False-positive Coagulase Negative Staphylococcus Blood and Cerebrospinal Fluid Culture Rates in a Level III NICU (Sharek)

The former gives little indication of the results, but may entice a reader who is interested in the psychosocial variables of hand hygiene compliance. The second is a more complex structure that uses a number of pre and post modifiers to explain a more multi-faceted methodology. Hartley (2012) identifies thirteen different classifications of titles, each with advantages and disadvantages; however, typically researchers use a typology that delineates them as indicative, informative, or indicative and informative. Indicative titles tell the reader what the study is about – what was done – whereas informative

titles describe the study's message – what the results show. As the name suggests indicative and informative titles do both. In their study Cook, Beckman & Bordage (2007) recommend that titles that are both informative and indicative provide the best summary of the study and are the most useful to readers. However, the *British Medical Journal*, advises against informative titles for their research articles. They provide the following explanation in their style book: ‘*Our reason for not having messages in titles is that the design of the study may not be rigorous enough to completely support the message in the title, e.g. that x causes y*’ (Langdon-Neuner 2007: 159).

Since 2003 the *British Medical Journal* has required all their published research papers to end (after a colon) with a statement about the method used. It would appear that although all journals, to a greater or lesser degree consider titles to be important, they also have their own editorial specifications. In this corpus 19 titles were indicative, 6 were informative and 3 were indicative/informative (Table 5.8).

Table 5.8: Classification of title from academic corpus

Type of Title	No
Indicative	19 (63.3%)
Informative	8 (26.6%)
Indicative/Informative	3 (10%)

Indicative

Measurement and interpretation of hand hygiene compliance rates: importance of monitoring entire care episodes (Eveilard)

Impact of Wearable Alcohol Gel Dispensers on Hand Hygiene in an Emergency Department (Haas)

Effect of a Multifaceted Intervention on Adherence to Hand Hygiene among Healthcare Workers: A Cluster Randomized Trial (Mertz)
Informative

Hand hygiene compliance: universally better post contact than pre-contact in healthcare workers in the UK and Australia (Bahal)

Variability in the Hawthorne effect with regard to hand hygiene performance in high and low performing inpatient care units (Kohli)

Reduction of healthcare associated infection risk in neonates by successful hand hygiene promotion (Pessoa-Silva)

Informative and Indicative

Improving hand hygiene behaviour of nurses using action planning: a pilot study in the intensive care unit and surgical ward (Erasmus)

Although informative titles were in the minority in this corpus, Langdon-Neuner (2007) notes they are an increasing and dangerous trend, particularly in medicine, as the reader does not have to read beyond the title. The concern here is that authors make claims that stick, but are not necessarily supported by their designs or the results. Considering two of the examples highlighted above, Bahal claims that ‘Hand hygiene compliance: universally better post contact than pre-contact in healthcare workers in the UK and Australia’. A keyword here is **universally** which the Collins English Dictionary (2009: 840) defines as ‘at all times’. Similarly *in healthcare workers in the UK and Australia*, implies all health care workers, from all clinical areas, in all disciplines, at all times, in both countries. Clearly such a design would not have practical utility. What Bahal actually did was observe seventy two health care workers who were a

mixture of doctors and nurses. This was limited to two intensive care units and two surgical wards in two hospitals. The observations took place between the hours of nine and five. The observers recorded 1041 pre contact hand hygiene opportunities against 1373 post. There was no indication of how the observations related to individuals, for example some may have been observed ten times and some others once. The pre and post observations were not matched. While Bahal et al did record higher post contact hand hygiene across each of its eight categories, the scope and methodology were limited which stands in contrast to the intensifier, *universally*, that was used in the title.

The Pessoa-Silva example 'Reduction of healthcare associated infection risk in neonates by successful hand hygiene promotion' is a compelling title as it lends weight to the notion of confirmation bias. Confirmation bias refers to a type of selective thinking whereby one tends to notice and look for what confirms one's own belief. The discourse community who are most likely to read this article are possibly seeking evidence that they believe to be true, namely that hand hygiene reduces HCAI. Pessoa-Silva's study was well conceived and took a number of steps to enhance the quality of the data. However, given the difficulties of observing hand hygiene, if the compliance rates are accurate, they demonstrated a relative modest increase from 42% to 55%. Follow up was only nine months and infection rates were relatively low throughout the study. Moreover, the authors acknowledged a number of limitations including the fact that as the campaign was multi-modal it was not possible to assess the relative efficacy of one intervention. This is at odds with a title that makes a strong association between hand hygiene and reductions in HCAI.

Hartley (2005, 2007a) examined the use of colons and gerunds in the titles of research articles. According to Hartley a colon can create a compound construction that transforms a vague and uninformative title into an attractive and informative one. In a compound sentence the first part of the construction creates an expectation in the reader which following the colon, is explained or exemplified. Ten articles in the corpus used colons. An example is Eveillard's study. 'Measurement and interpretation of hand hygiene compliance rates: importance of monitoring entire care episodes'. The first part of the structure is routine and common to any of the compliance studies in this corpus. However, it is the second part that gives the research its unique selling point. Something that Eveillard is at pains to spell out when he publicised his work by stating 'this is the first study comparing hand hygiene compliance in single contacts and in a series of contacts during entire care episodes' (ibid: 215).

Gerunds in titles, sometimes called V-ing phrases, are verb forms that end in -ing but are used as nouns. In titles, gerunds (e.g., improving, expanding or investigating), imply some sort of action but do not identify the actor. Korneiwicz provides the following example, *Exploring the factors associated with hand hygiene compliance of nurses during routine clinical practice*. According to Hartley (2005) nominalising a verb turns it into an object that can be viewed more objectively. That is, it separates it from people who are doing the *exploring* and decreases the emotional attachment, thereby facilitating the suggestion that this is an objective examination. Williams (2009) decries the nominalisations of verbs in research articles because he believes they instil a lack of clarity, nevertheless, the increased objectivity they afford may be one

reason why they are attractive in academic circles. In the corpus there were four other titles that used gerunds.

Titles, framed as questions, are another rhetorical device that writers can use to gain the attention of a reader who may be overwhelmed with a large number of scholarly papers. However, questions do more than simply promote the article. Van de Vegt & Voss ask the following question in their title, *Are hospitals too clean to trigger good hand hygiene?* As well as providing what Hagan (2004) calls *an interesting title* see below, they also represent the authors as someone who has an insider's understanding of what constitutes a real issue and, one assumes, a plausible response to it (Hyland 2002). Langdon-Neuner (2007), Hartley (2007b), Soler (2007) and Cook et al (2007) all found a dearth of questions in the titles of research articles; commonly less than two per cent. These studies found that when questions are used, generally they are in the *soft sciences*. Two articles in this corpus used rhetorical questions, 6.6%. One explanation could come from the findings of Jamali & Nikzad (2011) that titles in questions are downloaded more but cited less.

The idea of an interesting title is introduced by Hagan (2004). *Are hospitals too clean to trigger good hand hygiene?* Along with Duggan et al's *Inverse correlation between level of professional education and rate of handwashing compliance in a teaching hospital* may conceivably be what Hagan (2004) terms interesting, as both appear to be counterintuitive thus drawing attention. Ordinarily, one would assume that a hospital would invoke a higher standard of hygiene and an increase in education would correlate with an improvement in performance. Or at least would not be associated with a decrease in

performance. The actual studies and their findings are a little more complex than the titles suggest. However, by the time the student discovers this, the title has fulfilled an important function, attracting the interest of the reader. Despite this, Hagan (2004) found little evidence in her study that author's produce, clever, arresting titles that catch the attention of the reader and lure them in.

Instead the majority of titles in his study were indicative, doing little more than describing the purpose of the study. This finding was similar to that found by Cook et al (2007) who reported that 86% of titles in their study were indicative. Although it would seem important to produce a clever, arresting title there was little evidence to suggest that authors provide this. Perhaps given the conventions that govern academic writing an editorial board may frown upon the bold and presumptuous (Siso 2009). In their study Sagi & Yechiam (2006) concluded that articles with amusing titles are best avoided as academic authors should leave humour to comedians.

In order to distinguish between facts and claims, writers in academic language can often use tentative language, otherwise known as hedging. This is realised through verbal and adverbial expressions like *can*, *perhaps*, *may*, *suggest* which deal with degrees of probability. Hedging is crucial in academic discourse and hedge words account for approximately 1 word in every 100 in scientific articles (Hyland 1998). Given the difficulty of producing reliable compliance studies it was perhaps surprising that Laustesen's was the only article that employed a hedging device in the title. *E-Learning may improve adherence to alcohol-based hand rubbing: A cohort study (Laustesen)*. In contrast Schnieder's study had the following title, *Hand hygiene adherence is*

influenced by the behaviour of role models (Schnieder). This is written with complete authority, as if it were fact.

Assessing the impact of role models is a complex area, something acknowledged by Schnieder. While the study revealed some interesting results worthy of discussion the strength of the claim is not necessarily supported by the methodology. The use of *could* or *may* would make the title more accurate in terms of its findings. *Hand hygiene adherence may be influenced by the behaviour of role models*. However, Siso (2009) believes that the rules of the game have changed. To participate in the complex game of social interaction and negotiation, which publication is, a writer would be foolish to alienate a busy reader by making a weakened assertion. Taken as whole, it would appear that titles are important and authors give them a good deal of thought as part of the writing process. But there seems to be little overall agreement about the effectiveness of different titles in terms of subsequent citation rates. Different authors seem to prefer different types, in different disciplines, and the variations generally reflect disciplinary practice (Hartley 2012). A notable finding in this corpus is that writers appear to resist using hedging devices and instead maximise the strength of their claims.

5.5 The Body of the Corpus

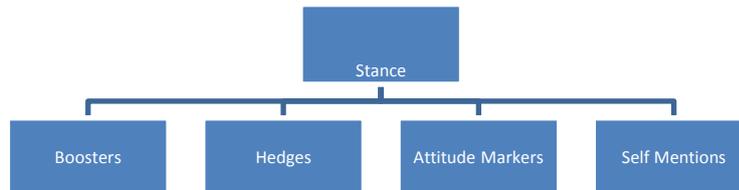
Typically research into the body of research articles has focussed on two main concerns, the generic structure of the piece and its textual features (Pojanapunya & Watson Todd 2010). The first point, generic structure, has centred on move analysis and in particular move models, which entered the field of applied linguistics in the early 1980s (Salami & Yazdani 2011). The

theory posits that academic texts can be organised into patterns that consist of a series of moves, with moves being functional units that fulfil the overall communicative purpose of the genre. Moves may contain multiple elements, can vary in length, but normally contain at least one proposition (Biber, Connor & Upton 2007). In his pioneering work, Swales (1990) analysed the moves within the introductions of research articles. The model was found to have utility and its popularity grew to the extent that now similar techniques have been applied to Method, Results and Discussion sections (Puebla 2009). The primary purpose of studies that use move analysis has been to identify the presence or absence of particular moves. A second approach has focussed attention on the text itself, that is, what is it actually saying.

In the first instance I will use a move model to identify the key shifts in the introduction and discussion sections of the corpus. Introduction and discussion sections of research articles have been described as rhetorically forceful and dialogic in that they have to intrigue the reader, attract their interest but should not be oversimplified (Hengi & Gould 2002). Moreover, introductions and discussions are those elements of the corpus that are most likely to include the author's stance on hand hygiene compliance. This and the use of other discourse markers will fulfil the second part of the analysis which is to examine the texts with reference to Hyland's (2005) framework of interpersonal metadiscourse. Hyland's model posits that writers accomplish interaction in academic writing through *Stance*. Stance being an attitudinal, writer orientated function that concerns the way the author presents themselves

and convey their judgements, opinions and commitments. According to Hyland this is realised through four components as seen below (Figure 1).

Figure 1



- Boosters allow writers to express their certainty in what they say and mark involvement with the topic and solidarity with their audience.
- Hedges are devices that indicate the writer’s decision to withhold complete commitment to a proposition, allowing information to be presented as an opinion rather than an accredited fact.
- Attitude markers indicate the writer’s affective attitude to propositions, conveying surprise, agreement, importance, frustration, and so on, rather than commitment.
- Self-mentions refer to the use of first person pronouns and possessive adjectives to present propositional, affective and interpersonal information.

5.6 Introductions

The importance of an introduction rests with the idea that a great deal of rhetorical effort is invested in this part of an article. It is here that a writer seeks to justify the importance of their work and persuade their discourse community

that the research is something worthy of attention (Hyland 2009). This is echoed by Creswell (2009) who argues that the introduction needs to create reader interest, establish the problem that leads to the study, place the study within the larger context of the scholarly literature, and reach out to a specific discourse community. Indeed Swales (1990) who was the first to examine moves in the introductions of research articles, opines that an introduction is difficult for writers, because they are forced with numerous options and decisions in this section. These include the amount of background knowledge, the authoritative versus sincere tone, the winsomeness of the appeal to readers, and the directness of the approach they should incorporate into their writing.

Following his empirical work, Swales developed the CARS (Create a Research Space) model which typically follows a three-step formalism (Swale 1990) (Table 5.9). The model envisages that first the author identifies the studies area of significance. A critical gap is then isolated in the existing body of knowledge, so the author can present a hypothesis that closes the gap or simply states the research aim and questions, that logically achieves the same goal. This strategy is effective because it presents the argument logically, first establishing the topic's importance and then situating it within the context of the field of research. In this way, the reader is led naturally toward the aim and questions of the research. Shaw (2007) believes that authors of research articles often use what might be called the *Ascent of Man* trope in creating their research space. That is they arrange other approaches and findings so that they lead inexorably to their own.

Table 5.9: Create a Research Space Model

Move 1	Establishing a Territory	
	Step 1	Claiming centrality and/or
	Step 2	Making topic generalization(s) and/or
	Step 3	Reviewing items of previous research
Move 2	Establishing a Niche	
	Step 1A	Counter Claiming or
	Step 1B	Indicating a Gap or
	Step 1C	Question raising or
	Step 1D	Continuing a tradition
Move 3	Occupying the Niche	
	Step 1A	Outlining purposes or
		Announcing present research
		Announcing principal findings
		Indicating RA structure

Establishing territory, which is the opening move of the CARS model, is used by a writer to demonstrate commitment to their discourse community. By adopting this move the author assures the community that the research is of concern to the academic circle and might contribute to their understanding of the subject. Ideally this move breaks the ice and creates common ground between the writer and their community (Habibi 2008). To explore how writers claimed centrality and how they addressed the other components of the CARS model a keyword analysis was performed on the introductions of the corpus. The top 50 results by keyness can be seen in Table 5.10.

Table 5.10: Top 50 Words by Keyness (Introductions).

Rnk	Fre	Keyness	Keyword	Rnk	Fre	Keyness	Keyword
1	138	1987.853	hygiene	26	12	107.778	prevention
2	170	1715.399	hand	27	9	106.621	pathogens
3	85	1112.777	compliance	28	16	106.046	staff
4	40	518.821	infections	29	14	95.715	poor
5	34	502.049	healthcare	30	8	87.596	preventing
6	33	471.953	adherence	31	12	86.156	improvement
7	41	425.241	infection	32	10	85.931	opportunities
8	24	354.388	nosocomial	33	12	84.310	contact
9	44	306.371	health	34	10	83.613	practices
10	37	288.603	hospital	35	24	82.602	most
11	19	280.557	hcws	36	9	82.234	performed
12	34	261.566	studies	37	10	81.936	improved
13	24	200.979	improve	38	17	80.202	control
14	25	192.780	associated	39	8	79.532	nurses
15	19	192.387	transmission	40	8	77.271	recommendations
16	18	189.146	guidelines	41	7	75.860	physicians
17	17	183.797	interventions	42	10	74.911	observed
18	15	179.922	washing	43	12	72.670	effective
19	19	166.184	rates	44	14	72.233	risk
20	26	149.233	behaviour	45	11	63.802	performance
21	13	131.858	intensive	46	5	63.249	protocols
22	15	130.933	alcohol	47	13	63.130	low
23	16	117.501	factors	48	7	62.623	morbidity
24	12	113.888	observations	49	15	57.149	important
25	18	107.879	patients	50	12	52.877	evidence

The keywords were then examined in context through the generation of concordance lines. These indicated that claiming centrality was realised through two strategies. The first was to combine the word *Infection* with *Nosocomial* (24), *Health Care Associated* (15) and *Hospital Acquired* (7) to establish the consequences of poor hand.

Nosocomial infections pose a major challenge a
 Treating **nosocomial infections** are a major challenge
Hospital-acquired infections affect 5% to 10% of all
Healthcare-associated infections (HAIs) continue to impact

The second was to identify hand hygiene as a strategy to prevent this.

effectiveness of **hand hygiene** (HH) has been demonstrated
Hand hygiene compliance by health care workers reduces
that appropriate **hand hygiene** reduce hospital infection rates
appropriate **hand hygiene** is an effective means for reducing

The first set of examples is worth noting. Although the article is ostensibly about hand hygiene it is the morbidity and mortality associated with HCAI that is used to reach out to, and demonstrate commitment to the research community. The reader may believe they are reading an article about hand hygiene but by foregrounding HCAI and the problems associated with this the reader is positioned, perhaps subconsciously, to make a strong association between hand hygiene and HCAI. The second step, *making topic generalizations*, is fulfilled by producing statements about the phenomena at the centre of the study, in this case hand hygiene, or through highlighting pertinent knowledge or practice, for example, poor compliance with hand hygiene behaviour. In relation to hand hygiene the word *most* was used 24 times, *important* 15, *most important* 9 and *most effective* 4.

Hand Hygiene is the single **most important** measure
Remains the single **most important** measure
Been singled out as the **most important** measure
Therefore, the **most effective** strategy

Most important is what Hyland would call a booster as it concurrently helps the writer to close down the partial impact that hand hygiene has on infection rates and shows a high degree of certainty regarding its effectiveness. Although *most important* may imply a high level of certainty there were a number of examples where authors would weaken their proposition by using hedging devices. For

example Erasmus et al (2010) wrote “*is considered the most important measure in the prevention of HCAI*” and Sharek et al (2002) penned “*is thought to be the single most important intervention preventing the transmission of nosocomial infection*”. Here the writers retained the phrase *most important*, but added the pre-modifying verb *thought* or the adjective *considered*. Not only does this weaken the proposition but it also distances the authors from the argument and subtly protects them against falsification. For example, if later the proposition is shown to be wrong, that hand hygiene is not the most important measure to prevent HCAI; the author protects themselves from responsibility. As Myers (1989) puts it ‘It was thought. I didn’t say I believed it’. The hedge acts as an insurance policy; a mitigating device to save face.

There are further examples from the corpus that advance the idea of hedging by proposing that hand hygiene is *one of the most important* (Helder et al 2010) or *plays an important role* (Mertz et al 2010). A final example, by McArdle et al (2006) includes more than one hedging device when they suggest that “*transmission by healthcare workers hands causes many HCAI and good hand hygiene is essential to minimize this method of spread*” The argument here is that contaminated hands are the cause of some HCAI, and of the HCAI that are acquired in this way, hand hygiene is the method to prevent them. This is an example of an accuracy orientated hedge. That is, the writers indicate a proposition that is based on plausible reasoning or logical deduction in the absence of complete knowledge. Although a little convoluted based on the results of what is known about the relationship between hand hygiene and

HCAI it could be argued that McCardle's depiction offers the most accurate account of this topic.

Another way of making topic generalisations is through the use of attitude markers, which indicates the writer's affective attitude to propositions. This was established in the introductions by reporting the current standing of practice. The words *compliance* (85) and *adherence* (33) were combined with *low* (13) and *poor* (14) to describe the current standing of hand hygiene behaviour.

Compliance with hand hygiene guidelines remains **low**.
Compliance by hospital physicians and nurses is **universally low**
Compliance with these guidelines is **internationally low**
Adherence remains unacceptably **low**

The Collins English Dictionary (2009: 439) defines low as "of less than usual amount"; Whether or not *low* is the most appropriate term may depend on what the reader views as the usual amount. Is it the standards that is held in policy documents or does it relate to what is commonly achieved in practice? In the two latter examples writers scale the problem through the addition of the adverbs *internationally* and *universally*. Similarly *poor* defined as "less than necessary or expected" (Collins Dictionary 2009: 582) is critical of current performance and possibly carries with it a stronger air of judgement.

Although adherence to hand hygiene is **poor**
Poor compliance has been documented repeatedly.
Compliance with recommended instructions is **commonly poor**
Compliance is **highly variable**, in some cases, **unacceptably poor**

The final two examples use the adverb *commonly* and the adjective *variable* and this works to hedge the proposition. In the first the writer is suggesting that as a rule compliance is poor; however, this is not always the case. This tentatively offers hope to the research community. If there are exceptions and best practice has flourished in some areas, then logically this can be transferred on a larger scale. This gives currency to the view that poor compliance can be located in the errant individual. Some writers would avoid the use of attitude markers like *poor* and *low* and instead provide a statistical account of compliance.

Compliance with hand hygiene rarely exceeds **50%**
Generally well below **50%**
Compliance averaged only **40%**
Usually much less than **50%**

While the results are highly suggestive of poor performance, crucially it allows the reader to draw their own conclusions. One reason for this comes from Campbell (2002). She believes that quantification conveys a sense of *transparency* and *objectivity*, because calculation tends to be regarded as an impersonal, mechanical routine devoid of human emotion, desire and bias. In other words the writers have still presented an attitude marker but have done so in an understated way.

Because authors typically used policy requirements as a proxy for good or poor hand hygiene behaviour an additional mode of enquiry was to see whether there was any sense of attitude markers against the guidelines themselves. The word *difficult* was used twice and *unrealistic*, once. This would suggest that a minority of studies do cast some doubt on the utility of the guidelines.

However, this is true in part. An examination of these words in context revealed that central to these studies was the notion that alcohol hand rub should replace traditional soap and water as the gold standard product in health care environments. In other words, these studies put forward the view that traditional guidelines based on washing with soap and water is unrealistic and this has created a research space for their study to promote the use of alcohol hand rub

The last step of this move, step 3, reviewing items of previous literature, is where the author reviews relevant groups of earlier research. Swales & Feak (1994) go as far to suggest that citations may be the defining feature of academic prose. Some of the reasons that academic writers are expected to make references to other work is to integrate the ideas of others into their arguments. This explains what is known about the subject already, points out the weaknesses in others' arguments or aligns scholars with a particular camp/school/grouping (Thompson & Tribble 2001). Despite this, Kanter (2006) is critical of academic work that overuses references to support what he sees as the most mundane, obvious and incontrovertible points. In their advice to authors journals frequently advise on the number of references. For example, the *Lancet* state 30 references for 3000 words and the *Infection Control and Hospital Epidemiology* state no more than 40 references.

Articles in the corpus were liberally interspersed with references. The highest reference count was 53 and the lowest was 8. The mean average was 31. However, this number only relates to the number of studies, not the amount of times the writer uses them. If journals place a restriction on long reference list

for the practical reason of space, authors can achieve the same rhetorical effect of multiple references by citing one study several times. For example, Pittet et al cited 36 studies but used them 112 times. Similarly Schnieder used 28 studies with 78 citations. However, there may be other explanations for how and why writers use citations. Consider the following example from van de Vegt et al who wrote the following:-

*Studies have shown that at least **one third** of all hospital infection might be preventable if HCWs would comply with recommended guidelines” (4)*

Rather than plural, van de Vegt cited one study Creedon’s. To verify this statement the reader would need to locate Creedon’s paper, read it, and find the place where Creedon discusses the efficacy of hand hygiene. They would then have to examine Creedon’s empirical results or locate the other studies that the claim was based on. This unfolds or reconstructs what Latour (1990) has called the chain of reasoning that precedes the statement. If it is true that only 5% of research articles are read in any detail, this level of scrutiny is unlikely to occur (Hengi & Gould 2002). Indeed in their study de Waard, Breure, Kircz & Van Oostendorp et al (2006) express concern that previous work is used strategically by authors who use references as shorthand for facts.

In the example highlighted, van de Vegt cited Creedon who did indeed write what van de Vegt has attributed to her. However, this was not based on her results but referenced to Haley’s 1985 study. In turn Haley’s seminal study suggested that a one third reduction is possible but dependent on the implementation of a complex, multi-factorial programme that including surveillance, teamwork, optimum staffing levels, expert epidemiological advice

and high standards of practice (Haley 1985a). The suggestion that a one third reduction could be affected by hand hygiene alone was not a part of Haley's results or conclusions. In a similar vein Boscart wrote, "*Pittet et al, provided an authoritative review of evidence which showed that improved hand hygiene is the primary means to reduce hospital acquired infections*" What Pittet et al actually wrote was "*the design of our study precludes ascertainment of the proportion of reduction in infection rates that was attributable to the hand hygiene campaign alone*".

The structure of citations can also be differentiated into non-integral and integral. Non integral are those that are separated from the body of the text through brackets and play no syntactic role in the sentence. Conversely integral are part of the texture of the sentence in which they occur. Twenty six of the articles were published in journals that used the Vancouver, numerical referencing system which facilitates a non-integral system but does not preclude the use of names within the body of the text. four used Harvard, which allows both integral and non-integral referencing. There was a clear distinction between medical and nursing Journals. All twenty five medical journals used Vancouver, while four out of the five nursing journals used Harvard. Although they did use the Vancouver system, the three common infection control journals were examined for whether they named their sources within the text. In the *Journal of Hospital Infection* 12% of authors were named in the text. In the *American Journal of Infection Control* this was 6% and the *Infection Control and Hospital Epidemiology* this was 4%. The significance of this rests with the thoughts of Hellqvist (2010) who suggests

that generally non integral methods are associated with a more scientific approach as allocating numbers in parentheses or using other strategies that remove the agent, dissociates the argument from human intervention, and takes one step for a claim to become a fact.

To review, in establishing territory, the author convinces the readers about the importance of the area of study by making strong claims with reference to previously published research. Move 2 of the CARS model, establishing a niche for about-to-be-presented research, is considered a key move in an introduction to a research article because it connects Move 1 to Move 3. Move 2 articulates the need for the research that is being presented. In Swales (1990) original model he argued that this could be manifested in one of four ways; *counter claiming, indicating a gap, question raising or continuing a tradition*. He later revised this to a more straightforward, *indicating a gap or adding to what is already known* (Swales 2004). At times this distinction is not easily made, however, for this study if the author made any explicit claim to suggest that there was a lack of literature in their area of study, this was taken as a gap. Applying this criterion to the corpus, seventeen articles could be described as *indicating gap* while thirteen could be said to be *adding to what is already known*. The precise wording of how authors did this varied but some examples can be seen below.

However, none of these studies have been performed in paediatric hospitals
But less evidence is available of them on other contexts
To date, individual cognitive factors - **have not** been adequately studied
A **paucity** of data on diurnal variation
Few studies have examined the impact of role models
Little is known about compliance with hand hygiene after visiting the toilet

That authors often refer to limited or inadequate knowledge is not surprising at this justifies their own research, or indicates problems or concerns that are associated with limited, or lack of information. This strategy helps writers to express the reliability or unreliability of claims against a background of the current state of knowledge within a specific field (Coetzer 2009). How they do this has received some attention. Tannen (2002) has written about, what she calls the ritualised *programmed contentiousness*, in many academic writers. Tannen is critical of writers *who make a name for themselves* by positioning their work in opposition to someone else's which they aim to prove wrong. For Tannen this is akin to a doubting game which she believes can become overtly negative. Conversely Perez-Llantanda (2010) bemoans writers who merely summarise and integrate previous work as a background move without challenging it and pointing out its limitations. Fakhri (2004) has argued that the absence of evaluation can be attributed to the unacceptability of argumentative styles and/or the presence of self-promotion in the cultures that are considered. The corpus here was notable for its lack of combative rhetoric. Words with negative connotations like *failure, limitation, limited, overlook, underestimate and questionable* were not present and any criticisms that did exist referred to the body of work as a whole not particular studies. Based on this the hand hygiene community as reviewed here, tend to be a fairly unified collective that in the words of Perez-Llantanda (2010) are adders rather than arguers.

While Move 1 reports on the centrality of the research topic or generalises about previous research and Move 2 expresses the author's own opinions about the need for the current research, Move 3 is distinct as it assumes a more active

role in the research conducted. Rather than just referring to previous studies or asserting the need for this one, Move 3 is the place in the introduction where authors express and enjoy their own accomplishments, pride and commitment (Swales 1990). The personal pronouns *we* (11) and *our* (8) are notable and these will be discussed more fully in the discussion section. Overwhelmingly the majority of studies in this corpus used step one to outline the purpose of their study in a neutral manner. No article announced principal findings in their introductions.

We conducted a trial
We attempt to determine
We were curious
Our hospital has promoted
Our medical centres
Our study aimed to investigate

5.7 Discussion Sections

Following Swales' (1990) seminal move analysis of introductions, a number of other authors have developed similar models for the discussion sections of research articles (Dudley-Evans 1994, Yang & Allison 2003, Kanoksilapatham, 2005). The discussion is often the longest, most complex and important section of a research article. Discussions often blend expository and argumentative styles that combine accepted knowledge, research findings and the current authors' claims (Williams 2009). To paraphrase Moreira (2007) the results in research articles are not merely presented, but transformed, transposed, manipulated, modified and reconfigured in the discussion section. In short, research articles do not simply yield their findings, authors make them yield. It is this complexity and modulation that makes a discussion section challenging to write (Flowerdew, 1999, Martínez, 2003, Bitchener &

Basturkmen 2006). Despite the abundance of move models for discussions there is no unanimously agreed-upon pattern and they often used different labels for similar moves (Nodoushan 2011). Table 5.11 modifies Dudley-Evans original 1994 model and was used as a framework to analyse the discussions in this corpus.

Table 5.11: Move Model for Discussion Sections of Articles

Move 1	Summarising findings
Move 2	Explaining reasons for the finding
Move 3	Contributions to the field
Move 4	Linking to real applications
Move 5	Discussing limitations of the study
Move 6	Pointing to directions for future research

The analysis of discussion sections again began with the generation of a keyword list. Surveying the results it is perhaps not surprising that the keywords in Table 5.12 are similar to those found in the introductions. Writers seem to have selected words like hand, hygiene, infection, healthcare, nosocomial, compliance and adherence to restate the central tenets of an observational hand hygiene study. That is that there is a relationship between hand hygiene compliance and healthcare infection. One area of note is the keyness of the personal pronouns *our* (204) and *we* (125) in discussion sections. Expanding this area of analysis these two pronouns were plotted across each of the 4 components of a research article. Tables 5.13 and 5.14 show the results. Table 5.15 then goes on to demonstrate the presence of the words in each article and in what combination. The corpus was also examined for the first person singular, *my* or *I* but there were no examples. A possible reason for this is that there were only two articles that were written by a single author.

Table 5.12: Top 50 Words by Keyness (Discussion)

Rank	Freq	Keyness	Keyword	Rank	Freq	Keyness	Keyword
1	464	5321.601	hygiene	26	72	454.107	results
2	578	5126.685	hand	27	59	327.810	hospital
3	364	3992.993	compliance	28	33	323.510	physicians
4	260	1494.461	study	29	38	302.275	doctors
5	204	1372.786	our	30	37	295.360	feedback
6	101	1152.629	adherence	31	125	290.184	we
7	100	863.185	infection	32	45	287.874	improve
8	65	754.479	healthcare	33	59	284.289	risk
9	86	702.657	observed	34	24	278.577	hawthorne
10	59	684.835	hcws	35	30	245.545	guidelines
11	80	675.026	alcohol	36	64	244.065	high
12	117	637.259	patient	37	21	243.755	handrub
13	84	625.174	intervention	38	22	241.606	soap
14	52	603.583	nosocomial	39	29	208.412	nursing
15	51	591.976	handwashing	40	16	185.718	mrna
16	59	573.451	nurses	41	23	178.611	limitations
17	51	563.330	behaviour	42	27	175.534	bias
18	79	512.945	staff	43	44	174.200	education
19	169	487.557	may	44	35	171.983	performance
20	51	421.329	opportunities	45	42	169.496	low
21	64	405.026	associated	46	38	155.710	significant
22	39	388.967	washing	47	31	154.496	poor
23	49	385.493	improved	48	20	151.455	sustained
24	39	356.750	liu	49	13	150.896	multifaceted
25	44	344.841	practices	50	23	130.081	monitoring

H

Table 5.13: The Use of *We* Across Different Sections of the Corpus

Category	Total of We	Percentage
Introduction	45	16.8
Methods	71	26.5
Results	26	9.7
Discussion	125	46.8
Total	267	

Table 5.14: The Use of *Our* Across Different Sections of the Corpus

Category	Total of Our	Percentage
Introduction	18	7.6
Methods	9	3.8
Results	5	2.1
Discussion	204	86.4
Total	236	

Table 5.15: The Use of Personal Pronouns We and Our

Personal Pronouns	No
We or Our	25/30
Neither We or Our	5/30
We	24/30
Our	23/30
We and Our	23/30
We but not Our	2/30
Our but not We	1/30

The topic of personal pronouns was introduced briefly in the previous section. Whether or not authors should write from the perspective of the first or third person is a frequently asked question in publishing. Proponents of third person writing argue that the emphasis of academic prose should be on the information and arguments, not the writer (Hyland 2001). The facts, which have been proven by replicable empirical investigation, should be allowed to *speak* for themselves in an unmediated way (Biber 2006). However, the accusation levelled at third person writing is that it removes the author from his or her work. This potentially allows them to shirk responsibility, or deny the character of the work as an interpretative product and how their actions are relevant to the content (Harwood 2005). Avoidance of personal pronouns could also mask the fact that a research project was not carried out as objectively as the passive voice implies. Interestingly key journals in this corpus give no guidance on

whether authors should use the first or third person. Merely that manuscripts must *conform to acceptable English usage* (AJIC), *write in plain English*, (JHI) or be *unencumbered by excessive detail* (ICHE).

The results of this study indicate that 16% of articles removed all personal pronouns from their work. There was no pattern in relation to journal type or author guidelines, so it is reasonable to assume that this is author generated and not editorially controlled. It has been identified previously that writers first use personal pronouns in the third move of the introduction to occupy the niche they have created for their research. However, it is the discussion, which also tends to be the largest section, that has by far the greatest use of the words *we* and *our*. Writers of research articles have been shown to use the first person pronoun for a number of discourse functions, but mainly to state the goal or purpose of the paper, to outline procedures carried out and to make a knowledge claim (Harwood 2005, Hyland 2001). Some examples from the corpus can be seen below.

We observed a significant increase in the hand hygiene
We believe that our results accurately reflect
We found that overall compliance with hand hygiene
We attempted to minimize the effect of small sample
Our study is strongly suggestive that the present
Our experience suggests that detailed personnel
Our study the compliance with hand hygiene
Our findings reinforce previous observations

The use of *we* is interesting as it can be used exclusively or inclusively. Exclusive use is where the writer refers to themselves or research colleagues. So from the examples above “*we attempted to minimize the effect of small sample*”. This can play an important rhetorical role as it allows the writer to

strengthen their relations with the academic community, foreground their qualifications as an authority within the genre and highlight the importance of their study. This was overwhelmingly the most common form of *we* in the corpus. Alternately inclusive *we* is where the writer, includes the reader and the academic community as a whole. The following example comes from Bahal et al (2007), “*If we assume that higher rates of post contact hand hygiene is the result of HCW considering themselves to be contaminated then our observation concur with*”. The question here is who in this example is doing the assuming? Whether this ambiguity is intentional is unknown, but Vladimirou (2007) suggests that the effect can be powerful as it can make the readers feel that they are actively participating in the argument. Ultimately this can also work to help convince a reader of the validity of the claims that are being presented (Ibid 2007).

In contrast the results section is relatively sparse in its use of personal pronouns. A possible reason for this is that the passive voice helps to provide a tone of detached objectivity that backgrounds the subjective element of data collection. The example from Duggan illustrates the functional use of the passive voice. “*The compliance rate in the surgical ICU was 90%*”. Given the difficulties of observing hand hygiene behaviour a more accurate assertion would be to hedge the finding as follows, *we observed a compliance rate of 90%*. The former suggests that 90% was a fact; the latter that the data was collected within the methodological constraints of the study. Moving on to the moves themselves, as Swales (1990) suggests in his model all 30 articles began the discussion section by highlighting the main findings of their study. This

was completed by signposting the reader to the results of the study. Results was a keyword used 72 times.

Results of this study suggest
The **results** of this study
Our **results** indicate
These **results** suggest
These **results** imply

After briefly summarising their results in Move 1, the authors began to explain their findings in greater detail in Move 2. All articles completed this move. A notable result here was the high use of “soft” modal verbs like may, could and might (Table 5.16). Modal verbs are writer orientated hedges that not only protect the writer from the possible consequences of negation, but here highlight the complexity of conducting reliable hand hygiene studies and the contestable nature of results. This simply explains the difficulties of drawing definitive conclusions from the many facets of a hand hygiene study.

Hand hygiene **may** have been influenced
This **may** be explained by the notion
could potentially bias the results
might explain our findings

Table 5.16: The Use of Modal Verbs in the Academic Corpus

Word	Number
May	169
Could	59
Might	30

Earlier in this chapter it was explained how authors use Move 2 in their introduction to either locate or justify their own study, or to indicate problems or concerns associated with limited information within a particular discipline. In Move 3 of the discussion section the notion of originality was returned too

when writers outlined their contribution to the field. The word **first** was used 33 times although the second example hedges the claim by adding *to our knowledge*.

This is the **first** study
This study is the **first** to our knowledge
This is the **first** study
Our study is the **first**

The first example above seems unequivocal and came from a claim made by Eveillard et al (2009). What followed serves to highlight the competitive nature of publication. While there is no suggestion that the authors did not make their edict in good faith, the claim invoked the following response from Gould (2009) in the same journal the following month.

Eveillard et al claim that theirs is the first study to monitor hand hygiene compliance throughout entire patient care episodes, but this is not the case. I continuously monitored and documented hand hygiene compliance over a period of 2 h for 172 healthcare workers on intensive care, surgical and medical units in two hospitals in England for my doctoral dissertation which was completed in 1993, long before current interest in hand hygiene research and audit (Gould 2010c: 84).

Move 4 is used to show how the body of work links to the real world or makes practical recommendations. This move was perhaps the most difficult to assess as the question as to whether hand hygiene guidelines have practical utility sits at the heart of this study. Because the corpus is focussed on clinical practice and examines real world behaviour it could be argued that they are inherently practical. However, the analysis undertaken to date strongly suggests that the

writers of these articles are partially removed from the practice setting. This does not mean that practice improvement is not the reason for completing the study, but highlights that there may be additional motives. In essence to create their research space, authors foreground the morbidity and mortality associated with HCAI, make the link between HCAI and hand hygiene, but then problematise hand hygiene behaviour as a difficulty that can be solved.

Central to the studies in this corpus is that authors have observed and measured hand hygiene behaviour. This means that they are ideally placed to report their findings in a holistic sense. That is, mean compliance rates but also the utility of current guidelines. *Guidelines* was a keyword used 30 times, but this was phrased to affirm their importance not to challenge their practicability.

Compliance with handwashing **guidelines** has positive outcomes
In which adherence to hand hygiene **guidelines** was poor
Lowest adherence to hand hygiene **guidelines**, which may be due to
Lack of knowledge of **guidelines** as reasons cited for poor
Professionals in Infection Control **guidelines** recommend handwashing

McArdle's (2006) study was the only study that specifically explored contact rates and the time needed for hand hygiene in intensive care. From this they estimated that *nurses make on average 120 contacts/patient/day, of which 96 (mostly, indirect contact) are not followed by hand hygiene*. In other words 120 hand cleansing opportunities per nurse, per shift in an ICU. Whether by simply presenting the data McArdle et al make their point is open to question, however, the nearest they came to directly questioning whether it was practical was the following, *100% Compliance requires a significant proportion of ICU staff time*. The closest a study in the corpus did come to questioning the utility of the guidelines was the following:- *If we cannot achieve 100 percent*

compliance, we now need to incorporate in future training programmes, the multifaceted approach that all ensures hand hygiene is carried out when it counts (Bahal 2007)

Despite this, Bahal did not give practical examples of where they thought it was permissible not to perform hand hygiene. Moreover, this was diluted when they went to suggest, *although higher rates of compliance are always desirable*. This additional point protects the writers from the potential criticism that they were condoning poor practice. Randle et al (2010) wrote, *the reality is that 100% compliance is seen by some as being impractical, unsustainable and interfering with essential care*. However, the use of *by some* distances Randle from the comment and the idea receives no further attention in the article. Other studies did highlight the impracticality of handwashing with soap and water but did this to foreground the importance of AHR. As such, these studies firmly located poor hand hygiene around time and resources and offered practical solutions therein. In sum, for whatever reason studies avoided any discussion of the guidelines and their utility. This serves to highlight the selective nature of academic writing. That is, given a research direction, writers in collaboration with reviewers and editors can choose what content to include and what to erase.

Acknowledging the limitations in a study, which is the fifth move, is an important step of scientific enquiry as it places findings in context, interprets validity and ascribes a level of credibility. Despite their relative importance, Ioannidis (2007) examined author instructions and editorial policies of twenty five top-cited journals, and found that only one encouraged a discussion of

limitations. In contrast the importance, novelty, and lack of error were encouraged (Ioannidis 2007). However, in this corpus the number was much higher with twenty nine of thirty studies acknowledging the limitations of their study, frequently through the word limitations, used 23 times. The one that did not, Bahal's, came from the only journal in the corpus that did have a stated impact factor, the *British Journal of Infection Control*.

One of the **limitations** of our study was the small number
Regardless of these **limitations**, our findings shed light
Despite these **limitations**, this study indicates that non-compliance
Several **limitations** of this study exist.

Indeed a theme that is running through this chapter is that there are significant methodological problems to completing compliance studies. Perhaps the apparent willingness to discuss limitations is axiomatic of the fact that avoiding them would be futile. In a discussion section the author needs to anticipate the reader's reaction to their work and acknowledging limitations may be one way to enhance their credibility. The *Hawthorne* (24) effect, being *observed* (86) was emphasised as a way that *bias* (27) could be introduced into the study. The examples below confirm the way authors discussed these limitations. But a key point here was the way these limitations were mitigated and attenuated through the use of hedging devices. Indeed some of these statements below seem to hedge the proposition twice.

Some bias may have influenced
Could lead to a **hawthorne** effect
Observers may have missed key aspects
It is **possible** that participants **may** have
May also create the **potential** for the **hawthorne** effect
Some staff members **might** have

A further example comes from Metz (2010). In discussing the Hawthorne effect Metz wrote, *it is likely that knowledge about the trial spread to the control group*, but then countered this with *the effect is expected to diminish over time*. This pattern was repeated by a number of other authors who acknowledge the potential impact of the Hawthorne effect but then minimised its relevance to their studies. In the Picheansathian study compliance pre-intervention was 6% and this rose to 81% post educational programme. It was noted that there was a *possibility of a Hawthorne Effect*. However, there was greater clarity in suggesting that *given that the present study results in outstanding improvements in hand hygiene, the model employed here might be considered in other hospitals*. Given the intervention consisted of, by most standards, a relatively routine hand hygiene promotion programme, the very low baseline figure alongside the extraordinarily high post intervention result raise a number of questions which are not adequately explained by the author; other than to suggest that this was the result of their campaign. This points back to Gould et al (2011) assertion made in Chapter Three that contextual information is often lacking in research studies so it is not possible to tell what impact the study design had on the results.

Suggesting further lines of enquiry, Move 6, can indirectly boost the writer's research results by placing them within the body of knowledge (Perez-Llantada 2010). Only eight of the thirty studies made specific recommendations for further studies. Some of these were where the authors would advise that their studies be replicated in other diverse settings by typically using the word further (23).

Further studies are needed to investigate
Further research in different hospital types
Further studies should be undertaken
Further investigation is required

Some were more ambitious and it could be argued lack real world application. For example, Sharek et al (2002) proposed that *A randomized control trial of this intervention may be warranted if ethically feasible*. McCardle et al (2006) advocated *Further research should determine whether providing more time for hand hygiene can produce sustained improvements in hand hygiene practice, and whether this reduces the incidence of HCAI and improves patient outcomes* How to conduct a Randomised Control Trial on hand hygiene that would be ethically acceptable has vexed hand hygiene researchers for a considerable time and McArdle and Sharek do not offer any new insights about how a researcher could achieve this. In many of the studies the discussion and conclusion were co-joined and for this reason were read as a single narrative. A point made by Jackowski (2010) is that discussion/conclusion moves tend not to use negative language; but rather couch their findings in a positive way. Improved (49) and improvement (47) were both keywords used to emphasise the results of the study.

Significantly **improved** hand washing compliance
The intervention **improved** hand hygiene
Hand hygiene **improved** from
Statistically significant, modest **improvement** in HH compliance
A marked and sustained **improvement** in compliance
Significant and sustained **improvement**

In contrast, some studies, albeit a significant minority, did report disappointing findings. Sahay (2010) wrote, *in conclusion, despite the wide acceptance of*

CDC hand hygiene guidelines, continuous teaching programs, and vigilance, hand hygiene practices remained low in clinical practice. While van der Vegt (2009) penned we concluded that, in spite of the need for it, hand hygiene compliance of HCWs even after toilet visits is unacceptably low. However, perhaps a key difference between Sahay and van der Vegt's study and the others that are cited is that Sahay and van der Vegt were not evaluating an intervention that was introduced by them as part of the study. As such, although the results were not what the writers would have wanted, it did allow them to make recommendations that are swathed in optimistic language, see below. On the one hand this demonstrates the writer's commitment to the research community, but a critic might argue that the rhetoric is rather empty. That is, providing goals that are purposefully vague, generalist, and agreeable.

Compliance can only be achieved by continuously educating all health care personnel and having institutional commitment to ensure complete understanding of the role of hand hygiene in infection control (Sahay)

Knowledge, attitudes and beliefs and behaviours of colleagues toward hand hygiene need to be improved by multimodal and multidisciplinary approach (van der Vegt)

5.8 Summary and Conclusion

The traditional view of academia is that it imbues a scientific, impersonal style of discourse that concentrates on facts and eschews personal opinion. An alternate view, outlined in this Chapter, is that it merely represents a different kind of persuasive encounter and social exchange. The articles that appear in press are not necessarily ones that advance our knowledge on a topic, but the result of choices made by editors and editorial boards who have the power to

move research in preferred directions, promote particular topics and favour certain methodologies. This can dictate and legitimise what is acceptable content. Moreover publication can be a competitive, elitist enterprise that privileges the skill set of those who hold high office, and in the case of hand hygiene, are in part, removed from the things that they write about.

While the altruistic notion of practice improvement provides an incentive to publish the findings of a research study, the position is more complex than this and there are additional motivations including the enhancement of professional reputations and financial reward. When articles do appear in press they include the language choices of the writers and these have been authenticated by the journal. This includes writing titles that arouse interest, draw attention, indicate content and at times stretch their results. Attitude markers are used to establish hand hygiene as a problem and hedges and boosters are used judiciously to emphasise the importance of the topic. In addition citations do more than locate previous research but are used strategically to support the writer's argument. The weaknesses of studies are back-grounded as are the utility of hand hygiene guidelines. The conclusions of studies take a positive outlook even in the presence of disappointing results. The next chapter will build on the scientific discourse of the academic community by considering its polar opposite, the lay discourse of the newspaper media.

Chapter Six

Newspaper Discourse

6.1 Introduction

Newspapers can provide a powerful narrative about the world that is often beyond the immediate experience of the individual (McNair 2009). Indeed the press can have an influential in mediating ideologies as they are able to reach large numbers of people at any one time (Brooks & Herbert 2006). When it does this the industry may have a vested interest in reproducing the status quo through representation of ideas and events which appear to be consensual common sense (Blackledge 2005). The latter point is echoed by Burr (2003) who suggests ways of thinking and behaving, if internalised, can become culturally embedded and pass into the realm of *common knowledge*.

Although active audience theory and social reception theory challenge the notion that spectators are passive, gullible entities that are easily manipulated by the media (Williams 2011) the Social and Public Health and Sciences Unit (2012) suggest that health-related news can be highly influential in how people engage, understand and use public health knowledge. A report to the Secretary of State for Culture, Media and Sport indicates that despite the competition from new technologies there is still strong reliance on television, newspapers and radio (Ofcom 2009). The influence of newspapers is captured by Cole & Harcup (2010) who propose that the phrase *never believe what you read in the newspapers*, is coined by people who believe most of what they have read.

In truth it is difficult to quantify the precise impact that the newspaper media may have on public opinion, but tellingly in spite of falling sales the British remain great consumers of printed news, comment and entertainment. On average the British public buy nine million national newspapers each day (Audit Bureau of Circulations 2013). Moreover, British national newspapers offer an excellent source of material for research, that is easily accessible and reflects an array of political, social and institutional opinions that are both current and topical (Lynn & Lea 2003). A number of authors have adopted language based studies to explore the domain of infection prevention and control in the newspaper media. There is a particular emphasis on the representation and management of MRSA and hospital hygiene in the broadest sense (Chan et al 2010, Boyce et al 2009, Crawford et al 2008, Washer & Joffe 2006) but little specifically on hand hygiene.

As discussed in Chapter Four, the corpus for this study spanned a ten year time frame from 2000–2010. The key words hand hygiene, handwashing, hand washing, washing hands, wash hands, in hospital, were searched in all UK National Media. This resulted in 235 articles (110,000) words that fulfilled the studies criteria. This Chapter will consider the background to newspaper reporting as well as identifying the exponential increase in hand hygiene stories. There will be an examination on how stories are given news value, the way they are constructed and the evaluative strategies that were employed. The tone of the piece will be reflected upon as will the actors who gain prominence and the solutions that are then offered.

6.2 Background to the Media

How the newspaper media represents a topic is closely bound to the conditions in which it operates. Iyengar's (1997) conceptualised this as a media effects model which he argued has four components; *Informing*, *Agenda Setting*, *Framing* and *Persuading*. These will be briefly considered. Firstly the media have a role to *inform* (Randall (2007)). That is, find out fresh information on matters of public interest and then relay this quickly, accurately and honestly. The extent to which they discharge this public function will nonetheless, be mediated by the need to succeed as a business. As a result journalists are often obliged to generate stories quickly and express them briefly, and this can produce a pressure to simplify and exaggerate (Seale 2010). Secondly agenda setting theory holds that the media has a central role in choosing what stories appear in the press (Clarke & Everest 2006). The stories that do appear are not simply a reflection of the health issues that are prominent in society. Rather, they are the result of a competitive process among multiple actors vying for finite amounts of attention and space.

While the effects of informing and agenda setting are mediated by the quality and quantity of news coverage, *framing* is concerned with the selective representation of an issue (Collins, Abelson, Pyman et al 2006). It is widely accepted that the news media do not simply present expert knowledge as fact; rather, journalists have to select, interpret, and convert observations into news (Van Hout & Jacobs 2008). Throughout this process some events will become dominant and others excluded. By framing the media can define what is important about an issue and what is not, who is responsible, where the

potential solutions lie and how urgent it is. For some framing is particularly influential in circumstances where the audience has little or no direct experience of the phenomenon under investigation (Birenbaum-Carmeli, Banerjee, Taylor et al 2006). If the media help to construct versions of reality, *persuasion* deals with how the subjects of discourse respond to them.

Newspapers do not always attune to public opinion. *Bonkers Bruno locked up* (*Sun* 2003) a report that referred to the boxer Frank Bruno's mental health problems, *Achtung Surrender* a football match between England and Germany (*Mirror* 1996) and the Sun's coverage of the Hillsborough disaster (*Sun* 1989) are all cited as cases where a newspaper hopelessly misjudged popular taste and were forced to recant their stories (Richardson 2006, Bell 1991). While persuasion is closely associated with informing, agenda setting and framing, it particularly privileges the actors involved. That is, what is the message, who is source and who are the audience (Iyengar 1997).

6.3 Quantity of Coverage

Turning to the corpus, the first stage of the analysis was to consider the quantity of coverage, and its source. Table 6.1 demonstrates the newspaper coverage of hand hygiene 2000-2010 compared to the previous 10 years, 1989-1999. Table 6.2 shows a yearly breakdown of articles over the study period. It has been documented elsewhere that throughout the noughties there was an exponential increase in newspaper coverage of HCAI, largely associated with superbugs and dirty hospitals (Chan et al 2010, Boyce et al 2009, Crawford et al 2008, Washer & Joffe 2006). It is likely that these findings are part of the same narrative. The problems associated with hand hygiene were well

documented in the press when the *Times* ran an article in 1990 suggesting that many infections could be prevented if medical staff did not *ignore basic hygiene rules like washing hands between patients*. In 1997 the *Independent* wrote *nurses who fail to wash their hands are contributing to the spread of bugs in hospital*. In other words the problems of HCAI and hand hygiene were well known to the media in 1990 but at this stage it did not receive the same level of coverage. This illustrates how news values and newsworthiness changes overtime and will be explored in more detail later. Table 6.3 identifies the newspaper source. And Table 6.4 the wordage assigned to the article.

Table 6.1: Newspaper Coverage 1989-1999, 2000-2010

Date	No
1989 – 1999	9
2000 – 2010	282

Table 6.2: Yearly Breakdown of Newspaper Coverage

Year	No	Year	No
2000	16	2006	26
2001	4	2007	53
2002	9	2008	51
2003	25	2009	19
2004	30	2010	11
2005	38	Total	282

Table 6.3: The Source of Newspaper Articles

Newspaper	No	Percentage
Sun	62	21.9%
Times & Sunday Times	47	16.6%
Express Group	46	16.3%
Daily Mail & Mail on Sunday	37	13.1%
Mirror & Sunday Mirror	32	11.3%
Telegraph & Sunday Telegraph	24	8.5%
Guardian & Observer	18	6.3%
Independent & Sunday Edition	11	3.9%
Daily Star	3	1.1%
People	2	0.7%
TOTAL	282	99.7%

The first and fifth places are taken by the red top tabloids, The *Sun* 62 (21.9%) and the *Mirror* 32 (13.1%). Traditionally the red top tabloids have been the most popular newspapers, targeted at the working man, but now more broadly at readers of both sexes from lower socio-economic groups (Cole & Harcup 2010). The language in red tops is notable for its accessibility and readability and has heavy use of metaphor, irony, alliteration, rhyme and parallelism. Typically they have a sensationalist news style; a celebrity orientated and sexualised news agenda and use aggressive journalistic methods. The focus tends to be on those things which are apt to arouse curiosity but require little analysis (Johansson 2008). According to Allan (2010) this feeds a reporting style that is capable of mobilising prejudices to those who are already stigmatised. He goes on to suggest that these emotional prejudices can become aggressive almost to the point of a symbolic lynching. Red top tabloids tend to be a *quick read* with most stories running to less than 400 words (Cole & Harcup 2010). Indeed in this corpus only 11% of the *Sun*'s content exceeded 400 words and no article was longer than 450 words.

Table 6.4: Word Count of Newspaper Articles

Newspaper	Words	Words	Words	Words	Words
	0-100	100-200	201-500	501-1000	1001+
Sun	33 (53%)	15 (24%)	13 (20%)	1 (1.6%)	0
Times & Sunday Times	9 (19%)	12 (25%)	15 (31%)	10 (21%)	1 (2%)
Express Group	9 (19%)	13 (28%)	17 (36%)	7 (15%)	0
Daily Mail & Mail on Sunday	3 (8%)	1 (2%)	12 (32%)	16 (43%)	5 (13%)
Mirror & Sunday Mirror	14 (43%)	11 (34%)	4 (12%)	3 (9%)	0
Telegraph & Sunday Telegraph	1 (4%)	6 (25%)	7 (29%)	10 (41%)	0
Guardian & Observer	3 (16%)	2 (11%)	6 (33%)	6 (33%)	1 (5%)
Independent & Sunday Edition	2 (18%)	3 (27%)	3 (27%)	3 (27%)	0
Daily Star	2 (66%)	1 (33%)	0	0	0
People	1 (50%)	0	0	1 (50%)	0
TOTAL	77 (27%)	64 (22%)	77 (27%)	57 (20%)	7 (2%)

13.1% of the articles came from the *Mail* or its sister paper the *Mail on Sunday*. The *Mail* is the second largest selling newspaper in Britain and it attracts an upwardly mobile readership from the redtop sector as well as competing with the quality sector. It has built its reputation on a capacity to address the interests of women and what journalists sometimes like to call *Middle England*. It is essentially a Conservative paper, reflected in a strong editorial position on personal morality and family life (Seale, Boden, Williams et al 2007). According to Cole & Harcup (2010) the *Mail* likes a *rant*. It has a strong record of exposure stories and frequently makes waves and sets the political agenda. The *Mail* is something of a *bête noire* to the liberal left. In 2008 Nick Davies argued that the *Mail's* style of reporting was rather like the work of a gardener.

'It digs out and throws away weeds and stones and anything else which he does not want and then plants whatever he fancies' (Davies 2008: 357).

The third highest result came from the *Express* (46-16.3%) which is a right of centre, middle market tabloid, similar in style and tone to the *Mail*. Reader's letters were a particular feature of the *Express* and these will be discussed in greater detail later. In contrast to the red tops the mid-market papers are not afraid to run long stories over more than a page. The average length of the *Mirror's* stories were 70 words, the Sun 110 words, The *Express* 240 words and the *Mail* the longest in this group of papers at 570 words. The *Mail* produced a number of substantial critiques on what it saw as the failing hygiene standards of the NHS. One, under the heading *Doctors to blame for superbug crises, says health chief* Sir Liam Donaldson, the Government Chief Medical Officer made the following points about hand hygiene:-

*Chief medical officer Sir Liam Donaldson said the failure of doctors and nurses to **wash their hands** was a key factor behind the superbug crisis.*

*Sir Liam cited the harrowing case of a man who had to have his MRSA infected leg amputated after medical staff had flouted basic **hand hygiene** standards.*

*He said staff should always **wash their hands** between each patient, but in some hospitals they only did so 10 per cent of the time.*

*Sir Liam said patients should demand that doctors and nurses **clean their hands**. Every patient should have a personal supply of antiseptic hand-rub by their bed to offer staff.*

*He called for action on 'the unacceptably low levels' of **hand hygiene** in hospitals.*

*Good **hand hygiene** should be a natural reflex for healthcare professionals, yet it no longer has the status it once had,' he said.*

*Every time a patient is touched, several thousand bacteria can be passed between the clinician and a patient. Yet patients do not feel able to ask their doctor or nurse if they have **washed their hands** before touching them.*

The next four positions were taken by *heavy weight* publications. The *Times*, in second place, bucks the trend of red top, mid-market dominance with double the hits (47-16.6%) to its traditional rivals; The *Telegraph* (24-8.5%), *Guardian* (16-6.3%) and *Independent* (11-3.9%). The *heavy weight dailies* and their four sibling Sundays have readership that are 80% from the professional and managerial classes. Readers are, to varying degrees, educated, cultivated and influential (Hilton, Hunt, Langa et al 2010). The quality papers span the mainstream political spectrum with the *Independent* and *Guardian* considered to be left of centre and the *Times* and *Telegraph* to the right. Although there remains a considerable gulf between the heavy weights and tabloid press, it has been suggested that all segments of the UK media are increasingly influenced by a populist agenda (Seale et al 2007). Cole & Harcup (2010) believe that the *Times* is a case in point, particularly since the arrival of Rupert Murdoch in 1997. This could offer one reason why this publication has a significantly higher output than its traditional rivals. Another is that the newspapers that fill first and second place, despite being radically different in tone, come from the same News International Group. The *Telegraph*, *Guardian* and *Independent* house sixth, seventh and eighth place respectively. The total output does vary but the wordage of articles is similar. With the exception of the *Mail*, the *heavy weight* newspapers include longer and more elaborate articles.

6.4 Source of the Story

Having considered the newspaper, the number of reports and their size, the next stage was to explore how the *event* itself was brought to the attention of the newspaper. To facilitate this a keyword list was generated (Table 6.5).

Table 6.5: Top 50 Words by Keyness (Media Corpus)

Rank	Fre	Keyness	Keyword	Rank	Fre	Keyness	Keyword
1	942	6230.332	hospital	26	101	640.206	standards
2	624	5601.886	mrsa	27	90	612.939	deaths
3	667	5512.850	patients	28	154	561.192	every
4	665	5205.196	hands	29	154	529.380	report
5	475	4167.059	hygiene	30	87	498.892	basic
6	449	3693.525	infection	31	109	461.138	care
7	528	3167.567	staff	32	72	429.334	dirty
8	393	3151.583	wash	33	49	417.020	cleaners
9	454	2528.159	health	34	104	406.022	campaign
10	298	2520.880	documents	35	68	397.642	visitors
11	300	2507.435	nurses	36	56	396.432	deadly
12	294	2234.856	doctors	37	47	393.985	compliance
13	360	2001.405	hand	38	69	387.115	properly
14	171	1535.132	superbug	39	54	384.473	guidelines
15	176	1128.995	clean	40	56	368.174	failing
16	439	1085.943	all	41	63	352.266	rules
17	150	879.749	medical	42	78	342.448	poor
18	98	823.240	cleanliness	43	63	338.543	pounds
19	111	820.185	cleaning	44	135	303.391	government
20	102	800.261	acquired	45	60	270.601	died
21	258	746.681	should	46	66	266.525	fail
22	82	736.145	diff	47	33	249.838	tolerance
23	89	695.532	healthcare	48	29	236.058	filthy
24	77	691.258	handwashing	49	37	231.791	audit
25	81	683.637	resistant	50	34	228.868	zero

Approximately 60% of stories came from an accredited, authoritative source demonstrated by through high frequency words like *report* (154), *government* (135), *campaign* (104) and *guidelines* (54).

Yesterday's **report**, The Management and Control of Hospital Acquired treating patients, according to a new **report**.
After the NAO's **report** in 2000, the public accounts committee made a
The **report** came as Government figures showed that almost

A NEW **campaign** stressing the importance of hand hygiene there will be a new hand hygiene **campaign** launched in January
Mr Johnson will unveil a £500,000 **campaign** to publish "top tips"
millions of pounds being spent on a handwashing **campaign**

Press releases in particular seem to have some impact and are highly valued by journalists. An independent news rating website concluded that up to a third of health news stories relied solely or largely on press releases (Schwartz, Woloshin, Andrews et al (2012). For example following the *House of Commons Committee of Public Accounts: Improving patient care by reducing the risk of hospital acquired infection: a progress report* on June 23rd 2005, the *Mail*, *Telegraph*, *Guardian*, *Mirror* and *Sun* all produced articles. The *Mail*, *Mirror* and *Guardian* quoted the *Powerful* Commons Public Health Committee, thus enhancing its standing, the *Mail* (2005) then referred to the report as *devastating* and the *Mirror* (2005) *scathing* thereby using evaluative techniques to intensify the newsworthiness of the piece. In a similar way the *Mail* and *Telegraph* used the word *condemned* to describe the lack of urgency on key issues such as hand hygiene.

When the *Lancet* criticised the Government's cleaning programme and argued *they would be better employed making sure doctors, nurses and visitors wash their hands properly*, this was reported by the *Mail* (2007c) using the words above but also in a slightly different form in the *Mirror* (2007c), *Sun* (2007d) and *Times* (2007c). In a similar vein of officialdom following the outbreak of *Clostridium difficile* at Maidstone and Tunbridge Wells NHS Trust the *Telegraph* (2007a) reported *incredibly some nurses did not even wash their hands*. An outbreak of *Clostridium difficile* in Scotland was recorded by the *Express* (2009b) who stated there would be *a crackdown on staff who fail to wash their hands*. Finally local initiatives were often reported as good news reports from individual trusts. For example, *all staff at Queens Medical Centre*

in Nottingham have been given handwashing training and the hospital says it has paid off with a significant decrease in MRSA cases (Telegraph 2003).

Those that did not emanate from official sources could be more loosely termed opinion pieces. Some of these were from journalists and a number from reader's letters, of which more will be written later. Innovation, associated with novelty, invariably came from the private sector. For example, when General Electric developed a high tech hospital smart room which monitored the movement of clinicians and their hand hygiene compliance through video cameras and sensors, the *Times* (2010c) stated that this was a *high tech solution to a low tech problem*. Other pieces became noteworthy because of a tone that was overtly, provocative or irreverent. For example, when there was the suggestion that there was a tension between religion and good hand hygiene practice, the *Telegraph* (2008, 2010b) reported that *Muslim medics break superbug rules and female Muslim doctors exempt from bare arms hygiene rule*. Similarly the *Times* (2008a) reported *Some Muslim healthcare workers refuse to use the recommended alcohol hand rubs*. In 2008b the *Mirror* reported that *cardboard cut-outs used to tell visitors to wash their hands were sabotaged to make the sound of breaking wind*, while in 2005c the *Express* stated that *two hospital tea ladies have quit after being told to wash their hands before handing out cuppas to patients*.

6.5 News Values

Given that hand hygiene is a complex, enduring topic that has vexed infection control professionals since 1862, this element of the study considered how the newspaper media made the topic of hand hygiene *newsworthy*. Media studies

commonly associate newsworthiness with news values. As Brighton & Foy (2010) point out in the purest sense everything that happens in the world is a news event, and somebody somewhere will have some level of interest in the occurrence. However, research into news values has attempted to systematise what makes something newsworthy and why journalists select some stories over others. Galtung & Ruge (1965) performed what is now considered the seminal study when they analysed a selection of crises stories in foreign news and identified twelve categories of news values. The model has undergone much discussion and some refinement (Seale 2010, Cotter 2010, Richardson 2007, Harcup & O, Neil 2001) and although there have been some changes in labels the essence of what makes something newsworthy is relatively unchanged, and some key themes will now be applied to the headlines of articles from the corpus.

6.6 Headlines

Because the reading path of a newspaper is strictly encoded, the most salient element, the headline, has received particular attention from discourse analysts (Mahfouz 2013, Richardson 2006, Develotte & Rechniewski 2004). Typically a headline is written in a larger font, sometimes in bold. It commonly includes memorable linguistic features such as puns, alliteration, the choice of emotive vocabulary and other rhetorical devices (Bell & Garrett 1998). They are particularly persuasive as many of those who buy a paper may glance, if only fleetingly, at the headline. In addition because headlines stand out their impact can be wider than the audience who actually buy the paper. For example, they can be glimpsed at by others, perhaps on a bus or in a waiting room, thus

leading them to the conclusion that the issue written about is of particular importance (Develotte & Rechniewski 2004). *Negative* news stories are newsworthy and are typically associated with *bad happenings*. These were the most common way that headlines were framed.

Doctors' fail to wash (Times 2010a),

Patient's at risk as medics fail to hit hygiene standards (Express 2008b),

Doctors to blame for superbug crises (Mail 2007b),

Full wards and staff shortages help to spread superbugs (Guardian 2004a)

Lessons on washing hands curb superbug (Telegraph 2003)

In these examples the first two were associated with the release of audit results that did not achieve hand washing targets. The third, briefly touched on already, was built around an interview with Sir Liam Donaldson, the Chief Medical Officer where he made a number of criticisms about the management of HCAI in the NHS. The fourth noted that the failure of medical staff to wash their hands was a key factor in the rise in infected patients. Interestingly these stories, gave additional value as they targeted the behaviour of a particular professional group, doctors. This will be discussed in greater detail later. In contrast the final example is a good news story and reported a reduction in MRSA following the introduction of a hand wash programme. Good news also sells. In essence newsworthiness is about reporting destabilising (negative) and stabilising (positive) elements. *Superlativeness* was also common in titles and follow the premise that successful news stories intensify particular aspects of an event.

Two thirds of doctors fail to wash hands properly (Times 2009),
Hundreds of hospitals fail to hit hygiene target (Express 2007),
Docs too busy to wash hands of superbug that kills 6,000 a year (Sun 2006a),
50m to make nurses wash their hands (Mail 2007d)

In these examples *two thirds*, *hundreds*, *6000 deaths* and *£50m* are additional linguistic devices whose function is to that maximise the scale of non-compliance, the morbidity associated with HCAI and the cost of *tax payers money* to address a problem. If an event is of the moment, *timeliness* can make a story more newsworthy. This can be an aspect of a story that has recently happened, something that is about to happen or an event that might happen in the future. The examples give an example of each. The *Independent* article reported on a recent hand hygiene study, The *Express* an introduction of a new hand hygiene campaign in Scotland and the *Sun* that punitive action could be an option in the future.

Cleaning up their acts (Independent 2006),
New hand wash crackdown to best superbugs (Express 2009c),
Wash up Doc or face the sack (Sun 2008f),

What is newsworthy usually concerns the country, region or city in which the news is published.

NHS staff who don't wash up will face the sack (Express 2008c),
Flouting of NHS hygiene as bad as drink driving (Guardian 2006)

In the previous examples *Proximity* is established through the nominal group phrase NHS. Both articles invoke *negativity* as they assume problematic behaviour *intensification* is showcased in both by the use of the words *sack* and *flouting* and *timeliness* in the former as it predicts a future event. *Consonance* comes from the idea that a story is more newsworthy if they tie in with people's stereotypes.

Muslim medics break superbug rules (Telegraph 2008)

Muslims refuse anti-MRSA soap (Sun 2006b).

These examples fit with the archetype media story of heroes and villains, with Muslims portrayed as villains. Whether or not this is an example of Islamophobia, both the title and foregoing article, positions Muslims as difficult and problematic. Moreover, how *we*, the indigenous population have to make sacrifices accommodate them. A general truism in media circles is that a story becomes more *prominent* if they concern elite individuals and celebrity rather than the common man.

Use soap say stars (Sun 2007g)

Nurse slate Ann as too posh to wash (Sunday Express 2005),

Bring back Matron (Sunday Times 2007a)

The first example from the *Sun* concerns a group of soap opera actors who urged their compatriots to *reach for the soap* as part of a hand hygiene campaign. The second describes an episode where nursing staff were reportedly too nervous to ask Princess Ann to wash her hands during a visit to a ward that may, or may not, house patients who have MRSA. Prominence can

also be achieved through the use of role labels. In the final example, the title Matron reverberates throughout the NHS as an authority figure and strong disciplinarian who will get things done. The reputation of matron can also instil a sense of nostalgia and the news value of *consonance*.

In the main, stories that are *personalised* attract more value as a news event than generalised concepts and processes.

My NHS bug fight (Mirror 2008a),

My mother became a target (Telegraph 2005)

These examples use the personal pronoun *my*. Previously it has been outlined how elite social actors can give a story prominence. However, equally experiences from the public at large make the incident more accessible. That is, it is something that could happen to you! News stories that are unusual, rare or surprise people are called *novelty pieces*.

Washing hands in hospital could give you an infection (Telegraph 2009),

NHS killers (Sun 2007c),

CCTV to nab non washers (Times 2008b).

The article from the *Telegraph* appears counterintuitive but quotes a *leading bacteriologist* note the prominence, who supposes that hospital taps are *crawling with germs*. The negative word association of NHS and killers, is a striking way for the *Sun* to report the consequences of poor hand hygiene. The latter example from the *Times* follows a quote from *patient concern* and promotes the idea that filming staff is the preferred way to make them

accountable and improve hand hygiene. Rhetorical devices based on word play can have an interpersonal function in terms of attracting a reader.

Wards bug fight (Sun 2009a),

Visitors sprayed in MRSA battle (Express 2005b),

Is hygiene all washed up (Times 2007a),

Doc has superbug in a lather (Mirror 2006),

Dirty Docs (Sun 2008d)

The first two present military metaphors that portray the management of MRSA as a war and hand hygiene as weapon to defeat it. The *Times* and *Mirror* use punning devices to foreground the importance of hand hygiene as well as highlighting what they see as poor performance. The last example, *Dirty Docs*, is an alliteration that also works as a negative piece and timelessness as it concerns the present day. The final example below came from the *Mail* (2005). It is the longest title in the corpus and contains numerous pieces of news value.

300,000 people catch deadly infections every year, 5000 of them die as direct result - 1500 others are left so weak they die from other illnesses – so how many MORE must die before our nurses remember to wash their hands?

The numbers *300,000*, *5000* and *1,500* maximise and intensify the impact of the event. Infections become *deadly* which further highlight the negative events that surround this story. The *MORE* in upper cases is a rhetorical device that is seen to implore the reader and makes the contents timeless and proximate as it discusses a problem which is both topical and local. The rhetorical question

and the personal pronoun engage and personalises the subject. The role label *nurse* adds additional news interest and hand washing provides *novelty* as it is alleged that all the aforesaid carnage sits at the door of something as simple and uncomplicated as washing hands.

6.7 Evaluation of the News

A further distinction that can be made in relation to news values is that it runs along a continuum of the cognitive and the discursive. A cognitive perspective conceptualises news values as internal assumptions about the event itself. For example a person who is about to be admitted to hospital for surgery may be concerned about acquiring MRSA and might be particularly interested in stories about *bad happenings*. Alternately, as we will increasingly see, from a discursive point of view, newsworthiness is not always inherent in the events themselves but established through language (Bednarek & Caple 2012). The next stage of the analysis is to examine how writers express opinions about the events, people and situations they report on. Otherwise known as evaluation, Thompson & Hunston (2000: 5) provide the following useful definition of evaluation: - ‘A broad cover term for the expression of the speaker’s or writer’s attitude or stance towards, viewpoint on, or feelings about the entities or propositions that he or she is talking about. The attitude may relate to certainty or obligation or desirability or any of a number of other sets of values’. Drawing on the work of Francis (1995), Bednarek (2006) developed a framework of evaluative parameters (Table 6.6) to examine newspaper discourse. This posed a number of questions which provided a useful backdrop to scrutinise author related opinion in this study.

Table 6.6: Framework of Evaluative Parameters

Parameters
The Parameter of Un/importance - how important or unimportant?
The Parameter of Im/comprehensibility - how comprehensible or in/comprehensible?
The Parameter of Im/possibility or In/Ability - how possible or impossible?
The Parameter of Un/necessity - how necessary or unnecessary?
The Parameter of Emotivity - how positive or negative?
The Parameter of Un/genuineness or In/authenticity - how authentic or artificial?
The Parameter of Reliability - how likely or unlikely?
The Parameter of Un/expectedness - how expected or unexpected?
The Parameter of Evidentiality - how do we know?
The Parameter of Mental State – how do people feel about this?

The most common words to describe hand hygiene were the keyword adjectives *basic* and *simple*, which occurred 87 and 38 times respectively. The Express also described hand hygiene as a *little thing* (Express 2005a).

Basic precautions like hand-washing
fail to follow **basic** hand-washing procedures
failed to reach a **basic** 90 per cent handwashing target
basic hygiene, like hand-washing between patients

It will add that **simple** hand-washing routines could save
followed **simple** hygiene rules such as washing their hands
It's a **simple** message, but washing our hands is
simple measures such as frequent hand-washing

Here, journalists are using *simple* and *basic* to question how possible or impossible it is for HCWs to cleanse their hands. In their study on the management of MRSA, Crawford et al (2008) argued that adjectives like *simple* are often used to evaluate, judge and blame individual shortcomings. In these examples, presumably, the media are discussing hand hygiene as a skill. That is, the psychomotor skill that is required to perform the task. In so doing,

the parameter of comprehensibility is brought into play. It is likely that hand hygiene is something that the reader performs on a regular basis, so why, they may ask, is it beyond the capability of a skilled HCW. Despite this, it would be wrong to suppose that the public are perfect role models when it comes to hand hygiene. A recent UK-wide study, indicative of previous findings, reported that 99% of people interviewed at a motorway service station toilet claimed they had washed their hands after going to the toilet. Whereas electronic recording devices revealed that only 32% of men and 64% of women actually did so (Winterman 2012). It would seem that hand hygiene is a further example, of don't do as I do, do as I ask.

The relevance of hand hygiene as a *basic* and *simple* activity is made more overt by the currency it is then given as a strategy to prevent HCAI. In the previous Chapter it was discussed how academia used hedges, boosters, attitude markers and citations when offering an opinion on the effectiveness and utility of hand hygiene (Hyland 2008). The next strand of the analysis was to examine the rhetorical devices that the media use to achieve the same objectives. To begin with each article was categorised, in broad terms, as to whether hand hygiene was fore-grounded as a strategy to prevent HCAI, assumed or back-grounded, Table 6.6. That is, when hand hygiene is discussed within the media is it typical for the story to make a statement that emphasises the impact that good hand hygiene will have on the incidence of HCAI. Does it assume a positive stance but do it more implicitly, or does it mitigate it in some way as one part of a larger strategy? Table 6.7 exemplifies that the corpus adopted a positive tone towards hand hygiene. Some of this was overt in the

manner traditionally seen in academic articles and some was more assumptive. A small minority of papers back-grounded hand hygiene by suggesting that it was best seen as one component of a broader strategy.

Table 6.7: The Emphasis of Hand Hygiene in Newspaper Articles

Assumed	152	53.9%
Fore-Grounded	113	40%
Back-Grounded	17	6%
Total	282	

A positive stance was realised through keywords like *important* (56) and *effective* (41)

seems the most **important** way to cut hospital-acquired infections
 Hand-washing is very **important** in terms of preventing hospital
 widely known to be the single most **important** measure
 hand-washing is the single most **important** hygiene measure

hand hygiene is the single most **effective** defence
effective hand-washing between patients cuts
 Truly **effective** measures to control the spread
effective hand-washing cuts down the incidence

The aforementioned examples illustrate how the media uses the parameter of evidentiality. That is, what kind of evidence is supplied to support the assertion? Although written by journalists, each of the statements is given additional shape by citing the opinions of those in powerful and privileged positions. Baker (2006) calls this a hierarchy of credibility, whereby people will more readily accept opinions from individuals they understand to have access to more accurate information. In essence elite speakers increase the newsworthiness and standing of a story. However, expert opinion can be integrated in different ways. There were examples akin to the typical traditional academic style of citations where Professional sources such as, Health

Protection Scotland and the Microbiologist Hugh Pennington head the text. Indeed Pennington was a keyword used 16 times. His authority in the examples below is accentuated through the noun phrase *Professor*, and later *Emeritus Professor*.

Professor Hugh Pennington, a microbiologist and expert in hospital
Professor Hugh Pennington says HAI kills 5,500 patients a year
Prof Pennington said more could be done to stop the spread
Hugh **Pennington, emeritus professor** of bacteriology

Generally named sources are highly valued by editors, but frequently unnamed sources are used (Stenvall 2008). An example of this came in 2000 when the Guardian wrote *Doctors are not washing their hands after treating patients, despite **evidence** that basic hygiene could dramatically reduce hospital infection rates*. Likewise the Sun in 2005 stated ***experts** say the key to halting the spread of the lethal bug is for staff to wash their hands when moving from patient to patient*. Neither the evidence nor the expert was explicitly cited. Further examples of evasiveness were cited Sun in 2009, which wrote *is one of the simplest – yet most effective ways of tackling infections in hospital* and the Independent in 2003 - *Handwashing has been claimed to save so many lives that if it were a drug it would be approved immediately*. The sources are not stated and the reader would have to ask who is it that is making this claim?

A final example from the Express in 2003 is apt and raises the question of what it takes to make someone a media expert. The following came from a 970 word polemic from the now deceased media commentator Claire Rayner. *When I was a young nurse, young nurses had the importance of handwashing and cleanliness drilled into them*. A diatribe on the way things used to be, Claire

Rayner is not explicitly called an expert, but is subtly positioned in that way by assigning her the title *former sister*. What the article does not state is that Claire Rayner retired from nursing in 1960. The next examples could be termed more assumptive. According to Fairclough (2003) assumption can be a strong rhetorical device with implicitness a pervasive property of texts. He argues that while no form of social communication is conceivable without common ground the capacity to exercise social power, domination and hegemony includes the capacity to shape to some degree the nature and content of the common ground. So hand hygiene becomes everybody's business because of the undoubted affects this will have on HCAI.

MRSA was a keyword in the corpus which was cited on 624 occasions, *Clostridium difficile* 150 and Superbug(s) 274. Throughout there was a general conflation between hand hygiene and these HCAI. Consider the examples below.

***Hand hygiene** fell in a hospital the month before an outbreak of *C. difficile*, according to an NHS Tayside report” (Times 2010b).*

*Ministers introduced a new **hand hygiene** regime after *C.difficile* killed 18 people. (Times 2009)*

*The transmission of MRSA and other superbugs through a lack of **hand hygiene** is bad enough (Sun 2009b).*

*In British hospitals nurses did not **wash their hands** between patients – is it any wonder the MRSA bug spreads so easily (Mail 2004).*

In each the writer has associated the incidence of MRSA or *Clostridium difficile* with hand hygiene. In the first the *Clostridium difficle* outbreak was a result on the poor hand hygiene performance. In the second the hand hygiene regime would have prevented the deaths. Transmission of MRSA is through a

lack of hand hygiene in the third and similarly this is also the case in the final example. Whether or not this is true is open to question, but epidemiologically it is difficult to prove and the journalists make no attempt to do this over and above the tacit assumption that is portrayed. Further examples can be seen below.

*Thousands of doctors and nurses are ignoring warnings about the spread of MRSA in hospitals and failing to **wash their hands** before treating patients (Telegraph 2006)*

*Most bugs get around on hands. MRSA is very common now. Being touched by someone who has touched a patient with MRSA transfers the bug, so better **hand washing** is the first line of defence (Mirror 2002)*

*A SUPERBUG victim caught deadly MRSA at a hospital where almost HALF of staff didn't **wash their hands** (Sun 2008a)*

Bacteria themselves were personified as *deadly* (56), *dangerous* (23), *lethal* (11), *a menace* (6) *killers* (2) and *opponents* (1). They were also *good* (3) and *friendly* (2). Metaphorically they were said to *crawl over hospital taps* (Telegraph 2009) and *love warmth* (Mirror 2001). Military metaphors, a device commonly used by journalist's (Hilton et al 2010, Clarke & Everest 2006) were used with words including *Fight(ing)* (51), *Combat* (34), *Battle* (22), and *War* (10).

continuing the **fight** against hospital infections
part to play in winning the **fight** against infections
The **fight** against superbugs is being hampered by poor hygiene
weapons in the **fight** against hospital superbugs

More the NHS could do to **combat** this problem
SNP government's drive to **combat** the spread of potentially fatal
the importance of handwashing to **combat** MRSA
basic hygiene measures to **combat** the spread of infection

These words helped provided a landscape where bacteria were the enemy and hand hygiene was the *first line of defence* (Mirror 2002) and our *weapons* (Guardian 2004b, Sunday Express 2003a), Auditors were called *hit squads* (Times 2007b) and patients were given *army like instructions* (Observer 2003) on how to *avoid potentially deadly infections*.

6.8 Readers Letters

For the most part the information in newspapers flows in one direction from producer to reader. However, one way that an audience can place ideas into the public domain is by contributing to the letters page which provides a forum for opinion, dialogue and debate. Although only a proportion of letters are actually published, and a newspaper has the capacity to veto, edit and/or prioritise; letters pages are popular and aim to recreate the preoccupations of a readership by including them symbolically and literally (Richardson 2006). Personalisation, sometimes referred to as the parameter of mental state (Bednarek 2006), refers to how people feel about a story. This acknowledges that mobilising an emotion through experience can be of great importance in news discourse. According to Wahl-Jorgesen (2002) there are four criteria of newsworthiness which letter editors use to select or reject a letter. They are: letters should have a legitimate place in a public debate, be entertaining, brief and instil authority. Letters were present in seven of the 10 newspapers and were particularly prevalent in the *Sun* and *Express* (Table 6.8).

Table 6.8: Numbers of Letters in Different Newspapers

Newspaper	No
Sun	15
Express & Sunday Express	14
Times & Sunday Times	8
Daily Mail & Mail on Sunday	6
Telegraph & Sunday Telegraph	2
Guardian & Observer	2
Independent & Sunday Edition	2
Mirror & Sunday Mirror	0
Daily Star	0
People	0
Total	49

The letters fulfilled many of the previous criteria as they were commonly written in response to a previous report, were short (particularly in the red tops and mid-markets), often provocative and mostly came from people drawing on their own personal experiences. The depiction below captures their richness.

*Tackling MRSA is simple - keep hospitals clean. **Wash hands** and clean equipment. It isn't rocket science (Sunday Telegraph 2004)*

*So there may be a cure for the deadly superbug MRSA by 2011? I have a very good prevention for this killer bug. Tell the hospital staff to **wash their hands** and do what they are paid to do (Sun 2008b)*

*Going into hospital is bad enough with all the bugs and serious infections we might pick up in there, but doctors and nurses should **wash their hands** as a matter of course as they know from experience the harm the infections can do (Express 2006b)*

*In my endorsement of the recommendation that NHS staff should **wash their hands** I would add that this is easily complied with by following the practice I adopted when I was an NHS consultant (Independent 2004a)*

The first three letters come from tabloid newspapers, which Richardson (2006) suggests invariably derive from people who draw on their own personal experience. Again the use of simple and the more vigorous *rocket science* can

signify a deliberate effort to discuss the problem in the light of simple solutions (Koteyko et al 2008). Richardson (2006) goes on to suggest that the heavy weight press is more likely to draw responses from the professional class and the social elite. The final example comes from a retired NHS Consultant. Retired is perhaps the optimum word here as there was a dearth of commentary from practising clinicians, in either support or in opposition to the dominant discourse. One exception again came from a broadsheet newspaper and in a moment of candour a doctor wrote *I should probably be washing my hands at least 50 times a day – of course there are times when I don't do it* (Guardian 2000b). It is hard to image a nurse being quite so honest; indeed some suggest that nurses are seldom *political* and rarely contentious as they fear reprisal from their employer. Medicine on the other hand has some history in challenging the utility of hand hygiene programmes (Magee 2008, Dehn 2008, Magos 2007). It could be that generally medicine comes from a more mature and confident position than nursing.

The case study, or patient narrative, is an additional method that newspapers can use to provide a human interest angle. Indeed Lens (2005) suggests that this is often more compelling and convincing than a dry recital of statistics. The point is echoed by Gilens (1999) who proposes that the public are more influenced by vivid examples than by statistical information, even when the evidence value of the statistical information is far higher. An example of such came from the *Mirror* in 2008d. The story outlined the death of a 59 year old woman through the eyes of her 29 year old daughter. According to Halan (2009) characteristically the structure of a news story can be separated into

three parts, the headline, intro/lead and body/lead development. The headline in this story framed the event and attracted the reader through a number of newsworthy hooks.

I nursed my dying mum like a baby in a filthy hospital

The use of the personal pronoun alongside *nursed my mum* establishes proximity with the audience and personalisation as we get to hear how a tragic scenario impacted on the *ordinary man*. *Dying* and *filthy* use negative adjectives to create the news value of the story, with the former an example of what has been termed disaster vocabulary as it concerns the ultimate *bad happening* of life and death. The simile, *like a baby* intensifies the story, and creates a sense of helplessness and dependence. Moving to the intro/lead some believe that the headline and intro/lead can be viewed as one unit (Bednarek & Caple 2012) as this is the part of the story structure that provides a short overall summary of the event.

***Bernadette** went in with Peritonitis – an inflammation of the abdomen – and came out with the infection (VRE) which is spread by people not **washing their hands** properly.*

Identifying a person by name extends the notion of personalisation and it is this part of the story where the journalist makes a strong association between the outcome and hand hygiene. Into the main body the article then went on to use a number of referential strategies. Referential strategies refer to the idea that the way social actors are named in news discourse can have a significant impact on the way that they are viewed; moreover, what the writer chooses to

foreground or background bears the imprint of a value judgement (Reisigl & Wodak 2001). Birenbaum-Carmeli et al (2006) suggest the media will commonly use language that projects the patient as an innocent bystander and counterpoise their healthy past with their current bedridden condition. As examples, the article described the patient as a:

mother of five

mammy the woman who had given birth to me

It repeated the phrase

I was nursing her like a baby.

It went on to use dramatic language that would emphasize the impact of the incident and mobilise the emotions of the audience.

bursting out of her skin

her face was stitched to her neck

flesh on her arm was gone.

The article was concluded with the following quote:

*I'm terrified of going into hospital and of a nurse coming to take my blood – what if she hasn't **washed her hands** – what type of country do we live in that we are afraid to go into hospital.*

The case is tragic and made engaging and emotive through its choice of language. As with any story, certain events are included and others erased and the reader is invited to make a number of assumptions. For example, although the article states that that Vancomycin Resistant Enterococci (VRE) can be

spread by people not washing their hands properly, it is only implied that this is what actually happened here. It is inferred that a VRE infection was the cause of the patient's symptoms and their untimely death. While VRE is a significant organism because of its resistance to antibiotics, generally it is an organism of low pathogenicity and under normal circumstances is not associated with the conditions of extreme tissue damage described in the article. Indeed VRE tends to be significant in those already very ill, and with an admission diagnosis peritonitis, which is a life threatening emergency, this may have been the case here. The lack of detail may be mitigated by a need for confidentiality or a lack of space. But, nevertheless, by placing the following elements together, that the patient died, acquired the bacterium VRE, which *can* be spread on the hands of HCWs, the readers are positioned to draw their own *common sense* conclusions.

6.9 Tone of Media Coverage

Already we have seen the suggestion that headlines and readers' letters have been critical of the quality of hand hygiene in NHS hospitals and this was examined further. Each article was read and coded as to whether it was critical of the standard of hand hygiene, neutral or supportive (Table 6.9). Typically the tone was critical and this could be made more overt through the use of verbs, adverbs and predicational strategies. Predicational strategies refer to the notion of linguistically assigning qualities to persons, animals, objects, actions and social phenomenon through the use of particular words.

Table 6.9: Reports on the Standard of Hand Hygiene

Newspaper	Critical	Neutral	Supportive
Sun	45 (72%)	15 (24%)	2 (3%)
Times	26 (55%)	15 (32%)	6 (13%)
Express	35 (76%)	11 (24%)	0
Mail	27 (72%)	9 (24%)	1 (3%)
Mirror	14 (43%)	16 (50%)	2 (6%)
Telegraph	18 (75%)	6 (24%)	0
Guardian	12 (66%)	4 (22%)	2 (11%)
Independent	3 (27%)	3 (27%)	5 (45%)
Star	1 (33%)	2 (66%)	0
People	2 (100%)	0	0
Totals	183 (64.5%)	81 (28.7%)	18 (6.3)

In relation to hand hygiene perhaps the most common way to describe non-compliance was through the use of words *fail* 66, or *failing* 56.

Consistently **fail** to follow good practice
Hospital staff who **fail** to wash their hands
Staff who **fail** to wash their hands
Medics who **fail** to comply

Other words that were used included *ignore* (6), *flout* (8) and *flouting* (7). To consider some of these points further, the Collins Dictionary (2009: 261) defines failing as ‘to be unsuccessful in an attempt, to be judged as being below the officially accepted standard, to prove disappointing’. At first sight this could be seen as relatively benign as it retains a sense of good intention. However, it also demonstrates a dominant and powerful way of expressing non-compliance as it carries an air of authority that leaves little room for equivocation. If failed suggests some measure of objectivity, other lexical choices like *ignore* and *flout* appear to be more subjective and make criticism more overt. The Collins Dictionary defines *ignoring* as ‘refuse to notice, or to disregard deliberately’ (ibid: 366) and *flouting* as to ‘deliberately disobey’

(ibid: 282). By implication the latter terms seem to suggest that there is something calculated and purposeful about the non-compliance of HCWs. While this may or may not be the intention an additional assortment of word choices appear to propose something even more sinister

*Thousands of frail patients, many with minor ailments, have died agonizing deaths because of unforgivable **laziness** (Sun 2007c)*

*Nurses who find it a bit of a **chore** (Times 2007a)*

*The sinks were outside each ward and few nurses could be **bothered** to make the trip there to wash their hands (Mail 2005a).*

*Hospital staff just get **bored** constantly washing their hands (Sun 2005b)*

*Thousands of frail patients, many with minor ailments, have died agonizing deaths because of unforgivable **laziness** (Sun 2007c)*

The final set of examples and perhaps the most overtly critical, attribute non-compliance to a lack of care. Below *surge* intensifies the impact of poor hand hygiene. The choice of *rules* (63), and the connotations it may have with quasi-legal terminology is notable, and highlights the parameter of necessity whereby breaking rules implicitly delineates people as bad. In the second example, hospital staff become *careless*, *our loved ones* personalises the impact of HCAI and *peril* is a dramatic form of expression.

*Most of the surge in the killer bug is due to poor, lax, lazy and **uncaring** implementation of even the most basic rules (Mail 2004)*

*We allow **careless** hospital staff to put our loved ones' lives in peril simply by refusing to wash their hands (Sun 2007e).*

Comments that could be considered supportive of HCWs in relation to their hand hygiene behaviour were less common but when present were identified in one of two ways. Firstly, those that explicitly stated that hand hygiene was one

component of a broader strategy and secondly those that documented positive news in the form of good compliance rates.

WASHING THEIR HANDS: Hospital acquired infections (HAIs) present a challenge to all health professionals: It is a cheap shot to direct criticism at the clinical staff, who are an easy target (Sunday Times 2007b).

Although handwashing is important, scapegoating doctors and nurses is just a way of avoiding the real issues – mainly costs (Independent 2004a)

The report, based on inspections carried out in September, shows an improvement from an earlier audit – this was a considerable achievement (Mail 2007e).

However, in relation to the last example the good news was tempered later in the story with the following comment from a Tory health spokesman *ninety percent compliance is not good enough, we should be expecting and demanding 100% (Mail 2007e)*. Through the use of the personal pronoun, *we*, the politician gives the impression that he is addressing the nation, or at least those who have a vested interest in the standards of care in NHS hospitals. In this way relevance is clearly established. Despite this there were some occasions where the media appeared to acknowledge the challenges of practice.

The average intensive care nurse is required to wash his or her hands an average of 200 times per shift (Times 2010c)

Intensive care nurses have been told to wash their hands once every three minutes to ward off the deadly MRSA superbug (Mirror 2005).

A nurse in an intensive care unit may have to wash their hands 40 times in an hour (Independent 2003)

The journalists in these examples have chosen to foreground what many readers may consider to be exacting standards. The motive for doing this is not clear, but the articles did not overtly challenge whether this was practicable, or did not do anything overt to suggest it was written with a sense of scepticism or

irony. Indeed *to ward off the deadly MRSA superbug* may indicate the position of if this is what it takes to *defeat MRSA* then this is what HCWs should do (my words). The phrase “no excuse” was used a total of six times.

There's **no excuse** for not maintaining basic hygiene
there was **no excuse** for NHS staff not washing their hands
There's simply **no excuse** for failing to follow proper hand hygiene
There's **no excuse**. Hand-washing is a basic part of the job

6.10 The Reporting of Compliance

When it comes to reporting compliance, the media commonly move beyond words to numbers which are said to accentuate contrast and render content more compelling (Collins & Hughes 2011). Potter, Wetherell & Chity (1991) calls this quantification rhetoric. As stated in the earlier chapter quantification can give the impression of objectivity and scientific validity, and increases the credibility of media content (Hooker et al 2009). It brings into play the parameter of evidentiality. That is, how do we know, and how sure can we be? Moreover numbers can be referred to as scare statistics (Nerlich & Halliday 2007), can strike the imagination of the reader and illustrate the magnitude of the problem (Clarke & Everest 2006). This renders the story more important. Not only were statistics used to report the deficiencies in hand hygiene behaviour but they were also employed to construct a sense of foreboding around HCAI.

*27 out of 31 hospitals could not demonstrate they complied with basic standards of **hand washing** (Times 2003)*

*The condition (MRSA) is spread by poor **hand hygiene** and has a 50% chance of proving fatal (Times 2005)*

*A superbug victim caught deadly MRSA at a hospital where almost half of staff didn't **wash their hands** (Sun 2008a)*

*More **die** from infections than are **killed** on the roads (Guardian 2008)*

*Unless hospital staff pay more attention to cleanliness, particularly **hand hygiene**, we could be looking at a **doomsday scenario** (Sunday Express 2003b).*

*The spread of bacteria could lead to a **nightmare scenario** (Telegraph 2010a)*

Some of the examples above and the ones below offer a key feature of the media's use of statistics. This is something that Best (2008) calls number laundering or put another way the economical or selective use of numbers.

*A third of those lives could have been saved by doctors and nurses simply **washing their hands** properly (Mirror 2002)*

*Fewer than one in three doctors are **washing their hands** in accordance with governments tough new hygiene rules (Times 2009).*

*At the moment about 60 percent of doctors don't **wash their hands** between patients (Telegraph 2007b)*

Although not explicit, the first example from the Mirror is one of intertextuality, where a writer embeds previous work into their prose. The seminal SENIC study (Haley 1985) estimated that one third of HCAI might be preventable. However, this would require a comprehensive multi-factorial programme, not *simply washing hands*. In this case the journalist is either mistaken in their assertion or they are purposefully misleading their audience. In the second and third examples the statistics are reported in such a way that it implies the results relate to specific individuals, not compliance episodes. That is, doctors as a whole have a 66% or 60% compliance rate.

While this point may seem unnecessarily fastidious the difference is important. By suggesting that some doctors comply and some do not, it fits with the classic hero and villain narrative beloved of news values. In other words some doctors wash their hands, (the heroes), and some do not, (the villains). To project the problem in this way implies that poor compliance can be addressed by targeting the errant individual. Conversely, to accept, which is more likely, that all doctors, to a greater or lesser degree, are partial compliers, is to concede that there might be something fundamentally flawed with the policy itself. The next example is particularly attention-grabbing and makes use of hyperbole which is a common media strategy whereby excessive exaggeration can be made for rhetorical effect.

The MRSA bug is rampant on intensive care units because 80% per cent of docs never wash their hands (Sun 2005a)

As suggested previously 80% of doctors never wash their hands would be more appropriately written as the compliance rate among doctors is 20%. Nevertheless, at 20%, compliance would seem to be very low and worthy of attention. However, this again could be written in a different way. Based on a previous story that a nurse in ICU may have to clean their hands up to 200 times in a shift; 20% compliance would equate to 40 times over eight hours, or 5 times an hour, or once every 12 minutes. Therefore a different way to write this could be *committed doctors clean hands every 12 minutes to beat the superbug.*

6.11 Social Actors

Social actors are participants in clauses, who may be represented as subjects (agents) or objects (goals) in the clause (Baker & Ellece 2011). The next stage of the analysis was to investigate how the prominence of key stakeholders was exacted in the corpus. Basically, who is named and who is not, whose was held responsible for hand hygiene (Table 6.10). Patients was the highest frequency word but an examination of concordance lines revealed that were the object of the discourse, so for example, *five thousand patients die every year, wash hands between patients*, rather than an illustration of hand hygiene behaviour. The results did suggest that the Department of Health mantra, that infection control is everyone's business, also dominated the media discourse through the broad use of the word *staff* (528).

Table 6.10: Prominence of Key Stakeholders

Main Agents	Hits
Patient(s)	848
Staff	528
Nurse	382
Doctor(s)	345
Doctors & Nurses	95
Visitor(s)	72
Matron(s)	50

for **staff** to be more careful about washing their hands.
junior **staff** who are carefully educated to wash their hands
because hospital **staff** won't wash their hands
hospital **staff** are not following government orders to wash their

When specific professions were cited it is almost without exception *doctor(s)* (345), *medical staff* (39) and *nurses* (382). *Doctors* and *Nurses* was something

of a lexical bundle and was used a total of 95 times. At times this bundle seemed to be used as shorthand for staff.

This is partly because **doctors and nurses** are failing to comply **doctors and nurses** not washing their hands between patient examination **doctors and nurses** from washing their hands properly **DOCTORS and nurses** who fail to wash their hands

In respect of doctors, who were also frequently represented as medical staff, Seale (2010) suggests it is common for them to receive particular attention in the media. He argues that in the popular imagination doctors are there to save lives, thus if they are seen to be doing the opposite it naturally becomes exciting and newsworthy. Indeed according to Abbassi (2008) having been depicted as a bunch of butchers and gropers, that were unable to cut in a straight line or keep their trousers up, the current popular myth is that doctors are overpaid and underworked. While this may be one reason why doctors receive particular attention in this corpus, another is that doctors are notorious, in the academic literature, as poor hand washers (Allegranzi & Pittet 2009). This point seemed to be incomprehensible to journalists the public and other senior professionals. For example, Hugh Pennington opined in the Sunday Times (2008b) *some doctors considered themselves above the rules*. *The Daily Mail* (2007b) wrote that *Doctors take the Hippocratic oath not to harm patients* (Mail 2007b) but went on to argue poor handwashing does just that.

Nurses are also well represented in the corpus. For the most part this is understandable as they are by far the largest group of employees within healthcare organisations and bear much of the responsibility for the implementation of trust policy (Hughes 2008). The nursing profession has been

associated with a plethora of enduring stereotypes including a skilled knower and doer, a sexual plaything and a witless incompetent (Kelly, Fealy & Watson 2012) along with a doctor's handmaiden, the ministering angel, the battleaxe and a naughty nurse (Jinks & Bradely 2004). In addition, Farrow & O'Brien (2005) suggest that nurses have been depicted as greedy, lazy and militant. A combination of pejorative imagery on the one hand and caring, hardworking, dedicated professionals on the other means that there are multiple frames in which nursing can be represented. Although the corpus frequently makes the point that nurses are more compliant than doctors when it comes to hand hygiene, nurses too receive considerable criticism. Some examples below illustrate this point.

*Incredibly, some nurses did not even **wash their hands** (Telegraph 2007)*

*GOOD news - at long last a nurse who didn't **wash her hands** has been struck off. The bad news is that it wasn't in an NHS hospital where dozens of dirty nurses and doctors need sacking (Sun 2007f)*

Is that too much to ask of people we all continue to regard, too often wrongly, as angels? (People 2002)

*Doctors and nurses simply don't **wash their hands** often enough. Course, nobody is allowed to criticise the so-called caring professions. Even though caring is the last thing they usually are (Mirror 2006).*

Could it be the great untouchables of modern life, doctors and nurses are so beyond criticism nobody publicly says they are the real culprits in these appalling bug outbreaks (Mirror 2008c).

It has been argued that nurses in particular rely heavily on a virtue script as this is their only legitimate source of status, respect and self-esteem (Gordon & Nelson 2005). The latter examples are interesting because they appear to question the very fabric of a caring profession. Doctors and nurses depicted in this way deviate from the norm and counters expectations. In short, patients

expect doctors and nurses to be compassionate and caring. Indeed, historically doctors and nurses have scored highly in public opinion polls when it comes to innate qualities like honesty and ethical standards (Donelan, Buerhaus, DesRoches et al (2008). In a study on the representation and management of MRSA Washer & Joffe (2006) found that any revelations about poor care were often juxtaposed with the dedication of nurses and caveats of the busyness of contemporary healthcare. While there is some acknowledgement in this corpus that health care environments are busy there also appeared to be very little tolerance for poor levels of compliance. Again this may return to the prevailing notion, as demonstrated below, that hand hygiene is simple, saves lives and that HCWs are, or at least should be, educated and altruistic. Put like this hand poor hand hygiene becomes unfathomable.

*Well-educated, intelligent people - are still failing to follow the most fundamental instructions about **hand-washing** (Sun 2008d).*

*Good **hand hygiene** should be a natural reflex for healthcare professionals (Mail 2007b)*

*Doctors and nurses should **wash their hands** as a matter of course as they know from experience the harm that infections can do (Express 2007)*

6.12 Solutions

Having *established* that hand hygiene compliance in NHS hospitals was poor, and that HCWs are *culpable* the final part of the analysis was to consider what solutions were offered to improve the situation. According to Seale (2002) there is often a basic narrative to media stories. In its simplest form the story starts with an initial state of order. Then something bad happens which upsets the balance and claims victims who are often portrayed as innocent and good. Order is subsequently re-established through the intervention of a salutary

agent. As such each article was examined and coded on whether it gave a solution to the problem of poor hand hygiene (Table 6.11). In 44% of cases the article offered no explicit solution. The examples below are rhetorical statements that lack detail and could be seen by some as a little empty and rather nebulous. However, the lack of detail is axiomatic, simple problems do not require complex solutions.

Hand hygiene must improve (Sun 2005c)

Hand hygiene is not difficult - it simply has to become a part of routine part of all health workers daily lives (Express 2009b)

Table 6.11: Solutions to Hand Hygiene

Solution	No	Percentage
None	125	44%
Leadership	42	16%
Discipline	31	11%
Innovation	24	8%
Education	23	8%
Technology	19	7%
Pt Empowerment	18	6%
Total	282	100%

When solutions were extolled *leadership* and *discipline* were the second and third most common categories. Although categorised separately, they were similar in as much as they tended to locate the problem as an individual failing. According to Pattison & Wainwright (2010) ever since Griffiths made his famous comment about the difficulty Florence Nightingale would have finding who was in charge in a 1980s NHS, there has been a concentration on individual accountability, rather than an acknowledgment of the complexities of care.

Those initially categorised under discipline advocated a more explicit, punitive response. In truth leadership and discipline provided two ends of a continuum. Leadership and infection control is a well-documented and was the subject of a scoping review by the Griffith, Renz, Rafferty et al (2008). In what was a fairly detailed piece of work the Kings Fund suggested that positive leadership was a necessary prerequisite of effective infection control practice. The corpus tended to agree but its arguments, unsurprisingly, lacked the sophistication of the former. In the corpus leadership was akin to discipline and a return to old fashion values that was commonly centred on the reappearance of a Hattie Jacques matron like figure who would *rule with a rod of Iron (Express 2003)*. The word Matron(s) was used a total of 50 times

Bring back **Matron**

Ever since Matrons disappeared from the NHS hospitals
Modern **Matrons** do not have the power of old style matrons
Matron came round every morning and poked her nose in

A similar authoritarian discourse was seen by the use of the term zero tolerance, used 34 times, disciplinary 17, discipline 10 and punish 2.

Zero-tolerance bid to beat NHS superbugs
zero tolerance policy" for staff who fail to wash
zero tolerance on bad hand hygiene habits
zero tolerance approach to non-compliance

serial offenders should face **disciplinary** action
warned they could face **disciplinary** action
called for **disciplinary** action
breach of rules would be a **disciplinary** offence

Zero tolerance and disciplinary action were particular soundbites propelled into the media from NHS Scotland. Briefly, in 2006 Health Protection Scotland was funded to deliver a national hand hygiene campaign. The campaign was similar

in style and scope to the Clean Your Hands Campaign in England and Wales with one notable exception. The campaign in Scotland was to include the national auditing of hand hygiene compliance by HCWs, the first to do so, along with the production of national audit reports. NHS boards were required to reach a target of at least 90% compliance by November 2008. When the results were published they aroused considerable interest.

Scottish Hospitals have failed to reach a basic 90 per cent handwashing target in the battle to tackle deadly hospital acquired infection (Express 2008b)

While 90% of nurses and 85% of ancillary staff are meeting hand hygiene standards only 75% of doctors are doing so - this is well below the Scottish target of 90% (Sunday Times 2008a).

Nevertheless, when in January 2009 NHS Scotland declared that it had achieved its 90%, to avoid *complacency* and *embed good practice*, the Cabinet Secretary for Health and wellbeing instructed NHS boards to adopt the aforementioned zero tolerance approach. The term was not new to infection prevention and control as the influential Association for Professional's in Infection Control and Prevention launched a *targeting zero* initiative (2008) which proposed that organisations should adopt a culture of zero tolerance for noncompliance with the measures proven to prevent HCAs. This was endorsed in 2009 by Brian Duerdan the Department of Health Inspector of Microbiology and Infection Control who advocated zero tolerance toward poor hand hygiene compliance. He argued - the aim is to get things right every time (Duerden 2009). The policy of NHS Scotland however was somewhat elusive on what zero tolerance meant in terms of sanction. Despite this, several newspapers had made up their own minds. As well as disciplinary action, sacked was used 11 times and sack 10.

Could be **sacked** under tough new rules
Demanding staff be **sacked**
Doctors face **sack** for not washing hands
Would the threat of the **sack** make nurses more amenable?

Two things of note in this story are firstly the 90% compliance reported by the Scottish Executive bears no resemblance to the 40% compliance that is reported in empirical studies (WHO 2009). It seems remarkable that no one questioned these figures. Nevertheless, Schwartz et al (2012) argue that it is easy to blame journalists for poor quality reporting, but problems can begin with the journalist's original source. In this case it seemed to be in the interests of NHS Scotland to report high levels of compliance, which they subsequently did. Secondly, although poor levels of compliance reverberated around this story at no point was there any suggestion that similar results could be found in England, Wales, Northern Ireland or any other country that measure hand hygiene behaviour. Indeed it would appear that it was the publication of the audit results and the announcement of a zero tolerance approach to the problem was the thing that made the story newsworthy, not the hand hygiene behaviour of the staff.

A third category was education. Education is generally seen as the cornerstone of good hand hygiene practice (WHO 2009) and the Healthcare Commission (2007) and the Department of Health (2005) have both placed great store on mandatory training for all HCWs. It has been argued previously that it can be difficult to confidently interpret the latent tone of an article, but in the first three examples the use of *lessons, tell staff and common sense* may indicate

some level of irony when discussing the need to train HCWs in the vagaries of hand hygiene behaviour.

HOSPITAL staff are being given lessons in hand washing to help prevent the spread of the superbug MRSA (Express 2003c)

A HOSPITAL has cut the number of "superbug" cases on its wards by almost a quarter after spending 5,000 pounds on a specialist team to tell staff how to wash their hands (Telegraph 2003).

Staff will be given common sense tips such as to use a 'rigorous hand action' (Mail 2003a)

Nevertheless, when the Scottish executive announced a £2.5 million hand hygiene campaign alongside the appointment of specialist advisors, there was overt sarcasm from many corners of the press. The *Mirror* (2007a) wrote *it's good to know the Executive are spending our money wisely* The *Sun* (2007a) called it a *scandalous waste of cash*. According to the *Mail* it was *beyond satire* (Mail 2007a) and the *Express* wrote *What next a co-ordinator for wiping our backsides?* (Express 2007a). The co-ordinators of the programme were mocked and referred to as *Hand Washing Tsars* (Mail 2007a, Mirror 2007a). The *Mail* revealed their salary and used *disgruntled staff* to argue that it was a *sick joke* – and *insulting* that they had to be shown how to wash their hands. This is something of a fallacious argument. Presumably the posts were to co-ordinate a national campaign of hand hygiene improvement, not simply show people how to wash their hands. Moreover, there has been an exponential growth of infection control nurses throughout the NHS, broadly supported by the media, who invest considerable time doing the same thing at their local trusts. Despite this it would seem that the media struggle with the idea, or find

it incomprehensible, that intelligent professionals require training in something that is seemingly as simple as washing hands.

Paradoxically, however, the use of technology was reported enthusiastically. This provides the added news value of novelty. According to Bednarek & Caple (2012), news stories are frequently about happenings that surprise or intrigue us. For example, an enthusiastic response was elicited from the following, *Ultra-violet Glo Boxes (Express 2008a)*, *Automatic infra-red systems (Telegraph 2009)*, *Movement activated voice boxes (Times 2008)*, *Loudspeakers telling staff to wash their hands (Mirror 2007b)*, *TALKING walls (Star 2005)*, *Hands sprayed in a pioneer move (Express 2005b)*. Interestingly the first of these, Glo boxes was written as a positive news story by the *Express*. It gave the impression that the installation of ultra violet Glo boxes at an Edinburgh Hospital was an innovative move. Whereas Glo boxes were actually first produced in 1968 and have been a staple diet of the same training programmes that have received a withering assessment, for many years.

The last category is Patient Empowerment. The National Patient Safety Agencies Clean Your Hands Campaign advocated a policy of *it's okay ask*. Broadly this meant that patients were encouraged to challenge the hand hygiene practice of staff. The policy itself is contentious as advocates argue that it is a synergistic opportunity to involve patients (Pittet et al 2011), however critics counter that asking patients to mind their own safety is gratuitous and unethical (Gould et al 2007a). Moreover, a study by the UK National Patient Safety Agency surveyed inpatients in five NHS hospitals and reported that 57% percent of the public were unlikely to question doctors on

the cleanliness of their hands. As this is based on self-reporting it is likely that the actual figures would be a lot lower. Nevertheless, the general idea seemed to be well received and sat well with the tone of patient centeredness and a sense of entitlement that permeated the corpus. The examples below illustrate that people in authority, a *TOP hygiene expert* and the *Health Secretary* have given the public, the right to challenge HCWs when they go into hospital. This also creates personalisation and proximity.

A TOP hygiene expert has told patients they should demand hospital staff wash their hands before touching them (Mirror 2003)

PATIENTS and their relatives MUST tell doctors and nurses to wash their hands, Health Secretary Alan Johnson will declare tomorrow (Sun 2008c)

6.13 Summary and Conclusion

This chapter has identified that the reporting of hand hygiene standards in health care settings has grown enormously since 2000. The topic is often located within broad stories on HCAI but also as articles that explicitly focus on hand hygiene. There is some suggestion that there is right wing/tabloid bias to the coverage with the *Sun*, *Times*, *Express* and *Mail* producing the highest figures. This could be politically motivated as a right wing press use the failing standards of the health service to attack the Blair Government. Alternatively it could be part of a broader right wing agenda that espouses self-reliance, eschews dependency and seeks a return to traditional values. Articles are mixed in length and the headlines maximise their news value as this can gain the attention of the committed and casual reader. Military metaphors are used liberally and hand hygiene is commonly identified, implicitly and explicitly as a leading measure in the *fight* against infection. However, the treatment of hand hygiene is critical, notably in reader's letters where the public often draw on

their own experiences. Similarly the opinions of *experts* are sought; these tend to be from retired or senior clinicians, or politicians. There is an absence of opinion from practising clinicians. Poor performance is presented linguistically and numerically, with statistics, in particular, used economically to emphasise key points.

There is little tolerance for non-compliance which is repeatedly portrayed as a choice that HCWs willingly make. The critical tone of the reporting is exacerbated by the fact that hand hygiene is promoted as a simple, basic mechanical procedure, and HCWs are educated and, or should be, altruistic and patient centred. Doctors and nurses receive particular attention and at times appear to be used as shorthand for HCWs. The guidelines themselves are either erased from the discussion or quickly glossed over. Being busy is no excuse. Generally the media are sceptical that health care staff require training in hand hygiene, particularly when the cost of this becomes explicit, rather they suggest that this is something that can be instilled in people through leadership and discipline. The zero tolerance campaign in Scotland aroused considerable interest; however, a driver for the story did not appear to be a critical examination of the audit results but whether regions had achieved their benchmark and if doctors and nurses had been sacked for not washing their hands.

Despite the differences of scientific and lay discourses, the work of the academic community and that of journalists share a number of similarities when it comes to reporting hand hygiene in NHS hospitals. In both the subjects of the discourse, those required to comply with policies, are unheard or

marginalised. Both use language to advantageously arouse interest and draw attention to their work. Both draw on the ideas of others to strengthen their own positions. When it comes to reporting hand hygiene behaviour, attitude markers are used to present hand hygiene as a simple activity and to criticise the performance of HCWs. Hedges and boosters are used to promote the efficacy of hand hygiene. Throughout both corpus the individual responsibility of the HCW is accentuated, the guidelines themselves receive little attention and both take a positive tone that this is a topic that can and will be addressed. The final part of data analysis will now consider how this rhetoric translates into the operational hand hygiene behaviour of the HCW through an examination of trust hand hygiene policies.

Chapter Seven

The Discourse of Organisational Hand Hygiene Policies

7.1 Introduction

In Chapter Five I examined a segment of hand hygiene discourse from the academic community and considered their motives for conducting compliance studies, how they publicise their work and what claims they go on to make about the topic and their results. Chapter Six then explored the more popular, mainstream discourse of the media. While the media do not necessarily reflect the views held by the public they do at least bring the discussion to them and offer the opportunity to engage through forums like letter pages. The third discourse domain in this study is that of the policy maker. The direct impact that academia and the media have on the behavior of staff may be open to question, but the very existence of a hand hygiene policy mandates that staff adopt this as their operational behaviour. Therefore the final segment of data analysis is the hand hygiene policies from acute, community and mental health trusts in England.

Policy making has been defined as the authoritative exposition of values – defining and pursuing the right course of action in a particular context, at a particular time, for a particular group of people and with a particular allocation of resources (Greenhalgh & Russell 2006). Conventional wisdom sees policy making as couched in the dominant discourse of evidence based practice which makes the underlying assumption that policies are driven by facts rather than values (Russell, Greenhalgh & Byrne 2008). However, this argument has received sustained critique from political scientists who have questioned

whether policy-making is indeed a rational, linear process or whether it is a more chaotic procedure, dominated by political, practical and socio-cultural forces. Writers such as Sanderson (2006) and Fischer (2003) argue that there should be greater attention to the emergent nature of policy and the fundamentally moral nature of the choices involved; in other words, recognising what might be regarded as the best choice of action also involves some kind of value judgment.

There are a plethora of policy models and theoretical frameworks that have been used to analyse the process of policy making. A model devised by Bacchi (2000) and used extensively by Shaw (2010), Russell & Greenhalgh (2009) and Greenhalgh & Russell (2009) is a useful conceptualisation. In this model there are three broad representations. *Comprehensive Rationalism*, the doyen of the evidence based practice movement that proposes that policy making is a problem solving exercise which is rationale, balanced, objective and analytical. *Political Rationalism* which is more pragmatic and advocates that policy makers should focus on small steps recognising what is feasible is akin to what is already in operation, and drastically different policies, or overly ambitious ones, will fall beyond the pale. The third model, is called *policy as discourse*, discussed earlier, and is different in as much as it is primarily concerned with problem representation. In other words, *Policy as Discourse* supports the notion that policy makers are not simply responding to problems that are *out there* but are actively framing problems and shaping what can be thought about and acted upon (Shaw 2010). While this model fits well with the aims of the study, the way writers authenticate their policies as rationale, and the scale of

their ambitions will be equally important as the chapter unfolds. The policy corpus was based on 359 policies of 370 Acute, Primary Care and Mental Health Trusts in England. As discussed in the Chapter Four, these were subdivided in the 10 smaller sub corpora to aid analysis.

7.2 Initial Survey – Keyword Analysis

Having worked as an infection control nurse and collaborated on an infection control policy, I was broadly familiar with their content. Nevertheless, a sensible start was to look at some structural elements of the documents and assess their indicative content. This would help to focus the analysis of the large corpus. For example, if, as was the case, *responsible* was a keyword, important questions like who was responsible and what were they were responsible for, cleansing their hands, providing the necessary equipment, undertaking or conducting training, completing audits and so forth could be identified.

An examination of the entire corpus revealed that the majority of the documents are contained, standalone policies located within a larger infection control manual. They are frequently detailed and regularly exceed 20 pages. Conversely, a smaller number were little more than a single page, instructional statement, within a larger body of universal precautions. The corpus included 359 policies with 1,001,863 words. Table 7.1 demonstrates the average word count of the policies. An initial survey of ten documents confirmed that hand hygiene policies were typically a medium to large, eclectic document that covered a wide range of disparate points. One sub sample, sample eight was randomly selected and a content analysis was performed breaking down the

policy into key themes. This would assist later analysis and the themes can be seen in Table 7.2. Following the qualitative reading of texts a keyword analysis on the entire 1,000,000 words took place. According to Baker (2006) a keyword analysis is a particularly useful way to discover the *aboutness* of a corpus. Moreover, it demonstrates the power of corpus tools and can reveal both predictable and surprising results. As previously discussed small functional words, like *and*, *the*, *in*, were stripped out. Table 7.3 is a wordlist that a reader may commonly associate with a hand hygiene policy, for example specific noun phrases. In contrast Table 7.4 more readily marks the ideological footprint of the writer. That is, words that can be included or erased foregrounded or back grounded depending on their intent. It is the latter that this study is chiefly concerned with but before this becomes the focus of the analysis I will briefly consider Table 7.3.

Table 7.1: Word Count of Hand Hygiene Policies

Word Count	No	Word Count	No
8000+	2	3000 – 4000	76
7000 – 8000	1	2000 – 3000	104
6000 – 7000	6	1000 – 2000	83
5000 – 6000	20	Less than 1000	18
4000 – 5,000	49		

Table 7.2: Content of Hand Hygiene Policies

Theme
Hand Hygiene Frequency (When to do it)
Hand Hygiene Technique (How to do it)
Facilities (Access to/and quality of)
Products (How and when to use specific products)
Uniform Policy (clothing, jewellery, nails, etc)
Skin Care (self-management, reporting problems)
Education and Training (formal and informal – advice etc)
Audit (formal and informal)
Punitive action (discipline, reporting systems)
Safety (COSHH, flammable products)

Table 7.3: Word List of Hand Hygiene Policies

Rank	Freq	Keyness	Keyword	Rank	Freq	Keyness	Keyword
1	25973	118704.869	hand	35	3014	12360.137	water
2	12327	58782.943	hygiene	36	2406	11493.315	healthcare
3	11632	54285.492	infection	38	2858	10805.167	patients
5	10621	50238.938	hands	40	3122	10139.073	before
6	8723	35520.009	control	41	3267	10130.030	after
7	7057	31001.899	staff	43	2086	9552.253	clean
8	7510	30876.402	policy	44	2034	9360.125	micro
13	4920	22495.101	alcohol	45	1954	9070.695	gel
14	4793	21048.505	clinical	47	1928	8990.841	wash
15	4332	20695.360	soap	52	2136	8090.826	technique
17	4133	19547.360	washing	57	1592	7588.333	gloves
20	3865	17688.603	trust	60	1775	7049.691	department
21	3797	17656.991	skin	63	1452	6936.115	towels
22	4553	17571.316	care	66	1621	6829.277	liquid
26	4308	15954.351	patient	68	1575	6744.492	procedures
29	3113	14870.610	decontamination	71	1694	6548.986	committee
30	3620	13340.959	health	73	1438	6389.670	facilities
31	3099	13290.379	contact	76	1714	6127.455	hospital
33	2798	12574.970	organisms	78	1346	6027.839	guidelines
34	2635	12491.532	rub	80	1833	5792.701	available

Table 7.4: Keywords of Hand Hygiene Policies

Rank	Freq	Keyness	Keyword	Rank	Freq	Keyness	Keyword
18	5742	17954.371	should	159	798	2763.316	impact
25	4904	16055.772	must	165	909	2715.174	reduce
27	3799	14943.722	training	167	568	2713.301	governance
28	5824	14914.358	all	171	664	2696.666	manager
32	2828	12834.309	prevention	174	762	2640.405	workers
46	2217	9068.879	ensure	182	609	2503.127	recommended
48	1944	8949.186	compliance	186	573	2443.953	responsibilities
49	4240	8915.269	will	191	1056	2365.950	good
56	2210	7647.102	risk	200	620	2321.948	advice
64	1542	6931.180	audit	214	588	2141.845	adequate
70	1779	6683.299	effective	236	433	1868.118	performing
100	991	4572.734	thoroughly	250	429	1788.336	attendance
101	978	4511.053	managers	254	407	1744.899	vigorously
106	1221	2987.022	required	257	577	1733.394	essential
108	1056	3909.003	responsible	261	790	1709.563	evidence
112	1241	3784.099	appropriate	280	944	1625.480	important
122	797	3581.403	ensuring	559	359	1573.752	monitored
125	924	3453.019	safety	503	503	1543.644	correct
132	1019	3287.595	responsibility	336	485	1322.488	easily
134	978	3229.843	assessment	352	352	1276.564	requirements
136	845	3193.224	monitoring	379	602	1168.999	single
141	733	3058.641	mandatory	387	691	1132.658	individual
149	686	2871.046	approved	392	235	1122.581	matrons
153	634	2840.175	visitors	433	433	1116.980	quality
156	591	2808.598	audits	378	378	1107.499	immediately

Hand(s) are the most common words and *hygiene* the second. In addition *hand* and *hygiene* were the most popular collocates of each other with the term *hand hygiene* used on 10,770 occasions. The expression *hand decontamination* was also used 3,113 times. This simply illustrates how policy has moved to a new discourse *hand hygiene/decontamination* (15,440) as opposed to the traditional hand washing/wash (3,874) that was still popular in the newspaper media. Similarly, that alcohol with 4,920 hits was used more frequently than *soap* with 4,332 provides further emphasis. This again stands in contrast to the media who still tended to idealise the traditional notion of washing hands with soap and water. If, as some argue, the media act as a prime interface between science, medical professions and the general public (Schwitzer 2008, Regan de Bere & Peterson 2006) they appear to have *lost a trick* in not publicising the changes that are taking place in NHS hospitals. The motive for this is open to conjecture. It may be that communicating ideas is not a simple one and washing taken broadly is a message that the audience understands. Alternately it may be part of an ongoing back to basics narrative that imbues skepticism that AHR can be as effective as traditional soap.

Infection and *control* were high frequency words; however, a closer look at *control* in context identified that it was used as a noun not a verb. Indeed *infection* and *control* were common collocates and *infection control* was used on 5,251 occasions. *Policy* was also a high frequency word. *Infection control policy* was used 274 times, *hand hygiene policy* on 1,495 and *this policy* on 1,425. Conversely the term *procedure(s)* was used 2,967 times, *guideline(s)* 2,716 and *Standard(s)* 1,583. Demonstrating quantitative results through

keyword analysis can stimulate other lines of enquiry. It would appear that the documents in question have no universal label; this is in spite of the assumption, made explicit upon request, that each organisation branded the document a policy. Although Policy, Procedure, Guidelines and Standards are often used interchangeably practically and ideologically they have separate meanings (Bhaiji 2008). The title of each document was located and can be seen in Table 7.5. Table 7.6 indicates how the Health Service Executive (2012) conceives the difference between the various terminologies. This would indicate that 284/359 (71%) documents were called a policy.

Table 7.5: Title of Trust Documents

Title	No
Policy	257
Guidelines	30
Policy and Procedure	21
None	19
Procedure	17
Policy, Procedure and Guideline	3
Policy and Guidelines	3
Protocol	3
Code of Practice	2
Document	2
Procedural guidance	1
Standard	1
Total	359

Table 7.6: Different Terminologies of Documents

Terms and Definitions	
Term	Definition
Policy	A policy is a written statement that clearly indicates the position and values of the organisation on a given subject
Protocol	A protocol is defined as a written plan that specifies procedures to be followed in defined situations; a protocol represents a standard of care that describes an intervention or set of interventions. Protocols are more explicit and specific in their detail than guidelines; they specify who does what, when and how. Protocols are most typically used when developing instructions for drug prescription, dispensing and administration, i.e. drug protocols.
Procedure	A procedure is a written set of instructions that describe the approved and recommended steps for a particular act or sequence of events
Standard	A statement, reached through consensus, which clearly identifies the desired outcome. Usually used within audit as a measure of success.
Guideline	A guideline is defined as a principle or criterion that guides or directs action. Guideline Development emphasizes using clear evidence from the existing literature, rather than expert opinion alone, as the basis for advisor materials.

Health Service Executive (2012)

Building on this, typically a policy is a formal position statement that explains an organisation's stand on a subject and how it intends to operate. Policies tend to be produced by senior management and as such are commonly associated with a degree of authority and gravitas. The ultimate aim of a policy is to regulate and control organisational action (Naidu 2009). Guidelines tend to be broader and are less compulsory than policies, while procedures are more step by step instructions that assist *workers* in the implementation of policies. Procedures are usually more specific, detailed and less ambiguous than policies. Finally standards are statements, reached through consensus which

clearly identifies the desired outcome. Standards are usually used in association with audit which provides some measure of success.

Intuitively the documents under discussion, henceforth policies, would seem to be something of a hybrid text as they tend to include elements of policies, protocols, procedures, guidelines and standards. That is, as we will discover, they often include step by step instructions commonly seen in procedural texts (Farkas 1999) the rules of enforcement traditionally associated with a policy (White 2010) and overall statements of intent usually seen within a standard. The latter can be observed in the example below. The use of *will* in both of these marks them out as an aspiration, a standard statement, not a prediction of what will actually happen. *Hands will be* was used eight times. In these circumstances aspiration would seem laudable, but given what we know about hand hygiene compliance this type of prediction could be considered overly ambitious.

Hands will be decontaminated in a timely manner using a cleaning agent, at the facilities available to reduce cross infection (Basildon)

Hands will be decontaminated correctly in a timely manner using a cleansing agent to reduce risk of cross infection (Avon)

Notwithstanding the various differences between terminologies, tellingly, trusts overwhelmingly called the document a policy with the ideological underpinnings that this brings. Moreover, if the hallmark of a good policy is clarity (White 2010), Campbell (1998) raises an interesting point as to whether an effective policy can be ambiguous. Answering his own question he goes on to suggest that this should be dependent on, the intensity of the issue and an organisations commitment to it, the user's ability to understand the document

and the willingness of the organisation to enforce it. Throughout this study to date, great store has been placed on the titles and introductions to academic texts and the similar devices in the newspapers media. As discussed previously this is based on the view that they are the most commonly read part of a text and the notion that writers do things in their introductions to hook their reader. As such the introductions of two samples, seventy two texts, were read for evidence of positioning on the three criteria that Campbell has identified.

7.3 Introductions

7.3.1 *The intensity of the issue and the organization's commitment to it*

In Chapter Five we saw how academics use introductions to demonstrate commitment to their discourse community, create common ground and assure them the topic is an area of concern (Habibi 2008). In a clear sign of intertextuality the first batch of examples, seen below, demonstrate the way a policy document apes the same strategies as academic articles by integrating previous work and using “evidence” to enhance its credibility and authority. Moreover, examining the concordance plot 42 policies used the phrase one billion with 36% of these adding 5000 deaths as part of their introductions.

There is extensive **evidence** that contaminated hands are responsible
ensure that there is an up to date **evidence** based policy
The **evidence** shows clearly that hand hygiene
However, **evidence** shows that improved hand hygiene can prevent
this section is based on the national **evidence**-based guidelines
There is extensive **evidence** that clearly demonstrates

5,000 patients and costs the NHS **£1 billion** a year
5,000 patients and costs the NHS **£1 billion** a year
5,000 patients and costs the NHS **£1 billion** a year
in excess of **£1 billion** per annum
cost the NHS in England **£1 billion** per year
cost to the NHS is approximately **£1 billion** per year

This is perhaps unsurprising as the dominant model of policy making, comprehensive rationalism, is closely associated with the evidence based practice movement (Shaw 2010). A key assumption here being the greater the show of evidence the closer policy actors come to making more rational decisions (Tenbensen 2004). Embedding evidence within the policy is one way that an author has to present the policy as objective, logical and value free (Nutley, Walter & Davies 2007). However, an example from South Warwickshire again highlights the vagaries of citation and how writers can economically manipulate meaning to their own advantage. When it used the EPIC guidelines to state that *hand hygiene is backed up by clear and undisputed evidence*, this is a little more definitive than the wording of the guidelines. These were a little more guarded and acknowledged the limitations of the evidence and the importance that expert opinion had in formulating the recommendations.

A different approach, taken by some organisations, was to focus more specifically on the fulfilment of its legal requirements. Again at first sight this is understandable. As discussed in Chapter Two infection prevention and control has become a heavily regulated activity and this culminated in the Health Act (Department of Health 2008b). The Act requires all NHS trusts, NHS Foundation and Primary Care Trusts and NHS Blood and Transplant services to adhere to a Code of Hygiene of Practice (Department of Health 2009). Failure to comply can result in financial penalties of up to £50,000 and suspension or cancellation of registration (Randle & Clarke 2011). In other words if a trust does not fulfil its statutory requirements the Care and Quality

Commission can remove its right to practice. However, to take a different tact Huckin (2002) coins the phrase the intended *reading position* to question the target of the text and what is its ostensible purpose? While it could be the case that the ward based clinician concerns themselves with the legal position of their organisation, alternately an affirmation of legal judiciousness may appeal to those external regulators that stand outside the immediacy of a hand hygiene policy. 20% of trusts cited the health act in their policy.

Hygiene Code as set out in the **Health Act 2006**

The **Health Act 2006** also requires all organisations

In order to comply with The **Health Act 2006**, healthcare workers

Hand hygiene is a key **component of the Health Act 2006**

to ensure compliance with the **Health Act 2006**

exposure to infection, and the **Health Act** provides the organisational

7.3.2 *The user's ability to understand and deal with the policy*

According to White (2010) the ability of a user to understand the intricacies of any given policy will be beholden on simple language, lack of jargon and avoiding undefined terms. Once understood the individual will need to manage the policy requirements and this is something that will be returned to throughout the chapter. However an additional finding was the return to a language of simplification that was first identified in Chapter six. The use of the word *simple* below assumes the reader would have little problem in comprehending the salient points. As Koteyko et al (2008) would put it *it's not rocket science*.

Hand hygiene is the simplest, most effective measure for preventing healthcare associated infection (Pittet 2001). Some studies show that adherence to recommended hand hygiene practice is unacceptably low among healthcare workers, presenting risk to patients (Kensington).

In addition, the aforementioned example uses the lexical bundle *most effective measure* that has already been shown to be associated with the academic and media genres. Indeed this term, or its derivatives were extremely common in the corpus. *Single most* was used 213 times (176 trusts) *the most* a further sixty six (42) trusts and *most effective* 22.

Hand hygiene is the **single most** important procedure for
Hand hygiene is the **single most** important measure in reducing
Hand Hygiene is the **single most** important procedure for preventing hospital
Hand hygiene is the **single most** important factor
Hand washing is the **single most** affective action that
Hand hygiene is the **single most** effective method

This takes us back to the hedging and boosting discussion held in Chapter Five.

If the examples above are strong instances of boosters, the use of *one* (38) and *considered* (13) can be seen to hedge the proposition.

Hand washing is **one of the most** important procedures
Contact is **one of the most** common methods of transmitting infection
Hand Hygiene is **one of the most** important infection prevention
Hand hygiene is **one of the most** critical factors in preventing
is recognised as **one of the most** important measures
Hand decontamination is **one of the most** critical factors

The marked difference is that hedging devices were only used in 21% of *single most* and *the most* examples. In other words rhetorically, policy documents appeared to maximise the impact that hand hygiene has on HCAI and their assertions are possibly greater than a more sober assessment of the academic literature could support.

7.3.3 *The Managers willingness to enforce it*

In the examples below and *informing* staff of their trusts *expectations* and *identifying* expected *standards* are quite powerful illustrations of a nominalisation of discourse. Nominalisation of discourse refers to ways in which certain discourses and practices are constructed as normal (Baker & Ellece 2011). Here it would seem that once the standard has been identified staff are simply required to acquiesce.

*The aim of the document is to **inform** all staff of the Trusts **expectations** regarding hand hygiene (Royal Orthopaedic)*

*The policy provides guidance and **identifies** the **expected** standards for all staff working within (East Sussex Hospital)*

The term personal responsibility was used 46 times. This transfers duty to the clinician and at the same time absolving responsibility away from the organisation. Hull PCT have taken this a stage further when they write, *everyone across the organisation needs to **recognise** and **understand** the contribution they can make to reducing HCAI's*. Here not only do staff have a responsibility to comply with policy *at all times* but need to *understand* the contribution that this can make to reduce HCAI. How a trust would quantify or audit this is open to question.

Every member of staff has **personal responsibility** to ensure
All health care workers have a **personal responsibility** to comply
Trust staff have a **personal responsibility** to ensure that
effective hand hygiene is the **personal responsibility** of all individuals
Every member of staff has **personal responsibility** to ensure they comply
Increasing the behaviour and **personal responsibility** of healthcare workers

The George Elliot Hospital in particular took an unequivocal stance when they wrote the following

GEH has a zero tolerance approach to non-compliance to hand hygiene and persistent non-compliance with any element of the hand hygiene policy by any member of Trust staff may undergo disciplinary procedures (George Elliot)

The concept of zero tolerance was introduced in Chapter Six, in relation to Health Protection Scotland's national hand hygiene campaign. It is a philosophical position that is becoming commonplace within HCAI and infection prevention and control. The Department of Health (2008c) have advocated that trusts take a zero tolerance stance towards non-compliance with key policies or procedures and propose that the consequences of poor performance are underpinned with effective HR systems. George Elliot appear to warm to this directive but exactly how the organisation manages what must be inevitable, endemic non-compliance is beyond the scope of this study. What it does do however, is propagate, in the strongest possible terms, a vernacular of zero tolerance or intolerance depending on your position. An additional finding that came from the examples above and re-enforced by the one below is the inclusiveness of a hand hygiene policy.

This policy applies to all directly and indirectly employed staff including indecent contractors and other persons working within the Trust (Southampton PCT)

Returning to the keyword list *staff* was a high frequency word as was *all*. Moreover *all staff* were common collocates used 1,237 times. Contrast this with the media corpus, and indeed academia in their observations that focus on the behavior of doctors and nurses. *Nurse* and *nursing* were used 619 and 701 times respectively. However, they were used to describe titles like *Infection Control Nurses Association*, *Infection Control Nurse* and *Director of Nursing*

rather than a hand hygiene complier. The focus on *staff* rather than *nurse* in a policy is perhaps an indication that NHS trusts have fully embraced the Department of Health's vision that effective infection prevention and control is everybody's business (Department of Health 2008b). A final result in this section that is worth noting is the personification of the NHS Trust. Personification is a metaphorical representation whereby non-human objects are associated human attributes or qualities. *The Trust* was used 1504 times. In the examples below the trust cannot *recognise* its duties any more that it can be *committed* to reducing risks of infection, only the people within these organizations are capable of this. This represents a form of what van Dijk (2006) would call hegemonic power. That is, how an intellectual elite, those who write the policies, impose and establish their values as common sense and acquire domination through consent. It is highly plausible that if asked a HCW would be committed to preventing HCAI however, they may be less yielding if fully cognisant of the finer detail of policy requirements and how that policy is translated in terms of their compliance behavior.

Nottinghamshire Healthcare NHS trust recognises its duty of an ensuring effective system is in place to prevent and control of health care associated infections (Nottinghamshire)

The Trust is committed to reducing risks of all types and this includes infection control risk (Tavistock)

The final two examples are curious and a little hackneyed. If the *Wirral University Hospital* recognises the importance of effective hand hygiene and *NHS Luton* considers that infection control is at the heart of good practice, does this assume other trusts do not or would contest this?

At Wirral University teaching hospital NHS trust, it is recognised that one of the major contributing factors in reducing the transmission of health care associated infections is effective hand hygiene (Wirral)

NHS Luton considers that infection control and good hygiene standards lie at the heart of good clinical practice (Luton).

In answering Campbell's questions, this analysis of the introductions of policy documents would suggest that they use intensifying strategies, similar to those seen in academic journals to emphasise the importance of hand hygiene in reducing HCAI. Policies take the opportunity to foreground the personal responsibility of staff to understand and comply with its instructions, and although it will require a more detailed examination of the corpus there is some early suggestion that organisations may be willing to take punitive action in order to enforce it. To return to the thrust of Campbell's argument it was whether policies can be ambiguous. In Chapter Five we saw how academia modalised their work through the use of hedged statements. The next stage in this Chapter is to examine modality in the policy corpus. This is crucial to the study as notwithstanding the results of the academic research and the pressure exerted by the media and the public, modality will help to reveal what organisations actually expect of their workforce.

7.4 Modality

According to Husain, Michel & Shiffman (2009) *good* recommendations should be precise and exact, as executable recommendations are more likely to be understood, remembered and acted upon. This is supported by Michie (2004) who argues that the wording of a behavioral instruction affects the likelihood that it will be followed by influencing comprehension, recall,

planning and behavior. However, modality in policy documents does more than this as it implies a level of obligation (Lomotan, Michel & Lin 2010). This can be conveyed in two different ways. Specific statements that codify the quality of evidence supporting the recommendation, which has been discussed earlier, or through the use deontic terminology, like *should*, *must* and *may* (Shiffman, Michel & Krauthammer 2010). The ideological significance of modality rests with the notion that there is an individual subjectivity behind the printed text; that is, it is written or spoken by someone who is qualified with the required knowledge to pass judgment (Fowler 1991). Modality, therefore, becomes an important part of how authority is articulated, legitimated and expressed (Fowler 1985).

Basically there are nine central modal verbs in English: *can*, *could*, *may*, *might*, *must*, *should*, *will*, *would* and *shall*. Modal verbs are most commonly used to express stance meanings, related to permission, ability, obligation, necessity, volition and prediction (de-Wirtz & Kitson 2007). To be more precise each modal verb can have two meanings intrinsic and extrinsic. Intrinsic modal meaning refers to the control of actions and events by humans and other agents. These meanings relate to personal permission, obligation and volition. Conversely extrinsic modal meaning relates to levels of certainty, likelihood or logical necessity. The Longman Student Grammar of Spoken and Written English (2002) have produced a useful categorisation of modal verbs (Table 7.7).

Table 7.7: Categorisation of Modal Verbs

Category	Modals
Permission/Ability	Can, Could, May, Might
Obligation/Necessity	Must, Should
Volition/Prediction	Will, Would, Shall

A further classification sees modal verbs as deontic or epistemic. Deontic modals have intrinsic meaning as they assume some type of control over events through permission, obligation or volition. Conversely where intrinsic control is not involved the meaning would indicate possibility, necessity and prediction and would become epistemic (Lillian 2008). Although the previous chapters on media and academic discourse did not include a specific examination of modal verbs, the general language of both corpora could be seen to be both epistemic and deontic. Both corpora made epistemic truth claims about the effectiveness of hand hygiene and both highlighted the deontic obligations of HCWs to perform the approved practice. In the policy corpus it became evident from the keyword analysis that *should* 5,742 and *must* 4,904 had a very high frequency. Because of the high frequency a full list of keyword modal verbs was generated (Table 7.8), and a detailed analysis then took place. The analysis began with the key modals *should* and *must*. However, because both words can have epistemic and deontic meaning (see below) it was necessary to do this in two stages.

Epistemic - *Hand Hygiene must improve to reduce Health Care Associated Infection* = prediction – it is necessary for hand hygiene to improve to see a reduction HCAI.

Deontic - *Hand Hygiene must take place following patient care* = obligation – individuals are required to perform hand hygiene following patient care.

The first part categorised the words as either deontic or epistemic modals. One sub sample, sample six, was randomly selected, the concordance line was read and the word was sorted as to whether it had deontic or epistemic meaning. As discussed earlier a hand hygiene policy is a diverse document and the concordance lines revealed a plethora of distinct statements around different themes of hand hygiene. Nevertheless, typically these were relatively straightforward declarative communications that advocated a particular clinical practice. In respect of these policies, in all cases, *should* and *must* were used as deontic modals. This was not surprising as according to Lomotan et al (2010) deontic modal verbs like *must*, *should* and *may*, frequently permeate policy documents.

Table 7.8: Keyword Modal Verbs in Policy Documents

Order	Word	Total	Keyness
18	Should	5742	17954.371
25	Must	4904	16055.772
49	Will	4240	8915.229
176	May	2237	2555.815
212	Can	2468	2153.478
24 -	Would	76	308.878
427 -	Shall	36	13.684
545 -	Might	123	9.234
1661 -	Could	219	0.091
0	Ought	0	0

Epistemic modality, the strength of the assertion, is achieved through other devices like citing research evidence. However, because a hand hygiene policy is an eclectic document that had contrasting sections and ideas it was not enough to simply acknowledge that it was imbued with high levels of deontic logic. As such, the second stage of the analysis was to examine how modality was assigned to different themes. It was here that the earlier thematic analysis came in useful as it allowed the modals to be sorted under specific categories. The results and distribution of the modals *should* and *must* can be seen in Table 7.9.

Table 7.9: Must and Should Amongst Different Categorisation

Theme	Should	Must
Statement (Standard incorporating multiple aspects)	2%	3%
Hand Hygiene Frequency (When to do it)	6%	19%
Hand Hygiene Technique (How to do it)	19%	13%
Facilities (Access to/and quality of)	17%	12%
Products (How and when to use specific products)	17%	10%
Uniform Policy (clothing, jewelry, nails, etc)	10%	15%
Skin Care (self-management, reporting problems)	13%	9%
Education and Training (formal and informal – advice etc)	5%	10%
Audit (formal and informal)	5%	5%
Punitive action (discipline, reporting systems)	1%	0%
Safety (COSHH, flammable products)	1%	1%
Visitors and Patients	4%	3%

In a *Sense of English*, Charlie de-Wirtz & Kitson (2007) argue that although *must* and *should* are both deontic modals, *must*, indicates a much stronger obligation than *should*. *Must*, he suggests infers that something is absolutely necessary, whereas *should* often falls between expressing an obligation and giving advice. This is echoed by the findings of Lomaton et al (2010) who in a study of deontic terminology in clinical practice guidelines reported that clinicians believe that *must* conveys a higher level of obligation than *should*.

The topic that dominates the hand hygiene literature and the one change campaigns focus on more than any other, is the notion that HCWs do not cleanse their hands as often as they might do. Tellingly, the frequency of hand hygiene behavior is also the theme that attracts the greatest use of the word *must*, the strongest modal verb. *Hands must* was used on 609 occasions and *Hands should* on 545.

*Hands **must** be decontaminated immediately before each episode of patient contact and after any activity or contact that potentially results in hands becoming contaminated (Herefordshire)*

*Hands **must** be decontaminated immediately before each and every episode of direct patient contact/care and after any activity or contact that potentially results in hands becoming contaminated (Kirklees)*

In the examples above not only does *must* provide little equivocation in the trust's expectations but the words and phrases, *each and every* (115), *any* and even *potentially* makes the circumstances under which *must* operates more exhaustive. Another notable point is how similar the wording is from the two trusts, possibly providing further evidence of intertextuality. The lesser modal *should* was also used for the code of frequency but significantly less so, with 6% compared to 19%.

*Hands **should** be decontaminated before every episode of patient care that involved direct contact with a patient skin, food, invasive device, when dressing a wound. Hands should also be decontaminated after completing an episode of patient care" (East Kent)*

Other than displacing the modal *should* for *must* the directive remains very similar. Nevertheless, Lillian (2008) points out that *should* can actually be used to denote desirability and not obligation. So while it would be desirable for a HCW to cleanse their hands in the example above, it is not essential and

understandable if this were not possible in all circumstances. While *should* unquestionably has the power to hedge a directive what is not known is whether this was the intention of the author who wrote it or how a reader might interpret it. This is one of the problems associated with putting meaning on another person's text. On the one hand the choice of *should* over *must* may simply reflect the writer's syntax. On the other it might be a tacit admission that the lack of equivocation that *must* carries is largely unhelpful when it comes to the realities of clinical practice. *Should* allows the writer to advance best practice but does not set up the individual to fail. However, to make the situation more complex a small number of trusts used both words for the same code. For example, Stockport uses a common device seen in these policies by asking a rhetorical question as a way of providing instruction.

*When hands **should** be decontaminated?*

*Hands **must** be decontaminated immediately before each and every episode of patient care (Stockport)*

Despite the aforementioned example, and the difficulties of second guessing a writer's intention, there is compelling evidence to suggest that in this corpus the stronger modal *must* has a notable association with the frequency code. Hand hygiene policies then tend to have a clear linear progression from when to clean your hands (frequency) to how to clean your hands (technique). An interesting point raised by Gould & Drey (2008) is that compliance studies invariably focus on frequency rates but rarely, if ever, report hand hygiene technique. Indeed this was the case for the academic corpus in this study. A possible reason is the inherent difficulties, time and inter-rater reliability of measuring technique. While *must* is the more common word for hand hygiene

frequency, *should* becomes more influential when it comes to technique. However, as indicated in the grouped examples below individual trusts have their own approach to how they use modality in their policies.

*Hands **must** be washed using the recommended six stage handwashing technique (Stoke)*

*All areas of the hands **should** be covered systematically (Worcestershire PCT)*

*Hands **must** be wet before applying the chosen solution (Trafford)*

*Hands **should** be wet thoroughly before applying soap (Maidstone)*

*Hands **must** be washed under warm running water (The Rotherham)*

*Hands **should** be washed under tepid water (West Essex)*

*Hands **must** be rubbed vigorously for a minimum of 12-20 seconds” (Leeds Partnership)*

*Hands **should** be washed by systematically rubbing all parts together (James Paget)*

*Hands **must** be rinsed thoroughly (Mid Essex)*

*Hands **should** be rinsed thoroughly (Northumberland)*

*Hands **must** be dried using disposable towels (Warwickshire PCT)*

*Hands **should** be dried thoroughly using good quality paper towels (Central London).*

*Hands **must** not be used to lift the bin lid (Northampton)*

*Hands **should** not be used to open a foot operated bin (South Tyneside)*

Despite the liberal use of *should* and *must* for all aspect of hand hygiene technique the analysis of these modals to date suggests that an organisation

holds a stronger modality for frequency, when to clean hands, than technique, how to clean hands. One possible reason for this is that policy makers have concluded that any type of hand hygiene, no matter how perfunctory and brief, is better than no hand hygiene at all (Gould & Drey 2008). However, this is a strangely pragmatic view of hand hygiene that has not hitherto been seen in this study. As a rule hand hygiene is conceptualised as an all or nothing activity, something criticised by Silvestri et al (2007). The view here is that hand hygiene must be performed after any kind of contact because of the possibility of acquiring small amounts of colony forming units on the hands. If this is the case then similarly a poor technique will not remove them.

As such the argument of privileging frequency over technique is flawed. An alternative view to explain this could be that it is difficult to predict what the impact of high/low frequency or high/low technique might be. As such it is important to give currency to the thing that people are most concerned with, that is compliance rates and whether staff are actually cleansing their hands. Darbyshire (2008) argues that this is symptomatic of an audit culture that is less interested in quality and more interested in control and creating the illusion that all is well within the organisation. In essence, *must* is more important for frequency because it is crude compliance rates, that trusts report and use as a measure for success.

Two further areas where *must* is preferred to *should* are hand preparation and education and training. A number of official documents consider the importance of dress code (CDC's guidelines 2002, EPIC guidelines 2007, DH Uniforms Policy 2007, WHO guidelines 2009). Broadly, long sleeved clothing,

jewellery, wristwatches and dirty, long or false nails are thought to harbour bacteria and impede hand hygiene performance. While these guidelines acknowledge that there is limited evidence that the increase yield of bacteria on hands is associated with dress code and as a result in an increase of cross infection, all policies recommend the equivalent of a bare below the elbows policy. This then translates into hand hygiene policies through the following examples.

*Rings with stone and ridges **must** not be worn (West Hertfordshire)*

*Artificial nails **must** not be worn when having direct patient contact (South Birmingham)*

*Clinical staff **must** be bare below the elbow (Brent)*

If the evidence that underpins a uniform policy is a little sketchy it is interesting that it receives a high degree of modality. This could be due to a number of factors. First as with much of the evidence that underpins infection prevention and control, it is difficult to quantify the level of risk associated with the components of a uniform policy. As such it could be part of a risk sensitive strategy that reckons if there is any chance that long sleeves, false nails, bracelets etc harbor bacteria and impede hand hygiene, it is reasonable to expect staff to dress a way that minimise their impact. Conversely I have argued previously (Jackson & Cole 2010b) that uniform policy has been somewhat hijacked as an infection control problem when it would sit more comfortably under the banner of professional standards and corporate image. Despite this, uniform policy is probably part of the same back to basics policy that has engulfed modern matrons and hospital cleanliness and as a sound bite it is something that is relatively straightforward to regulate and control.

In relation to education the WHO (2009) suggest that to ensure guidelines (policies) are transformed from a static document into a living and influential tool that impacts on the target practice, a carefully constructed strategy to maximise dissemination and diffusion is required. As such mandatory infection control training has become a core component of the NHS's national strategy to reduce HCAI (Healthcare Commission 2007, Department of Health 2005). The need for continual mandatory training has become embedded in organisational policies in the following ways:-

*Clinical staff **must** attend a face to face training session at least every two years (Cambridge and Peterborough)*

*All clinical staff **must** receive training in hand washing technique and compliance as part of their induction programme (South Gloucester PCT)*

If *must* is a modal verb that expresses strong sentiments of obligation then the examples highlighted oblige multiple agencies. For the directive to come to fruition; the training department will need to manage the process; the infection control team is required to lead the training; a manager will release the member of staff who will then have to attend. Although the corpus acknowledges the different roles and responsibilities of those involved, mandatory training on this scale is ambitious and the first two examples overleaf seem to predict problems. The second two then use strategies to place the ultimate responsibility back to the individual. Although anecdotal my experience of non-attendance at mandatory sessions has more to do with busy wards unable to release staff because of the immediacy of patient care than it is staff resisting training opportunities.

The training and development manager will follow up non-participants, and report it to their line manager (Bedford)

Managers are contacted by the training department to make managers aware that staff have DNAd and need to be rebooked (Northumbria).

Trust staff have a personal responsibility to ensure that they are familiar and up to date with this policy and undertake appropriate training where there is a knowledge deficit (Warrington)

Compliance with mandatory training is monitored at staff individual review (Wirral)

In contrast, *should* has higher frequency for the provision of facilities. Clean, effective and available washbasins, dispensers, taps, running water, soaps, foot operated bins, disposable towels, AHR and hand cream should all be available as pre-requisites of good hand hygiene practice (WHO 2009). These are all included in the corpus and at various times *should* and *must* are used. The availability of near patient AHR, which is seen as central to the delivery of improvement programmes receives particular attention.

*Alcohol gel **should** be available for use at the point of care (South Devon)*

*The soap and hand towels **should** be of a quality acceptable to the user (Ashford)*

It is worth repeating that while the use of *must* and *should* is capricious, certain trends appear that are worthy of greater consideration. Why for example is *must* preferred for themes like dress code and training and *should* for the provision of facilities? One factor could be that enforcing a dress code has no direct cost and is easier to deliver. Similarly it is relatively easy to establish a training event but it may be more complex to ensure individuals get to the room. However, it is unclear how vigilant trusts are in enforcing this particular directive. Conversely facilities like near patient rub and other hand hygiene

infrastructure like hand cream, high quality towels, effective sinks, do have an associated direct cost and might be more difficult to control and predict. An additional point to consider is who the author of a hand hygiene policy is and what their motive(s) might be. For example, the use of AHR at the point of care is a clinical responsibility but its availability is associated with procurement.

The author of the document would be a member of the infection control team, probably the doctor who is an example of what Kippist & Fitzgerald (2008) call a hybrid clinical manager; that is a doctor who combines a management function (advice, policy development) with a clinical role as a microbiologist. Although the role can cause considerable tension, it can also provide a platform where a policy writer can compete for resources by identifying and committing the organisation to a particular action. For example, the organisation **MUST** provide the necessary budget to ensure training is available and that AHR is available at the point of care.

Lomotan et al (2010) identify a third deontic modal verb, *may*, which they suggest forms the lowest level of obligation. One of the significant functions of the modal auxiliary *may* is to reduce the authority of the policy maker and introduce optionality by giving the appearance that the HCW can make their own decisions as to whether or not to follow the advice. An examination of the word *may* in the corpus revealed that it was predominantly used as an epistemic modal to make predictions on how hands could become sore because of frequent washing, contaminated during patient care or alternatively, give the

HCW permission to use a particular product. *May* was used on 2237 occasions, 45 of these were the month of the year.

Hands may also be contaminated via contact with dirty equipment (Epsom and St Hellier)

AHR may be used in place of soap and water for hand decontamination where hands are visibly clean (Berkshire West).

Although *may* was typically used as an epistemic modal there was one noteworthy example that was cited by a number of trusts, where it was used as a deontic model in relation to hand hygiene frequency. One of the studies used in Chapter Five was authored by Eviellard et al and focused on hand hygiene compliance during successive contacts on the same patients. There is a dearth of literature in this area of hand hygiene behavior presumably because contacts are rapid and compliance rates would be very low. Eviellard reported 22% compliance on general wards, and this was with a Hawthorne effect. The premise of measuring and enforcing hand hygiene compliance in entire care episodes rests with the idea that patients probably do not benefit from partial compliance (Haas & Larson 2007). However, compliance with this standard would exponentially increase hand hygiene opportunities. As such the following examples are seen to address this by removing *must* or *should* and replace it with a much more measured *may*. It also includes a somewhat apologetic tone that had not hitherto been seen in the corpus.

It should be noted that hand hygiene may have to be performed between tasks on the same patient (North Middlesex, Sheffield Children's, Dudley, Trafford, Barnet Chase Farm, ULH, Southwark, Worcestershire PCT, Lincolnshire Partnership, North Somerset, Somerset Community)

Moving on from *should, must and may, will* is the most common modal verb in the Longman Spoken and Written English Corpus (Biber, Conrad & Leech 2002), and the third most common modal in the hand hygiene corpus. *Will's* frequency in the hand hygiene corpus is perhaps surprising as according to Roland (2007) researchers and policy writers can show a reluctance to use *will* as it can demonstrate a commitment to action. Instead they often use *may* or *might* (ibid). However, following an examination of 200 concordance lines it became clear that writers had a specific use of *will* as an epistemic model. The only occasions that *will* (4204) was used in relation to actual hand hygiene behaviour was when it was used as a standard statement. Tellingly this is used more as an aspiration than a prediction of what will actually happen.

Hands will be washed in accordance with the hand hygiene policy (Oldham PCT)

Hands will be decontaminated correctly and in a timely manner using a cleansing agent, at the facilities available to reduce the risk of cross infection (Stoke)

Instead the most common use of *will* is in relation to what could be loosely defined as an organisation's governance arrangements. The Controls Assurance Standard for Infection Control highlighted the importance, amongst other things, of trust board accountability, the availability and dissemination of policies and procedures, education and training and audit. All of these permeate the corpus as organisational must do's.

Regular infection control training will be accessible for all Trust staff (The Dudley Group)

A hand hygiene audit will be carried out annually in all clinical areas (North Tees)

Approval of the policy will be through initial agreement at the Infection Control Committee (Basildon)

The other common use of *will* is where a statement is made that could be authenticated from a strong body of evidence. For example there is irrefutable evidence from laboratory studies that topical alcohol reduces the bacterial load on a human hand.

*Using the alcohol hand rub on hands **will** kill the transient organisms acquired from contact with patients” (Swindon)*

*Sore or excoriated hands **will** hinder hand hygiene (Barnet Mental Health)*

An interesting, but isolated use of *will* as a deontic modal came from the following example:

*In some instances staff **will** have to use their own judgment in the interpretation of the guidelines (Suffolk MH)*

In some instances they will have to use their judgment in the application of this policy (Waltham Forest)

At first sight Suffolk and Waltham seem to present a radical departure from the norm. However, closer inspection of the context in which these directives were made uncovers a community context where HCWs are required to use their *judgment* if faced with no or inadequate hand hygiene facilities in a client’s home. To complete this section on modal verbs two other words, *can* and *might* will be briefly considered. *Can* comes from the verb *to be able* and is often associated with the ability or permission to do something (de-Wirtz & Kitson 2007). *Can* was widely distributed between the themes but two were dominant. The first, as seen overleaf relates to the process of contamination and cross infection. The use of *can* rather than *will* in this example illustrates the lack of certainty that exists in contamination and cross infection. The third example, which is particularly salient in the corpus, gives the HCW permission to use AHR under specified circumstances.

Other, common uses of *can* reflect the ability to access training and the potential to experience skin damage. There were no examples of *can* to soften an organisation's expectations of hand hygiene frequency or technique, for example, *hands can be cleaned following, hands can be cleaned in the following way.*

*Hands **can** become easily contaminated (Chesterfield)*

*Hand Hygiene **can** greatly reduce the transmission of infection (West Middlesex)*

*If hands are visibly clean they **can** be decontaminated using an alcohol based preparation (Warrington PCT)*

Might received only 123 hits in the entire corpus and had a negative frequency when compared to the reference corpus. *Might* is typically used to express probability and possibility. Probability is often linked to making deductions, so the two concepts often overlap with each other. The first example, which is the most frequent, again speculates on how hands could be a vehicle for cross infection. The second is a device used by a number of trusts where they pose a rhetorical question as a precursor to outlining the expected hand hygiene behavior. *Might* was occasionally used to highlight the possibility of skin damage, it was rarely used for any other category.

*It must be assumed that every person encountered could be carrying potentially harmful microorganisms that **might** be transmitted and cause harm to others (Trafford).*

*What **might** help good hand hygiene? (Bassingstoke)*

*Who **might** be harmed and why? (Sandwell)*

It was discussed earlier that policy recommendations can convey a level of obligation in two ways. Through the use of deontic terminology that has been discussed, or through the use of terms like evidence that codify the claim being

made. The word *evidence* was a keyword in the hand hygiene corpus and it was used 790 times. In the majority of cases evidence was used as part of a reference to the EPIC guidelines either as a quote in the text or a reference at the end of the policy. Less frequently evidence was used in a more generic and opaque way. While the word evidence had a significant standing throughout the corpus only 145 out of the 359 policies used the word within the text (40%) with a further 108 using it as a reference (30%). 30% did not use the term at all which may seem surprising. Instead these policies preferred to use words of deontic logic like *should*, *must* and *responsibility*.

7.5 Comparison with a Manual Handling Corpus

To date a keyword analysis and an examination of concordance lines has helped to identify the priorities of hand hygiene policies and the modality that is often assigned to these. The salience of the obligatory modals *must* and *should*, suggest a corpus that is infused with deontic logic. However, according to Lomotan et al (2010) this is a feature of policy discourse *per se* and therefore not necessarily unique to this corpus. To strengthen the analysis a second reference corpus consisting of NHS Trust Manual Handling Policies was compiled (88 policies, 612,000 words) and this was compared to the hand hygiene corpus. Table 7.10 illustrates keywords that are more common in hand hygiene policies, keywords that are more common in manual handling policies and words that are key when a hand hygiene policy is compared to a general corpus, but not when it is compared to the manual handling corpus.

Table 7.10: Keyword Comparison with Manual Handling Policies

More Common in HH Policies		More Common In Manual Handling Policies		Neutral
Word	Keyness	Word	Keyness	Word
Thoroughly	764.590	Risk	5043.688	Responsible
Thorough	81.420	Risks	617.353	Responsibility
Important	463.517	Assessment	4038.141	Accountability
Importance	930.430	Assessments	1786.891	Accountable
Compliance	445.094	Practicable	858.378	Discipline
Vigorously	388.201	Reasonably	858.378	Disciplinary
Vigorous	62.951	Reasonable	202.434	
Audit	361.794	Training	649.122	
Audits	240.328	Trainers	455.778	
Should	215.218	Manager	576.110	
		Management	374.459	
Evidence	185.698	Managers	275.582	
		Possible	531.014	
Essential	154.145	Consider	322.006	
		Consideration	94.104	
Potentially	129.964	Will	188.717	
Good	123.715			
Must	127.174			
Education	101.692			
Adherence	98.889			

A preliminary keyword analysis of manual handling policies suggests that they too were populated with deontic logic. *Must* was used 2260 times and *should* 2458. An examination of concordance lines suggested that these were often framed around a trusts duty of care or the individual responsibilities of clinical staff and managers. For example:

*As part of its responsibility towards the health and safety of employees, the Trust recognise that it **must** take reasonable steps to ensure that the risk of injury is minimised with regard to any moving and handling undertaken by staff (Newcastle).*

*Managers **must** ensure prompt investigation of moving and handling incidents (Central Lancashire)*

*Staff **must** complete a risk assessment for manual handling of loads/objects where hazardous handling cannot be avoided (Barnet MH).*

A keyword comparison of the manual handling corpus with the hand hygiene corpus revealed that the words *risk, risks, assessment, assessment, reasonably* and *practicable* are particularly salient in manual handling policies. Moreover, these words manifest themselves as collocates - *Risk Assessment* and *Reasonably Practicable*. These collocates reflect the legalese that surrounds Health and Safety Regulations. The Health and Safety Executive places an obligation on employers to make a suitable and sufficient assessment of hazardous manual handling that cannot be reasonably avoided. The term reasonably practicable then allows a cost benefit analysis that balances the degree of risk against the inconvenience and cost of overcoming it (Dimond 2005). Although hand hygiene behaviour is not subject to the same legal boundaries and frameworks as manual handling, the underpinning principle, that not all risk can be avoided and people need to do what is reasonably practicable is worth exploring. *Risk, assessment* and *risk assessment* are common words and combinations in hand hygiene policies; but typically these are used in relation to the safety, location and choice of products.

A **risk assessment** of alcohol availability should be undertaken
A **risk assessment** should be undertaken in conjunction with
alcohol gel is kept in patients home, a **risk assessment** must be carried
location of dispensers will be subject to **risk assessment**
should perform a **risk assessment** to determine the frequency

It is far less common for risk assessment to be used in respect of whether hand hygiene is necessary or open to the judgment of the HCW. When it does, consider the following example from Luton & Dunstable:-

*A **risk assessment** should be made by the HCW to determine the frequency of hand hygiene and what product to use (Luton & Dunstable)*

To some this could give the HCW license to consider the susceptibility of the patient, the activity, the current level of contamination etc, in essence complete a risk assessment, and use their judgment as to whether hand hygiene was required. This is akin to the guidelines released in the 1980s and 1990s that actively encouraged a HCW to do this. However, in the case of Luton and Dunstable the opening gambit was immediately followed the directive below:-

Opportunities for hand hygiene should be determined using the 5 moment of hand hygiene tool (Luton & Dunstable).

The World Health Organisation's 5 moments of hand hygiene has been discussed previously. Broadly, it is a comprehensive model that recommends hand hygiene before and after any contact with a patient or their environment, regardless of the type of patient, activity or level of contamination. Useful as a teaching aid, the 5 moments is less a risk assessment and more an ad memoir for staff that they should cleanse their hands after any activity. It is also a tacit admission from policy makers that they are unable, in real terms, to differentiate between what is a high risk and low risk activity. The common use of *potentially* (428) in hand hygiene policies demonstrates the uncertainty that surrounds many aspects of risk.

To remove **potentially** harmful micro-organisms from the skin however, hands that are soiled or **potentially** contaminated with activity that **potentially** results in hands becoming contaminated hands that are soiled or **potentially** contaminated with dirt or chipped nail polish, can harbour **potentially** harmful bacteria

This level of uncertainty is manifest in other ways. Manual handling policies commonly use the term *reasonably practicable* as an admission that risk is pervasive and not all risk can be removed. Unsurprisingly, if hand hygiene policies were reluctant to embrace the concept of *risk assessment*, in a meaningful way, compliance was unlikely to be reduced to something that was reasonably practicable. There were two exceptions to this rule:

All healthcare workers involved in patient care will ensure as far as is reasonably practicable that hand hygiene is undertaken as effectively and as appropriately as required (Derby MH)

Staff must do everything that is reasonable to ensure that they operate within the framework of this policy (Oxford Disabilities)

Perhaps the most interesting point here is that neither example is from an acute trust. The first, Derby is a mental health trust, the second, Oxford, is a learning disability trust. While a more flexible approach to hand hygiene would make sense, and could be justified on the basis that the risk that a patient could acquire a HCAI is far reduced, this might be a quirk as there were only 2 examples. It did however open up another avenue of enquiry of the differences between acute and mental health trusts and this will be returned to later.

Will, a modal verb discussed previously that demonstrates a commitment to action is more common in manual handling policies, as are *manager*, *management* and *managers*. Again this possibly relates to the legal framework

in which manual handling policies operate. However, manual handling policies also have an increased use of hedges like *consider*, *consideration* and *possible*. Seemingly paradoxical, this could be explained by the fact that while manual handling policies are subject to legal requirements, they also embrace a broader notion of assessment, flexibility and judgment. In contrast the deontic modals *must* and *should* which demonstrate obligation were more common in the hand hygiene corpus. Similarly the hand hygiene corpus is colonised with a range of adverbials and adjectives like *thoroughly* (991), *vigorously* (407) *essential* (557) and *good* (1056) that work to intensify the subject (Virtanen (2008). It seems it is not enough to write about hand washing and drying, but HCWs need to be reminded that it should be *vigorous washing* and *thorough drying*.

Thorough hand decontamination must take place (Leeds)

*Hands should be dried **thoroughly** (Swindon)*

*It is the **vigorous** and **energetic** manner of handwashing that actually dislodges micro-organisms (Wirral)*

*Rub hands **vigorously** together (City of Sunderland)*

*Hand hygiene is the most **important** method of spreading infection (Sheffield Care)*

*It is **essential** that staff carry out **good** hand hygiene (South Tees)*

Other words more common in the hand hygiene corpus are *audit* (1542), *compliance* (1994) and *adherence* (168). Audit has a long history in infection control (Hay 2006) and the surveillance of HCW hand hygiene behavior has become embedded throughout the policy document. Moreover, the results are routinely placed on trust websites as ways of demonstrating a commitment to quality improvement. The four examples are offered as illustrative insights into the way organisations manage hand hygiene behavior.

Audit is an activity that leads to improved standards and may be routine, or prompted by a specific incident or event (Doncaster)

Undertake an audit of 10 observations each month and enter the findings electronically on to the trusts intranet (East Sussex)

Standards of 80-95% should be reported to Matron and the audit repeated daily until 95% or higher is reached for 3 consecutive days (Great Yarmouth)

The ward sisters lead a weekly audit and hand hygiene compliance features on the ward dashboard (Hereford)

The first appears punitive as it hints at increased surveillance if the organisation has concerns about practice. The second demonstrates how trusts publicise their results. But 10 observations a month, left to the discretion of the ward staff, does not seem an overly reliable audit, particularly if this is then communicated as 100% compliance. Similarly the third example not only sets out the audit requirements but also what the results will be. Indeed given the consequences of failing to meet the target, and the audit does not seem to be authenticated by anyone outside the ward where it is undertaken, it is questionable why anyone would report a compliance level of less than 95%. The final example publicly shames the non-compliant HCW as a strategy of improvement.

The words *compliance* and *adherence* have dominated the academic literature and this policy corpus. Compliance/adherence has been associated with the vernacular of infection control for many years and has come to mean the extent to which a health care professional follows the *rules* of infection control (Kretzer & Larson 1998). Compliance tends to be used more widely than adherence, but there appears to be little overall consensus which is the most fitting. Some writers favour compliance (Gould et al 2008, Randle, Clarke &

Storr 2006), others adherence (Yuan, Dembry, Higa et al 2009, Bryce, Copes & Gamage 2008) and some use both within the same paper (Huang & Wu 2008, Pan et al 2008). Kretzer & Larson (1998) prefer the term adherence as they believe it is less authoritarian and more collaborative. Nevertheless, in this corpus *compliance* was used significantly more than *adherence*. A useful adjunct to compliance was the symbol % which was used to express an organisation's numerical expectation of performance. A random selection of twenty trusts revealed that twelve (60%) had set a benchmark for compliance. In all cases this was 90% or above. In five, see below, the expectation, was 100%. This seems a surprisingly high standard given empirical studies commonly report compliance rates in the region of 40%.

All staff must achieve 100% compliance with hand hygiene standards. Any member of staff not complying with the policy should have this drawn to their attention (Southampton)

This policy defines the standard for hand hygiene practice and the arrangements for ensuring that there is 100% compliance (North Bristol)

Hand hygiene audits are to be undertaken on a weekly basis and collected monthly until a score of 100% has been recorded for 3 consecutive months (Northern Lincolnshire).

The words *accountable*, *accountability*, *responsible*, *responsibility* are also terms of deontic logic that are used with increasing frequency in policy discourse (Savage & Moore 2004). Both were keywords in the hand hygiene and manual handling corpus. However, Decker (2012) suggests that there is often confusion between them and in most Germanic languages *accountability* and *responsibility* are used interchangeably. Nevertheless, when it comes to organisational theory and fulfilling employment roles Decker (2012) states you are *accountable to*, but *responsible for*, so in hierarchical organisations, like

NHS hospitals, this means that you are accountable up, but responsible down. The popularity of accountability is not surprising as it has emerged as one of the dominant themes of the 1990s, and has become one of the driving forces behind the modernisation of the NHS (Department of Health 1997).

In broad terms accountability is seen as a good thing and is often underpinned in Professional Codes of Conduct (Scrivener, Hand & Hooper 2011); for example the Nursing and Midwifery Council (2008) state that individual registered nurses and midwives are personally accountable for actions and omissions in practice. This positive dimension is captured by Caulfield (2005) who suggests, that accountability marks an inherent confidence as a professional that allows a nurse to take pride in being transparent about the way he or she carries out their practice. Despite its popularity, clinicians are said to find the term elusive and ambiguous with some associating it with a retrospective justification of actions and a way of apportioning blame (Savage & Moore 2004). In addition Savage and Moore suggest that accountability is increasingly associated with audit and the technicalisation of care, rather than some type of moral responsibility. *Accountability* was a low grade keyword cited 61 times with *accountable* a further 86. Responsible 1056 and responsibility 1019 and responsibilities 573 were significantly more common and in some cases, as seen below, blended together.

*Personal **responsibility** and **accountability** for compliance with infection control is embedded within job descriptions for all health care workers (East London).*

*All staff must be aware of their roles and **responsibilities** with regard to infection prevention and control and their **accountability** for implementing the policy (The Hillingdon)*

If terms like accountability and responsibility have charged the individual HCW with providing care of sufficient quality, clinical governance has extended this obligation, and mandated that different professional groups need to scrutinise the performance of each other (Allen 2000). Hand hygiene as a formalised surveillance driven activity that is subject to the audit of behavior, has already been discussed but here the policy extends this. Not only does the hand hygiene corpus hold individuals accountable and responsible for their practice; it also requires them to act as role models (46) and regulate the performance of their peers. Challenge was a keyword used 122 times and in 110 of these it was used in the sense of “to call a decision into action” (Collins Dictionary 2009: 118).

Senior staff to **challenge** other groups of staff and enforce outlined within this policy, and **challenge** incidences of non-compliance
All staff and patients to **challenge** any incidences of poor practice
It is up to YOU to **challenge** your own and your colleagues

The natural conclusion of accounting for personal actions, taking responsibility for the practice of others, measuring performance and *whistleblowing* on those who do not comply is taking action when performance is deemed unacceptable. Sammer, Lykens, Singh et al (2010) have written about a just organisation which has been defined as one that does not shy away from holding individuals accountable for their actions but at the same time recognises the importance of system failure. This is echoed by Hale (2003) who argues that organisations need to acknowledge the difference between intentional rule violation and an enforced violation because the standard required lacks practical utility. If as some suggests hand hygiene opportunities in busy departments may exceed

150 times a day, policies do not seem to accept this as a mitigating factor for non-compliance. Perhaps surprisingly therefore, the strong modality seen throughout all policies is not reflected in explicit references to punitive action against non-compliers. Disciplinary (121), disciplinary action (26) discipline (3) disciplined (2) and zero tolerance were used (14), but overall only 68 out of the 359 Trusts included these words preferring the use of the more ambiguous *must*.

zero Tolerance approach to any member of staff not complying
zero Tolerance approach to any member of staff flouting this
zero tolerance approach to noncompliance with correct hand hygiene
zero tolerance approach to noncompliance with this policy

One final point worth considering in this section is education and training. Education and training is considered a core component of both hand hygiene and manual handling and both topics have traditionally formed a part of an organisations mandatory training programme. The words *education* and *training* are used throughout both corpora; however, education is more common in hand hygiene policies and training is more common in manual handling policies. Gould et al (2007b) make a distinction between education and training. According to Gould and colleagues the purpose of education is to promote intellectual curiosity, development and encourage the aspiration that must underpin service transformation; training they argue is a much narrower endeavour, promoting discipline but encouraging rigidity and inhibiting development. Based on this most disciplines would probably aspire to education rather than training. In Chapter Six we witnessed how the media responded to educational initiatives in hand hygiene, despite this, it is generally accepted that hand hygiene behaviour and change is complex and multi-

faceted; as such it is well suited to education. However, similar points have been made by Kay & Glass (2011) in relation to manual handling.

Although both hand hygiene and manual handling share common themes around behavior change, hand hygiene has been the focus of considerably more scholarly activity. A keyword literature search using CINAHL identified 1,261 hits on hand hygiene/washing and 244 on manual handling. The reasons for this might be manifold. Two will be considered here. First, good practice in relation to hand hygiene and manual handling affects both patients and HCWs; however, the main beneficiary of good hand hygiene is the patient, while the HCW receives the greatest benefit from safe manual handling. Patient centeredness and the obligations of the HCW could be one reason why hand hygiene has received more literary attention. Second, the preference of education over training and the attention that hand hygiene has been apportioned in the literature could be a reflection of how the subject has taken advantage of its currency and has promoted itself.

*The Infection Prevention and Control Team will plan and deliver a programme of hand hygiene **education** for all staff in the trust (Hull).*

*Moving and Handling Facilitators will monitor staff attendance at the moving and handling practical **training** (5 Boroughs).*

7.6 Comparison of Acute and Mental Health Trusts Policies

An area touched on earlier was the potential difference between acute and mental health trusts. The three national prevalence surveys on the incidence of HCAI excluded mental health premises as did the three NAO reports into HCAI in England. The Department of Health advise against routine screening of MRSA because there is no evidence of any significant risk of MRSA

bacteraemia in this patient group and the Space for Health gateway that provides technical guidance to healthcare buildings notes that there are different risks associated with mental health environments. In other words mental health trusts do not present the same risks as acute hospitals and officialdom recognise this. Freeman (2011), Hughes (2011) and Stacey & Cole (2009) all point out the dearth of literature in relation to mental health and infection control, the reason being, I would argue, is that there is little to report.

When Tgether (sic), East London, Dudley and Walsall and South West London and St Georges all report zero MRSA bacteraemia and zero *Clostridium difficile* in their 2012 annual reports this is less an illustration of excellent infection control practice and more what would be expected in a low risk environment. Despite this mental health trusts have been *pulled* along with the Department of Health's infection control agenda and have been subject to the same regulatory structures and clinical initiatives. This includes the NPSA Clean Your Hands Campaign. Despite the difference in risk it would be interesting to see if there were differences in the expectations outlined in trust policies. The acute and mental health trusts were separated into two sub samples and compared for keywords. The results can be seen in Table 7.11. The results are significant for their similarities and differences. Firstly the differences; the social agent affected by HCAI has a strong presence in both corpus. Indeed patient empowerment has received widespread support by the Department of Health culminating in a hand hygiene strategy espousing that it is *okay to ask*. That is, challenge a HCW if they attend to them without

cleansing their hands. However, mental health trusts use the term *service user* while acute trusts favour the more traditional *patient*.

Improving service user care by reducing the risk of hospital acquired infection (Dorset Healthcare)

Hand hygiene prevents patients from acquiring healthcare associated infection (Mid Yorkshire)

Table 7.11: Keyword Comparison Acute and Mental Health Trusts

Table A Key in Acute Policies		Table B Key in MH Policies		Table C Neutral
Word	Keyness	Word	Keyness	Word
Hygiene	89.295	Service	366.973	Must
Patient	74.494	Users	191.838	Responsibility
Weekly	41.561	Mental	112.310	Accountability
Bare	39.656	Washing	82.342	Accountable
Elbows	32.577	Clients	50.565	Important
Theatres	27.706	Social	24.333	Training
Compliance	24.470	Ideally	18.339	Reasonably
Teaching	20.467	Quarterly	13.991	Practicable
Wedding	14.515	Should	6.374	
Disciplinary	13.774			
Audit	12.659			
Education	6.473			

In contrast for the next category the acute corpus takes the new, in vogue, *hand hygiene* title, and the mental health the more traditional *handwashing*. As discussed in Chapter Two, *hand hygiene* is currently the preferred term as it incorporates AHR which is effective, quick, and easy to use and thought to address many of the problems of poor compliance (WHO 2009). AHR is particularly useful in clinical areas where rapid contacts result in an exponential increase in hand hygiene opportunities. Mental health is a discipline with multiple specialities, but in some settings requirement might not

be significantly higher than what a person might normally experience in their home life. As such washing with soap would be a reasonable option. The guidelines may recognise this. Indeed the South Maudesly guidelines go on to recommend that *alcohol hand rub should be used for clinical procedures*, perhaps indicating that alcohol is seen as a therapeutic alternative.

Hand Hygiene must be performed before and after every episode of patient care (Milton Keynes)

Handwashing should be carried out pre and post patient care (South London Maudesly)

On a similar theme the word *social* has higher keyness in the mental health corpus, using terms like *socially clean (South Staffordshire)*, *social hand hygiene (Lincolnshire)*, and *social activities (Tees)*. Although social care is just as common in acute hospitals, in fact it is a problem area of low compliance (Whitby et al 2007), in does not receive the same amount of attention. *Wedding* and *bare* are more common in the acute corpus and these relate to the way organisations implement their uniform policies.

Trust policy of bare below the elbows in clinical areas (Frimley Park)

Exceptions can be made for wedding rings only (Oxford)

In contrast *ideally* as stated below, is more common in mental health trusts and used in relation uniform policy. On one level this may suggest that mental health trusts take a more relaxed view on bare below the elbows than acute trusts. Alternately as only 3 out of the 57 do this it is probably not the case.

Ideally hand jewellery should be removed (Calderstones, South Essex)

Audit is slightly more common in the acute corpus, however mental health are more likely to describe the requirements as quarterly while acute make them weekly.

The outcome of hand hygiene audits is reported through the infection control committee quarterly (Devon Partnership)

Hand hygiene champions will carry out weekly hand hygiene observation audits in all clinical areas (York)

Handwashing with soap, quarterly auditing rather than weekly, and some elasticity regarding bare below the elbows, hint at flexibility in some policy areas. However, there was no difference in the words *must*, or *practicable* and a very small keyness for *should* in the mental health sample. Overall there was no discernible difference between the policies in relation to when a HCW should/must cleanse their hands or any circumstances when these could be left to a risk assessment or their personal judgement. This gives further evidence that regardless of the challenges therein, hand hygiene is a subject that invokes a total rather than partial view of compliance.

7.7 Summary and Conclusion

The practical art of policy making involves a complex web of evidence based practice, pragmatism, political opportunism, ideology and power. If Chapter Five considered the professional discourse of the academy and Chapter Six discussed the lay discourse of the newspaper article, the third chapter of data collection, Chapter Seven, has examined the policies of acute, primary care and mental health trusts in England to explore how behaviour is operationalised downstream. An analysis of 359 hand hygiene policies has revealed that they

are infused with deontic logic through the significant use of obligatory modal verbs like *must* and *should* and other words such as *accountability* and *responsibility*.

In relation to hand hygiene frequency, the most contentious and reported area of hand hygiene practice, there is seldom an acknowledgement of risk assessment, instead policies extol the 5 moments of hand hygiene which is a belt and braces approach that makes little distinction between high or low risk activities. The policies in this corpus expect very high levels of compliance from their staff that is far beyond anything that has been reported in empirical studies. Education is seen as fundamental to developing good practice but a language of zero tolerance and disciplinary action is common to many policies. This now completes the three phases of data collection for this study. In the following Chapter, the discourse from the academic community, the newspaper media and policy documents will be re-examined and key themes that contribute to a dominant, overarching discourse will be outlined and discussed.

Chapter Eight

The Discourse of Hand Hygiene

8.1 Introduction

To date this thesis has described the intense interest that HCAI has received from the Government, Mainstream Media, Academics, Policy Makers, Consumers, Regulatory Agencies and Advocacy Groups. HCAI has become a major patient safety concern that can affect in excess of 1.4 million people at any one time. This makes it among the top ten leading causes of death in western societies (Ehrenkranz, MacIntyre & Herbert et al 2011). Addressing the burden of HCAI is now well entrenched as a health service priority. It is included in several NHS operating frameworks and in the latest from 2012/13 the Government stated that the zero tolerance approach to all avoidable HCAs will continue. It is generally accepted that this cannot be devolved to an isolated group of committed experts; rather it requires engagement and action across a wide variety of organisational domains (Brannigan, Murray & Holmes 2009). Despite this some receive greater attention than others. Currently there are 42 national or sub-national hand hygiene campaigns. These and the WHO's commitment to catalyze hand hygiene at the point of care (Allegranzi, Storr & Dziekan 2007) has done much to promote the idea that hand hygiene is the first, second and third most important activity in infection control (Kaye 2012).

However, the work of theorists like Foucault and Fairclough and their view of discourse as an instrument in the social construction of reality is crucial to this study. According to Foucault discourses are bodies or fields of knowledge that contain all of the possible statements about what is known or said about a

thing. Despite this, one point of view, or a group of views, come to dominate the formation of knowledge. What then becomes accepted as consensual common sense and what it is possible to speak of (or not) becomes dominant at specific historical moments (Foucault 1980). The aims and processes of discourse analysis are to expose the characteristics of who is speaking, what position they can or must take and which space they inhabit or are located in the relations between texts and context (Fairclough 2003).

This study developed three corpora, one from the academy, a second from the newspaper media and a third from policies of NHS trusts. A number of research aims were developed and these focused on revealing the explicit and implicit meanings conveyed by the words chosen, whether there was an overarching habitually used pattern of representations associated with the topic, the power relations and social influence of key stakeholders and the interactional strategies that writers use to energise the topic and engage the reader. To explore and interrogate these aims an eclectic approach to analysis was adopted that utilised theory from diverse areas including media studies, psychology, sociology, policy analysis and management studies. The purpose of this chapter is to strengthen this analysis by tracking key findings across the empirical chapters to establish the presence of an overarching dominant discourse. To facilitate structure this will be presented using Fairclough's three dimensional model of textual, discursive and sociocultural features.

8.2 Text

8.2.1 Basic and Simple

A theme running through each of the corpora was that hand hygiene is an act that is basic and simple. Perhaps the media were the most blatant as journalists and their sources did little to mask their anger and bewilderment that HCWs failed to comply with hand hygiene guidelines. Moreover, because of its perceived simplicity the strategies that NHS Trusts were implementing to improve performance were often portrayed as risible. Remember in Chapter Five how the Daily Express opined *what next a co-ordinator for wiping our backsides?* In October 2012 the Health Protection Agency teamed up with the Schools Council to break the Guinness world record for the largest simultaneous hand hygiene lesson plan. Teaching children when and how to wash their hands has become popularised and is predicated on the notion that not only does it impact on rates of absenteeism, but children can learn, implement and persist with correct hand hygiene behaviour (Chittleborough, Nicholson, Basker et al 2012, Stebbins, Stark & Vukotich 2010). Perhaps the media draw on images of hand hygiene as a childlike behavior that has become habitual and normalised within our culture, to then pour opprobrium on the highly qualified HCWs who should know better.

The academy took a more considered approach to the representation of hand hygiene, but as part of their attempt to create a research space, they too would often refer to hand hygiene as a simple act. However, what scholars would also do is acknowledge that while the techniques involved in hand hygiene might be simple, the complex interdependence of factors which determine behaviour

make compliance more complex (Juma 2005). Or as Gould (2010b: 32) would put it, “*hand hygiene is a composite decision making process that has to be performed during the immediacy of care delivery and is influenced by a variety of contextual factors including the risk to the patient and the activity index of the HCW*”. On the one hand the research domain foregrounded the complexity associated with hand hygiene compliance but on the other held a positive, unremitting tone that the situational and behaviour factors associated with poor performance could be addressed, typically through the strategies espoused in their studies.

Finally the tone taken by policy sat somewhere between the academy and the media. *Simple* and *basic* could be used as part of a policy’s introductory preamble and this worked to highlight, not only the topics standing, but also the utility of the document. That is, it is a proven method and something that everyone can and must do. In addition, policies would often employ structural techniques that work to simplify. So for example, all policies would document when and how to wash hands, but would present these as a series of bullet points. According to Cleaver & Franks (2008) lists and bullet points simplify by implicitly communicating the idea that items can be dealt with in isolation and do not deal with the links, or contextual factors that sit between them. So listing *locating a sink, wetting hands, applying the solution, applying friction, drying effectively and disposing of towels*, erases the time it takes to complete each aspect of the task.

8.2.2 Poor and Low

Running in parallel and indeed colonising the discourse of *basic* and *simple* is the proposition that the hand hygiene performance of HCWs is *poor* and *low*. The patient safety movement has identified two major types of errors: acts of commission, defined as something that the HCW did wrong; and acts of omission, something that they did not do at all. While acts of commission have received considerable attention in the literature, acts of omission, which are thought to be more prevalent and detrimental, have for the most part been left unaddressed (Kalisch, Landstrom & Hinshaw 2009). Kalisch and colleagues call these types of omissions *missed nursing care*, which they define as any aspect of required patient care that is omitted (either in part or in whole) or delayed. Similar ideas have been forwarded by Schubert, Clarke & Glass (2009) and Sochalski (2004) and termed rationed or unfinished care. Hand hygiene is an example of an act of omission. The argument here is that in the midst of multiple demands and inadequate resources, HCWs find it impossible to fulfill all care requirements and are compelled to make choices. Those choices include abbreviating care, delaying care, or omitting care altogether.

How the different domains in this study determine sub-optimum performance requires a little more attention. The academy and trusts produce their own primary hand hygiene data through a combination of primary research and audit. These are then published in journals, on web sites, and can be brought to the attention of the public through various media outlets. What increasingly counts as acceptable knowledge in relation to hand hygiene compliance is based around direct observation as it is the only method that can quantify what

the HCW actually does (WHO 2009, Joint Commission 2009). In essence a researcher/auditor observes behaviour, collects data, and then turns these into regularities through statistical procedures. The pejorative terms *poor* and *low* are the result of the observer taking the numerator, the desired behavior, dividing this by a denominator, the total amount of correct observations, and then making a judgment, often supported by some pre-determined expectation, as to whether the result is acceptable. So:-

5 hand hygiene episodes ÷ 10 opportunities = a compliance rate of 50%.

However, what is acceptable, and what can be considered *poor* or *low*, is largely subjective. In 2005, the Infection Control Nurses Association (ICNA) in collaboration with the Department of Health produced a number of infection control audit tools, including hand hygiene, for use across NHS organisations. In the forward they documented that “for the purpose of these audits categories will be allocated as follows: minimal compliance 75% or less, partial compliance 76 -84% and compliant 85% or above” (ICNA 2005: 4). A key tenet of Critical Discourse Analysis is to consider not only what is said, but what could be and is not (Fairclough 1995). The tool did not include any kind of rationale for these metrics or whether they were necessary thresholds for reducing HCAI. Indeed, Allegranzi & Pittet (2009) acknowledge that what constitutes an acceptable compliance rate is contentious and to date no data exists that can answer this question. Nonetheless, similar numbers to those cited above, have been authenticated elsewhere (Department of Health (2007a). Despite the aforementioned hand hygiene thresholds it was not always clear what the domains in this study consider an excellent, acceptable or poor

performance. But it would appear that each aspire to the *nirvana* of 100% compliance. As discussed in Chapter Six, NHS Scotland were subjected too much criticism for failing to reach a *basic* 90 per cent compliance. Part of the problem here was that the delivery of 100% hand hygiene compliance was a political commitment and thus became a news story in its own right. Despite the guidance from the Department of Health and the ICNA there seemed to be no agreed standard for NHS trusts. Instead these were embedded in policies where clinical staff would be told their performance target. In keeping with the media view, trusts had an extraordinarily high expectation of its staff typically exceeding 90% and often requiring 100%. These figures bear little resemblance to studies from the academy who commonly report compliance rates of 40%.

8.2.3 Barriers to Performance

The reasons why HCWs do not cleanse their hands to prescribed standards are multifarious and have been the subject of an enormous body of work. Much of this was captured in Chapter Three, but briefly these include situational factors like a poor infrastructure, a lack of equipment, understaffing, overcrowding, high demand for the behavior and sore hands. However, as equipment has improved, not necessarily with a commensurate increase in performance, there has been a move to consider the more social cognitive determinants of behavior like motivation, knowledge, perceived benefits, risk perception, self-efficacy and social pressure (WHO 2009). The latter tends to come from the work of the academic community who would invariably touch upon a cocktail of barriers, particularly in their introductions, to create their research space. At times this was brief, possibly due to the restrictions that editors put on a word count for

any one article. Despite its brevity, paradoxically the deconstruction of why HCWs found policies problematic was often more compelling than the optimistic recommendations that were then given to improve performance. Recall in Chapter Five how disappointing results were met with calls for a redoubling of efforts rather a review of problem definition: in other words there was little focus on the recommendations and whether these were the root cause of the problem.

In contrast, in an example of a fundamental attribution error recall how the media highlighted *lazy nurses* and HCWs who could not be *bothered* as the root cause of the problem. The fundamental attribution error is a tendency to attribute another person's behaviour to their dispositional qualities, rather than situational factors (Langdrige & Butt 2004). So the reason that HCWs do not cleanse their hands is that they are poorly motivated and lazy not because they are busy, have sore hands or perhaps practice within unworkable guidelines. The media did acknowledge the activity index of the HCW and how this impacted on performance, but in keeping with the discourse around MRSA, this was made as a political point rather than an attempt to empathise with the HCW or legitimise poor practice (Chan et al 2010). The argument here is that the NHS is in such a dire state that staff do not have enough time to even wash their hands. Nonetheless, the media clearly struggled with the concept of the poorly motivated HCW, particularly when it came to something like hand hygiene which is seemingly simple but effective. Policies would sometimes embed the problems associated with hand hygiene behavior in their introductions, but again detail was limited. Instead there was an emphasis on

how the HCW can overcome these barriers by giving a detailed set of instructions throughout. So a suitable infrastructure to support the correct behaviour, near patient alcohol rub to address the problems of being busy, occupational health referrals for sore hands, training to give knowledge, audit to enhance accountability and so forth.

8.2.4 Compliance

To date the textual features of this study has unveiled prominent discourses around hand hygiene as *basic* and *simple*, the performance of HCWs as *poor* and *low* and barriers to performance that include situational and behavioural factors. How the corpora addressed this problem is neatly captured by Department of Health (2008C: 8) who state that staff “need to understand what is expected of them as individuals and for what they will be held to account”. As such themes of *compliance, accountability, responsibility and leadership* were foregrounded as measures to address the problem. Compliance is something of an oblique term with innumerable definitions. Its exact meaning tends to be dependent on the discipline and context in which the term is used (Ingram 2009).

Nonetheless, within behavioral sciences compliance is generally defined as an autoplasmic yielding to external demands, regulations and pressures and it signifies a citizen’s deference, conformity allegiance or co-operation to the social order (Evangelista 1999). When applied to the health sector compliance is typically associated with the relationship between the HCW and the patient and describes the extent to which a patient’s behaviour coincides with health care advice (Friberg & Scherman 2005). This definition along with the

underpinning nature of compliance has led to criticism that it is ideological. According to Bissell, May & Noyce (2004) compliance has an emphasis on professional power, paternalism, and coercion; moreover, it apportions blame to the patient if their behaviour does not meet with healthcare professionals' recommendations.

Turning to hand hygiene behavior compliance has been defined as the extent to which a HCW follows the rules of infection control. In view of the aforementioned discussion the views of Larson & Kretzer (1995) are revealing. They agree that the word compliance has negative connotations and argue that it implies that the doer is passively giving into a mandate and propose this could reduce motivation and ownership of the desired behavior. In turn Larson & Kretzer favour alternatives that promote internalisation and choice. Adherence for example is intended to be less judgmental than compliance but for some still carries assumptions of power, is often used synonymously with compliance, and in real terms amounts to the same thing (Bissoneette 2008, Shay 2008).

In terms of patient care, a third term, *concordance*, has now entered the vernacular and is the preferred option as it implies the development of an alliance between patients and healthcare providers based on realistic expectations as opposed to misunderstanding, distrust and concealment. Although not used in relation to hand hygiene these sentiments still appear germane to the discussion and will be discussed in the final chapter. For now compliance was the preferred term for hand hygiene across all three data sets. In the policy corpus for example, *compliance* was used 1768 times and

Adherence 164. The ascendancy of compliance is possibly explained by the idea that an autoplasmic yielding to external demands and regulations is actually what the organisation requires.

8.2.5 Compliance Theory

Applying compliance to organisational change, Etzioni (1975, 1997) coined the phrase *Compliance Theory* to examine the structure of organisations and the type of power they use to direct the behaviour of their members. Etzioni proposed that there were three types of power: Coercive, Utilitarian and Normative. According to this model, coercive organisations, like prisons, custodial mental hospitals and the military, use force and fear to control lower-level participants. Utilitarian administrations offer remuneration and extrinsic rewards such as performance related pay, fringe benefits, working conditions and job security to entice improvements in productivity; this tends to be used in private enterprise. Finally normative organisations control workers through the allocation of intrinsic rewards, such as interesting work, identification with goals, and making a contribution to society. Here the power of management rests with its ability to manipulate symbolic rewards and promote self-esteem. In her critique of Etzioni's theory, Drummond (1993) notes that no model could include all of the factors that impact on a complex organisation but suggests that as an abstraction Etzioni's approach can provide a useful way to recognise patterns between variables and explain reality in a simplified way.

If you discount the occasional off beat study from North America that laid on pizza and ice cream parties for staff who attained high levels of hand hygiene compliance, there was little evidence of utilitarian power in this study. The

very idea that highly trained and well remunerated professional staff should receive an additional reward for completing a *simple practice that saves lives* is unlikely to be met with enthusiasm by a media who resist the complexities of hand hygiene behaviour. Recall in Chapter Six how the media and lay public opined that “doctors and nurses should wash their hands as a matter of course as they know from experience the harm the infections can do” (Daily Express 2006). Health care organisations are not obvious examples of coercive institutions that would use force and fear to exact the correct behaviour. However, there have been some subtle changes in recent years that make the notion a little less fanciful.

As discussed throughout this study at an organisational level infection prevention and control has become a strongly regulated activity and various legislative edicts contained within the Health and Social Care Act allow regulators to enforce a number of sanctions from imposing conditions for registration to issuing monetary penalty notices. At the level of the individual practitioner, policies increasingly retain the right to take disciplinary action, against those who transgress the organisation’s instructions. The media particularly warmed to this theme. We might for example recall the headlines in Chapter Six, *Wash up Doc or Face the Sack*. Despite the onset of punitive language, it is unclear how far trusts act upon these threats, and it is possible that coercion is held as a theoretical, last resort, rather than an active strategy that is used against the HCW. As Gould et al (2011) suggests organisations would require accurate, detailed and watertight evidence if failure to comply with hand hygiene protocols was to become a matter for disciplinary action.

Etzioni himself suggests that health care is an example of a normative organisation and this assumes an ethical or deontological commitment from the HCW. Deontology refers to a duty or an obligation that is linked to one's profession and the relationship that this necessitates with other human beings (Gawande 2008). The strong use of modal verbs in the policy corpus advances the idea that the HCW should embrace this deontological commitment. In essence nothing should be more important to the HCW than the patient who is in their care. The academy clearly wrestles with the notion of the unmotivated HCW and in the conclusions to their articles, typical of many studies, tend to distance themselves from negative thoughts with the use unerringly positive language (Jackowski 2010).

The assumption is often made that most HCWs are inherently motivated and the organization just needs to discover and implement the right tools to bring this out. Pellegrino (2004) argues that the patient safety agenda does not simply require safe systems, but honorable individuals who have strength of character. It is perhaps the failure of HCWs to meet the standards of atomised, virtuous individuals that explains the criticism that they receive by the newspaper press. The findings in this study support those of Crawford et al (2008) and Washer & Joffe (2006) who found that the noncompliant HCW is often portrayed as a perpetrator of crime. Although sometimes sympathetic to their working conditions the media would seldom use this as justification for poor hand hygiene.

As touched upon earlier the terms *accountability* and *responsibility* were keywords in the policy corpus. Accountability in particular is relevant to the

normative organisation as it espouses notions of professionalism, transparency and patient-centred care. The normative ideal strikes a chord with the Department of Health who recommend that organisations appeal to the professionalism of the HCW as a powerful lever for change.

‘healthcare professionals have a responsibility to protect patients from harm and a clear obligation to ensure that their practice does not contribute to such harm. Therefore, a way to engage clinical staff can be to appeal to their professionalism and make sure that they make the connection between what they need to do in their work and their professional commitment to protect patients from harm’ (Department of Health 2008c: 31).

It was suggested in Chapter Seven that organisations often conflate the terms *accountability and responsibility*, but a useful delineation is that you *accountable to*, but *responsible for* (Dekker 2012). In other words the HCW is responsible for their own hand hygiene behavior but accountable to an external authority if they do not perform it correctly. So while *accountability* may be associated with confidence, professionalism and transparency, there is an underlying theme of coercion and control in hand hygiene policies as HCWs are directed to the expected behaviour and held to account, with possible disciplinary action, if they do not perform. In his critique of Etzioni’s framework Lunenburg (2011) considers whether it is possible to employ coercive and normative power simultaneously. For example, applying force, fear, or other coercive measures, can create a high-degree of alienation in a workforce and it then becomes impossible to apply normative power

successfully (ibid). Despite this, running alongside the idea that hand hygiene is an individual responsibility is the notion that positive leadership is a necessary requisite for the delivery of effective infection prevention and control practice (Griffiths et al 2008). The aforementioned Kings Fund scoping review defined leadership as the ability to influence, motivate and enable members of an organisation to contribute to the effectiveness and success of that organisation. Echoing this view of leadership, Manning & Curtis (2011) argue that it is the art of influence; influence being getting people to change their attitude, perception, or behaviour. Saint, Kowalski & Banaszak (2010) believe this is best done by strong leaders who overcome the barriers that impede the prevention of HCAI by dealing directly with resistant staff or process issues.

Leadership was realized in the corpus through two different terms *matrons* and *managers*. The role of the matron was treated with great affection by the media. If the root cause of poor hand hygiene was lazy, poorly motivated staff then a strong disciplinarian like matron, *who would get things done*, was the solution (Crawford et al 2009). In reality the role and responsibilities of a modern matron in a contemporary NHS is far removed from lay perception (Koteyko & Nerlich 2008, Koteyko & Cater 2008), but nevertheless, the term resonated with many as it harked back to a time where public services and the workers who worked within them could be trusted (Joffe et al 2011). The use of *manager* was more common in policies as it reflected the various roles and responsibilities of the disparate professional groups involved in delivering the document. Squaring the relationship between individual responsibility and

leadership the general idea seems to be that trusts charge organisational leaders with the responsibility to establish a system in which caregivers have the knowledge, competence, time, and tools to practice hand hygiene. Then once the system is perfected, and there is still a failure to perform, then ultimately, and logically, it becomes a problem of personal accountability (Biddle & Shah 2012, Cantrell, Shamiriz & Cohen 2009, Jarvis 2007, Korniewicz 2007, Goldmann 2006).

8.3 Discursive Practice

Turning to discursive practice, this study moves from the textual features of the corpus to how the texts are produced and consumed. Three areas will be considered under this heading. First, who was responsible for the text, and by association who was not? Second, was there evidence of intertextuality, that is did the texts exploit each other and draw on an auxiliary body of knowledge to form a *web of wisdom*? Third, what are their rules that govern the use of language in these texts, how are they read and who reads them? Taking the first point, van Dijk (2005) suggests that when examining the production of a text it is useful to realise that in any given discourse there are people who are allowed to write or speak, about certain things, at a given point in time within a particular context. In this study I have drawn upon three distinct genres, the academy, the newspaper media and policy makers. Each has special access to, and control over, the means of public discourse. Moreover, they all hold significant *symbolic capital* (Bourdieu 1984) and can be deemed authoritative and competent commentators on the subject of hand hygiene.

8.3.1 Producers and Consumers

In Chapter Five it was proposed that writing for publication is a competitive environment that privileges some groups and excludes others. According to Murray (2009) if you want to get published the first thing you should do is call yourself doctor. Although this possibly has a degree of irony, the sentiment is fair in as much as you are probably more likely to be published if you come from a certain background, have established qualifications and hold the necessary scholarly skills. The authorship of compliance studies in the academic corpus were unremittingly from senior clinicians, academics and researchers. The higher ranking journals were found to be particularly exclusive to the point that in academic parlance editors were referred to as *Pit Bulls* who guard the *crown jewels* (Berkenkotter & Huckin 1995). This is not to suggest that clinicians are purposefully excluded from publication, indeed there is good evidence that editors actively court their views because they bring an authentic voice to a subject (Higgins 2010). But tellingly, although it impacts on them in their daily practice, most practicing clinicians remove themselves from the academic debate of hand hygiene, possibly because of a combination of factors including, time, inclination or confidence (Cook 2010).

Policy discourse is part of a wider body of material that examines how managers promote certain worldviews and realities amongst their subordinates (Hatch & Cunliffe 2009). In all probability hand hygiene policies are written by a trust's infection control team and then ratified by the infection control committee. The committee typically comprises an eclectic mix of individuals from microbiology, infection control, surgery, medicine, health protection

agency, clinical audit, occupational health, pharmacy, hotel services, sterile services, estates and an assortment of directorate managers (Gould & Brooker 2008). This committee exudes hierarchical power as its members do not necessarily hold expert knowledge on infection prevention and control, but do have structural positions in the organisation's hierarchy that give them an important *voice* (Hatch & Cunliffe 2009). This type of symbolic power is particularly salient in modern organizations where modes of control are not primarily targeted at consciousness and meaning but on output, rules and other constraining measures (ibid). In keeping with journal writers the infection control committee rarely houses representatives from the junior staff that are most affected by the policies they produce and endorse. Rather they depend on the existing members of the committee to represent their views. Whether an assorted group of senior managers and clinicians have the knowledge, or indeed the inclination to take account of the messy, conflicted details of a HCWs responsibilities is a matter for conjecture.

While newspaper articles are authored by journalists, the latter often call upon the views of experts or the powerful to give the work shape and extend its credibility (Harvey & Koteyko 2013). These experts were invariably senior professionals like Professor Hugh Pennington but again what an expert like Pennington avows in expert knowledge they tend to lose in daily exposure to hand hygiene policies. Opinions were invariably critical. For example, recall the expert quote in the Times newspaper, *some doctors considered themselves above the rules* (Times 2008a). While there is no suggestion that these were not made in good faith, Murray & Holmes (2012) make an interesting point when

they propose that currently infection prevention and control is a *hot topic* but it will be a challenge to maintain momentum when the current socio-political attention wanes, and health priorities change. As such it could be argued that experts in infection prevention and control currently have the stage and use it to pursue their own agendas. Provocative ideas and strong language simply make the case more compelling. According to Millar (2011b) a loss of confidence and negative patient experiences has done much to engage politicians who then use the media to reassure the public that infection control is being given adequate focus and respect. There were many examples in Chapter Six of politicians condemning failures and endorsing improvements in patient care. In particular, the Scottish Health Secretary Nicola Sturgeon was widely quoted in relation to the zero tolerance policy to non-compliance across NHS Scotland. In theory the HCW does have direct access to the media and public through the letters page of newspapers; however there were no examples of this in the corpus. Buresh & Gordon (2006) contend that nurses rarely speak to the press, partly because they feel there is no need, but also because they fear reprisal from their employer.

This discussion of producers and consumers indicates a number of things. There appears to be a divergence between what could be termed producers of the text, those individuals, or groups of individuals, who are involved in its production, and consumers, that is, those obliged to digest its meaning, or *obey* its manifest content. Naturally some people can be producers and consumers of a hand hygiene policy, but this polarised view reveals much about power and knowledge. Who holds these and what are the systems of rules for how these

are used (Jackson & Carter 2006). The former have taken charge of the *official* discourse, the latter may have their own but this has not been reflected in this study. Indeed, because there is no official forum for the hand hygiene discourse of HCWs, this often remains hidden. Researchers have attempted to get to this through interview schedules; however, this can be problematic as respondents typically over-score socially desirable behaviour like hand hygiene at up to three times the observed rate of compliance (De-Wandel, Lea Maes, Labeau et al 2010). However, as Hardy & Philips (2005) note this silence does not remove the HCW from the discourse it merely implicates them in the construction, meaning and reproduction of what passes for the dominant idea in a different way.

As outlined, as well as status, the elite often have a function of regulating who else can enter the discourse. The argument here is that people outside the eligible group are not taken seriously and subsequently find great difficulty in getting their ideas into the public channel. The *average* HCW may not have the skills or qualifications that are typically associated with publications. Similarly, they do not hold position in the trusts hierarchy that is generally commensurate with membership of the infection control committee. Even if the HCW did navigate their way to the elite group, there are the rules about what can be said and what is relevant to the discourse (Jackson & Carter 2006). For example, it may be permissible to write about the barriers to compliance but not about the utility of the model itself. If barriers are defined as an issue there may be rules about what can be said about them and the kind of solutions that can be proposed. As such acceptable solutions could be couched in leadership, role

modeling and improving time management skills and not reducing bed stock and/or increasing staffing levels as these are less palatable to the organisation's business objectives. Moreover, van Dijk (2005) makes a number of telling observations about what he calls *mind control*, that is, recipients' tend to accept, uncritically, beliefs, knowledge, and opinions from what they see as authoritative, trustworthy, or credible sources. The result is the dominant discourse flourishes because there is limited access to counter discourses that provide the opportunity to develop alternate knowledge and beliefs. This draws on Gramsci's (1971) concept of hegemony and how dominant groups in society succeed in persuading subordinate groups to accept their natural and common sense moral, political and cultural values.

A study by Sax, Allegranzi, Chraiti et al (2009) revealed that 75% of HCWs in one institution believed that good hand hygiene could prevent at least 50% of healthcare-associated infections. Even if HCWs did hold a discordant opinion in some situations, a recipient is almost obliged to receive a certain discourse because the organisation deems it so (van Dijk 2005). For example, as seen throughout this study there is great political emphasis currently placed on reducing HCAI and the importance of good hand hygiene in achieving this. This means that a HCW is fully aware of its importance and to not be receptive to the organisations message may question the very essence of their professional integrity.

8.3.2 Intertextuality

A further observation common to all three datasets was the notion of intertextuality. A term first used by Kristeva, the thrust of intertextuality is that

a text does not exist in isolation, but has an interconnected dialogue with other texts (Philips & Hardy 2004). For example, a text, like an academic article, a newspaper report or a policy document is a manifestation of this interconnection, as they borrow words, quotations and meanings from other situations, genres and speakers (Broadfoot, Deetz & Anderson (2004). Philips & Hardy (2004) point out that a discourse becomes more influential if it evokes other texts, either explicitly or implicitly, as it will draw on understandings and meanings that are more broadly grounded. Recall in Chapter Five, how citations abound in the academic article and were called the defining feature of academic prose. Some of the reasons that academic writers are expected to make references are to integrate the ideas of others into their arguments, to indicate what is known about the subject of study already, or to point out the weaknesses in others' arguments, aligning themselves with a particular camp/school/grouping (Thompson & Tribble 2005).

In addition, academia, like any other text, works as a persuasive encounter (Hyland 2009). Writers can and do use their citations strategically, to reconstruct, reformulate and re-contextualise an area of study. So, for example, writers would attribute the phrase *single most important* to an author who did not necessarily espouse this level of certainty. Or if they did they in turn cited this from another source, or were expressing an opinion that was then re-circulated as a fact. Existing publications and their recommendations impact on future work. For example, Gould et al (2007) recommended that observation in inpatient settings should be timed to capture a complete picture of 24 hours. In

2010, in the same journal, Randle, Arthur & Vaughan (2010) penned, *twenty-four-hour observational study of hospital hand hygiene compliance*.

Intertextuality was also prominent in policy texts. There has been an upsurge in Evidence Based Policy Making. Central to this has been the urge for policy makers to move away from policy development based on common sense, popular support and political ideology, to a more legitimate approach based on *scientific fact*. Broadly the more that evidence, and work from the academy, can be infused throughout the policy process the more it can be presented as objective, logical and value free (Nutley Walter & Davies 2007). To this end policy documents tended to adopt the same citation strategies as academic articles, with a large number drawing on the findings of the Department of Health sponsored EPIC project.

Some would touch upon the legislative framework in which the policy operates by drawing on the Health Act or other governance arrangements to which the document relates. Policies draft their audit requirements and increasingly base these on the use of direct observation. This bears a strong resemblance to the preference and recommendations that are made from the academic community (Joint Commission 2009). In 2000 the NAO recommended that there would be merit in the NHS have a single infection control manual, including a hand hygiene policy. Currently this is not the case. It was noted in Chapter Seven that a hand hygiene policy could be heterogeneous document. Nevertheless, there were a number of remarkable similarities in policy language particularly around the main headings and phrasing and this suggests collaboration between Trusts.

Intertextuality was also a common theme in media articles. Recall how media stories often came from an accredited, authoritative source like a political agency, a hospital or a researcher and how these typically followed the publication of a report, guidance or audit results that had a local and/or national impact. A study into the workings of an independent news-rating website concluded that up to a third of health news relied solely or largely on press releases (Schwitzer 2008). However, in this study the media would regularly instill its ideological footprint on the text through the use of intensifying strategies. So the House of Commons Committee of Public Accounts, became *Powerful* and its report *Scathing*. In what is clearly a symbiotic relationship, newspapers can be a compelling way for academics to gain a wider audience for their work. In her study Schwartz et al (2012) selected 100 research articles and found that these generated 759 newspaper stories. In the media corpus a medical journals criticism of government policy and a trusts increase in hand hygiene compliance rates were both cited and used by the media to generate newsworthy stories.

8.3.3 Managing Content

A discussion of discursive practice also involves an examination of the way writers encode their documents with meaning and how this may shape the readers understanding of an event. Fairclough (2003) suggests the analyst should ask questions about what elements are included and what are excluded; how could this have been different, and whether the whole gist or tone of the text change if an additional word was included or one word was swapped with another? For example HCAI is commonly used as an indicator of poor practice,

alternately it could be used as a proxy for low levels of staffing, inadequate levels of training, organisational stress, management failure, inadequate systems, reliability, and resilience (Brannigan et al 2009).

Apposite to this study is that much of the evidence around the incidence of HCAI and the role of hand hygiene is shrouded in conjecture. In respect of the former the numbers of preventable HCAs are unclear. In 1985 the seminal SENIC project estimated that it could be 30% (Haley et al 1985). Ten years later 30% was repeated by the Department of Health (DH 1995). In 2000 this was revised to 15% by the National Audit Office (NAO 2000). However, in 2008 the Kings Fund argued that 30% was too conservative and NHS trusts should be more ambitious (Kings Fund 2008). This was echoed by Umscheid, Mitchell, Doshi et al (2011) who argued as many as 65%–70% of some device related infections are preventable with current evidence-based strategies. In creating their research space scholars from the academic corpus would typically accentuate HCAI as a common and life threatening patient safety problem, but were less likely to include the normative aspects of the condition by estimating those considered preventable. Erasing this detail enhances the taken for granted idea that HCAI is largely a preventable condition.

Building on the idea that language gives the capacity to reveal or conceal, modality has received particular attention in this study. According to Fairclough (2003) modality includes any unit of language that expresses the speaker's or writer's personal opinion or commitment to what they say. This can be expressed through hedging and the use of modal verbs. Hedging is a rhetorical device often used to create a strategic ambiguity or withhold

complete commitment to a proposition (Hyland 2009). It is a common phenomenon in academic writing and relevant to a discussion on hand hygiene because of the complexities in unpicking its many facets. If it is difficult to estimate the percentage of HCAI that is preventable, likewise it is problematic identifying the contribution of hand hygiene. As Haas & Larson (2008) point out the diverse factors that relate to HCAI, the ethical constraints of completing studies and the use of multiple interventions in them make it near on impossible to isolate the specific effects of any one intervention. Establishing this causal relationship has long been considered crucial in both motivating the HCWs' behavioural change and securing investment by policy-makers and health care managers (Allegranzi & Pittet 2009). As Machin & Mayr (2012) indicate while hedging can be used to obscure and obfuscate, its absence can communicate precision. The three datasets managed the lack of certainty regarding the effectiveness of hand hygiene with a remarkable lack of, or seemingly moderate, hedges.

Writers in research articles would often conflate the incidence of HCAI with good or poor hand hygiene as part of their introductions. Rather than hedge the part played by hand hygiene, authors typically used the phrase *single most important* to describe hand hygiene. When hedges were used they were seen as relatively benign pre-modifiers such as *thought* and *considered*. The moderate, but possibly more accurate, *plays an important role*, was frequently underused. Hand hygiene policies held the strongest language with *single* or *most* used in over three quarters of the document. Some kind of hedging device was used in the other quarter. This may not be surprising as Apthorpe & Gasper (1996)

argue policy language tends to be couched in the obvious and unquestionable. It persuades; states what ought to be done, what stands to reason and cannot be negotiated. Sutton (1999) concurs and states the hallmark of good policy is its non-refutability. This provides a strong form of epistemic modality where writers are characteristically expressing a high degree of certainty that hand hygiene is the leading strategy to prevent HCAI.

Deontic modality, which is to do with influencing people or events (Machin & Mayr 2012) was pervasive throughout the policy corpus. The modal verbs *must* and *should* were used for different facets of hand hygiene behavior. Not only does this make the commitment of the policy writer clear, but removes any idea of an alternate truth. The modal verb *may*, that introduces optionality into the equation, was not used in the corpus for any aspect of hand hygiene frequency or technique. This was the case regardless of whether the activity was within a high or low risk environment, if it were a part of high or low demand for hand hygiene behaviour or if the contact was high or low risk. In other words the context in which the act was performed was disregarded. The use of modal verbs is important as they tell us something about the author's identity, and the power they may have to compel others to carry out their instructions.

8.4 Social Practice

As well as focusing on the linguistic features of a text and the processes that relate to its production and consumption, Fairclough's three dimensional model examines the wider social practice to which any communicative event belongs. An examination of social practice allows the researcher to consider the environmental factors that the text is a part of and forge links between the

language used and the particular operations of power and ideology that are taking place at a broader level (Smith 2007). In Chapter One of this study I argued that reducing HCAI had become a health service priority. In addition the Department of Health (2005) opined in their Full Regulatory Impact Assessment that the morbidity and mortality of HCAI is unlikely to fall if assessment of performance is left solely to local self-regulation. True to their word, an abundance of national advisory structures, expert committees, best practice guidelines and regulatory structures were introduced to increase the priority given to reducing HCAI. These were also outlined in Chapter One. To a point this aptly describes the social practice in which the text operates; increasing regulation and scrutiny. However, based on the work in Chapters Five, Six and Seven two additional themes capture the current mood: culture change and zero tolerance.

8.4.1 Culture

The notion of culture and cultural change has reverberated around infection prevention and control in the UK since 2000 when the Committee of Public Accounts advised that there would need to be a root and branch shift towards prevention at all levels of the NHS if HCAI were to be kept under control. This was picked up by a number of regulatory bodies including NAO (2004, 2009) Health Care Commission (2007) Department of Health (2008b) and NICE (2012). Indeed the Department of Health (2008c) stated that NHS trusts need to change the mindset of staff and embed a culture that will improve patient safety and reduce HCAI. In this study, the universality of *poor* and *low* practice, the broad descriptions of *dirty doctors and lazy nurses* as single

homogenous groups, the authority figures like Matron who will come to the *rescue* and address deviant behavior, the influence of the Department of Health on policies that target *all staff* and advanced the philosophy that infection control is *everybody's business*, combine to suggest deep-seated cultural problems.

In 2008, The Government's Chief Inspector proposed that HCWs have become complacent about HCAI and the result is that bad habits that have become ingrained in practice (Duerden (2008). In relation to hand hygiene Wilson (2009) articulating the aims of the Clean Your Hands Campaign, argued that strict appliance to hand hygiene protocols was NOT the social norm and that infrequent handwashing had become an *accepted violation* within the healthcare community in England and Wales. The criticism of HCWs in this study tends to support this view. The opinions of Duerden and Wilson promote the idea that infection prevention and control is delivered in a culture where deviance and non-compliance with hand hygiene policies has become normalised.

The term *normalisation of deviance* was used originally in the wake of the Challenger and Columbia space shuttle disaster. It refers to the progressive acceptance by a group of people, of small incremental changes that result in a lower level of safety. What begin as small, seemingly benign deviations from standard operating procedures become, with enough repetitions, *normalised* practice patterns (Vaughan 2004). At this stage, personnel no longer regard these acts as untoward, but as routine, rational, and entirely acceptable and they become entrenched in the system's operational architecture (Banja 2010).

Odom-Forren (2011), Banja (2010) and Prielipp (2010) all cite missed hand hygiene opportunities as an example of the normalisation of deviance. In short HCWs omit hand hygiene because there is a culture that has made it permissible to do so.

However, culture is something of a slippery concept. Originally an anthropological term, it can be loosely defined as a common set of ideas, values, attitudes and norms that characterise a group of people (Haukelid 2008). The question of whether or not cultures can be managed is largely a modernist concern that has provoked long and heated debates amongst organisational theorists (Davies, Nutley & Mannion 2000). To simplify a complex debate, modernists reason that if a culture influences behaviour via norms and values it should be possible to manage this in such a way that the desired outcome is more or less guaranteed, for example, improving hand hygiene behaviour.

On the point of whether it is possible to change a culture, Parmelli, Flodgren, Schaafsma et al (2011: 2) conducted a Cochrane review and reported 'they did not find any rigorous evidence to demonstrate the effect of strategies to change organisational culture on healthcare performance'. In a similar fashion De Bono, Helig & Borg (2014) completed a literature review on organisational culture and infection control and concluded that while it may seem obvious that a positive culture has an encouraging effect on compliant behavior, when measured empirically, the relationship is weaker than expected. They did acknowledge the complexities of conducting such studies and the long chain of mitigating factors and confounders that might result. Nevertheless, the

difficulties of changing a culture are echoed by Hatch & Cunliffe (2009) who argue the ability to manage a culture is limited by the norms and values that are grounded in deeply rooted basic assumptions, unquestioned beliefs, everyday understandings, routines and informal social relationships. They go on to suggest that trying to control a culture risks transforming its delicately negotiated web of meaning into an inflexible set of institutionalised rules and entrenched power relationships more likely to promote cynicism than loyalty

A common theme running through the literature, strongly associated with the former discussion, is that senior leadership is a key element to designing, fostering, and nurturing a culture of safety (Sammer, Lykens, Singh et al 2010). The Kings Fund scoping review identified the importance of leadership on cultural change and the advancement in the practice and attitudes of infection prevention and control (Griffiths et al 2008). To counter this point Haukfield (2008) argues that the literature on cultural leadership is shamelessly uncritical and gushingly positive. For Haukfeld, management is important, but its impact is a little more modest than some of the more exaggerated claims. The evidence is plentiful, good leaders come and go but culture remains the same (ibid). Nevertheless, many previous reforms of the NHS have advocated cultural change as a means to instill new values and modes of working and thus achieving improved standards of care (Mannion, Davies, Koneth et al 2008).

The Health Care Commission (2007) neatly captures the current *zeitgeist* with infection control when they advise that the NHS should foster “an organisational culture that strives to protect each patient through relentless vigilance over the risks of infection – established through determined corporate

leadership, but implemented and sustained by leaders and staff at all levels”. In a similar fashion the Department of Health (2008c) produced guidance entitled Board to Ward (2008) that advised NHS trusts that they could change the mindset of staff and embed a culture that will improve patient safety and reduce HCAI by taking action in six key areas. A number of these themes have been highlighted in the data and are particularly relevant to this study: establish a clear vision: provide effective leadership: ensure competence and measure compliance: communicate clear accountability: put in place an assurance framework and finally learn from others, both inside the organisation as well as outside it. However, Carney (2006) argues that individuals who work in professional organisations like hospitals exist in turbulent, changing and multifarious times. The modern HCW is often faced with balancing at least two cultures, a professional culture, which refers to the delivery of high standards of care, and a managerial culture, which is more to do with efficiency, high throughput of patients and an overall economic rationalism. From this confusion and their competing and complex pressures, Carney suggests new cultures begin to emerge.

8.4.2 Zero Tolerance

The history and etymology of the term *zero tolerance* can be traced back to a 1982 journal article, broken windows, by the social scientists James Wilson and George Kelling. The idea was a simple one: if one broken window in a building was allowed to go unrepaired, vandals would start to break others. On the other hand if the window was repaired it would act as a deterrent to further vandalism. Zero tolerance can therefore be defined as a philosophy or policy

that mandates the application of pre-determined consequences, most often severe and punitive in nature, that are intended to be applied regardless of the seriousness of the behaviour, mitigating circumstances or situational context (Teske 2011). It was first introduced into the NHS as a method of addressing work place violence and more recently has been applied to HCAI. Although zero tolerance to HCAI has been an international movement, it has been fully embraced by the Department of Health and the NHS, and has been highlighted in both policy, the media, and academic corpus through the exact use of the term, allusions to disciplinary action, strong use of modal verbs and staunch alignment with the five moments of hand hygiene.

In 2008 the Department of Health suggested that zero tolerance is a powerful way to demonstrate persistence towards non-compliance with key policies and procedures (Department of Health 2008c). It recommends that this should cover things that are crucial to a trust's culture, its values and beliefs, and goes on to give hand hygiene as an example. Zero tolerance, it finishes, enables clear expectations of non-compliance to be understood and acted upon. The growth of zero tolerance was witnessed in 2012 when the influential Association for Professionals in Infection Control and Epidemiology proposed that healthcare has reached a critical juncture between patient safety, infection prevention, and quality of care. It went on to propose that this is the right time to commit to an uncompromising vision of a health care system without infection (APIC 2012).

The Association for Professionals in Infection Control and Epidemiology then made a joint statement with the Centres for Disease Control, the Infectious Diseases Society for America, Society for Healthcare Epidemiology of America, the Council of State and Territorial Epidemiologists the Association of State and Territorial Epidemiologists and the Paediatric Infectious Diseases Society calling for the elimination of HCAI. In the NHS Operating Framework of 2012/13 it was announced that the zero tolerance approach to avoidable infections will continue. All of the above arguments and many of the discourses touched upon in this study have done much to promote an infection control ideology that in 21st century it is unacceptable to acquire a HCAI (Allegranzi et al 2007).

The premise of zero tolerance is that hand hygiene compliance can be reinforced by social pressure from managers, peers or patients (Gould & Drey 2013). In a recent study an author attributed improvements in performance to a well-advertised zero tolerance policy that represented a threat to staff of disciplinary procedures (Smith, Young, Robertson et al 2011). However, the original concept and its application to HCAI has come in for some criticism. At a recent annual meeting of the Society for Healthcare Epidemiology of America, Frazer (2010) discussing HCAI in a broader context argued that the term was toxic, associated with blame and was punitive. She argued what we need is more tolerance not less. In a similar fashion Edmund (2010) suggested that zero tolerance is rigid, dishonest and anti-intellectual. From a UK perspective Dancer (2010b) opined that zero tolerance is too heavy handed for healthcare and its implementation could threaten or fracture relations between

staff and managers. She argues that it is important to achieve a balance between holding workers accountable for their practices and acknowledging deficiencies within the system. Ultimately, Dancer believes that zero tolerance is a politician's mandate to reassure the electorate of high standards of hygiene behaviour in our hospitals (ibid).

Naturally zero tolerance is not the same thing as zero infections. Zero infections are microbiologically and clinically implausible. What the policy of zero tolerance actually means is zero tolerance to avoidable infections and to the poor clinical practice that is proven to prevent HCAs (Denyer, Hodges & Gorman 2011). As logical as this may sound it becomes problematic for two reasons. First, as discussed, there is considerable difficulty identifying which HCAI are avoidable and are the consequence of poor treatment and those that are inevitable (Millar 2011a). Second, the two ideas, zero tolerance to poor practice and zero tolerance to avoidable infections although different, can be seen, and often are, presented as the same thing. So when infections do occur even successful infection control programmes can be blamed (Cardo, Dennehy, Halverson et al 2010). The main reason for this is that the assessment of institutional compliance with best practice is easier to establish and quantify than the epidemiology of HCAI (Millar 2011a). Therefore failure to achieve 100% compliance with hand hygiene policies can be blamed for a post-operative wound infection whether it was the actual cause or not. Moreover, risk may be quantifiable, mathematically calculable, and independent of perception, but it is also culturally determined (O'Byrne 2008). Given the attention afforded to HCAI the concept of an irreducible minimum is probably

now too arcane for public consumption (Cardo et al 2000). This then helps to mobilise the rhetoric of zero tolerance that is seen in this study.

8.5 Summary and Conclusion

The purpose of this chapter has been to pull together the key discourses from Chapters Five, Six and Seven and identify common themes that are foregrounded and therefore represent the dominant hand hygiene discourse. Broadly, the data sets present the evidence based effectiveness of hand hygiene in strong terms and use hedges, boosters and attitude markers judiciously to create a positive stance. Evidence retains a strong hold over when HCWs should cleanse their hands but then individuals create arbitrary accounts of what amounts to acceptable practice. Benchmark figures often exceed 90% and based on these expectations, performance is heavily criticised. Academia and policy in particular recognise the system problems that inhibit good practice, but the media less so.

Despite this all three data sets assert that once good systems are in place, improving performance primarily sits with the individual as hand hygiene is a simple and basic act. It is envisaged that changing a culture that has become tolerant and accepting of sub-optimum practice will help to change practice. Strong leadership in particular, supported by disciplinary action if necessary, are important facets that sit alongside softer, more facilitative approaches. The final chapter of this thesis will develop some of the ideas underpinning the dominant discourse and consider the impact that these may have on policy, the HCW and the patient. It will then offer alternatives to two strands of the dominant discourse.

Chapter Nine

Implications for Practice

9.1 Introduction

So far this study has given an account of what is *wrong* with hand hygiene compliance and what its future should look like. This has rested on a series of deceptively simple claims: performance of the HCW is poor and staff are culpable, practice must improve: and when this happens it will have a major impact on the incidence of HCAI. There is a general enthusiasm for zero tolerance with personal responsibilities laid out in job descriptions, included in appraisals and backed up, if necessary, by disciplinary measures (Duerden 2009). These accounts have come from the academic community, the newspaper media, healthcare policy makers and the Department of Health, all of whom have developed a remarkably consistent account of the *problem* and the *solution*. Part of the narrative's appeal is that it imbues a certain common sense and it is for this reason that CDA has provided a useful methodological basis for contesting some of the assumptions of truth or normality that have become dominant in the discourse. Moreover, CDA can now be used to highlight some of the ramifications of these assumptions (Fairclough 2006).

The concluding chapter of this study will return to a focus on policy documents, as policies are said to represent aspirations to a possible future reality (Shaw & Greenhalgh 2009). Insights gained from the previous chapters regarding the way discourse structures arguments and constitutes subjects will be revisited. Running alongside this will be a critique, in broad terms, of evidence based policy making, considering how some of its central tenets can

be problematic when transferring evidence to practice. In relation to hand hygiene two components of evidence based practice appear to have been warmly embraced by NHS trusts. The first is when and how often to cleanse hands, the second is the preferred way to evaluate performance. These two facets will now be critically reexamined, discussed and alternative approaches recommended.

9.2 The Current Position

The Department of Health, the National Patient Safety Agency and the Independent Alliance of Patients and Health Care Workers for Hand Hygiene in England have each adopted the notion of *hand hygiene for every person at the right time, every time*. Throughout this study similar sentiments have been advocated in the media, the academic community and have been taken up in trust policies and these have struck up an unforgiving tone for non-compliance. Under this conception failure to perform hand hygiene every time is an example of missed care, and HCWs can be termed *violators* and *repeat offenders* (Chou et al 2010). In tandem the NHS has seen an array of performance measurement systems. Performance management is highly valued in the NHS and infection prevention and control because it is thought to bring a necessary rigor and accountability to complacent healthcare organisations. According to Cooke (2006) we now live in a society that trusts nothing and audits everything. Because of its alleged capacity to see through the hidden practices of untrustworthy professionals, audit is thought to be a powerful mechanism to drive quality improvement (Sheldon 2005).

Increasingly compliance with hand hygiene policies is used as an institutional metric for the quality of care. Once recorded, results are then publicised on their websites *for all to see* (Department of Health 2008c). For Power (2004) this has become an industry of comfort production. These two elements, universality of policy and the measurement of performance are given additional credence because they are strongly supported by the *evidence*. Before they are considered in greater detail some of the problems associated with an *evidence based policy* will be considered.

9.3 Evidence Based Policy Making

Traditionally, policy making has adopted a rationalistic method that has been strongly influenced by a conventional scientific approach (Shaw & Greenhalgh 2009). This places great importance on generalisable findings that are devoid of the social context from which they have been drawn. What Behague (2009) calls the *institutionalisation of policy* based on scientific evidence can be attributed to the wider movement of evidence based medicine that has gained prominence throughout the UK and North America. Here, policy makers are urged to move away from policy development that is based on common sense, popular support and political ideology to a more legitimate approach based on *scientific fact*. As Bowen and Zwi (2005) put it, evidence can be sought to show effectiveness, demonstrate the need for policy action, guide effective implementation and show cost effectiveness. So, the dominant view is that hand hygiene reduces HCAI, there are currently poor standards of compliance, this can be altered through successful behavior change strategies and this will reduce morbidity and mortality.

In broad terms, the ideology of evidence-based policy making has been said to penetrate the consciousness, discourse and working practices of professionals (Rycroft-Malone 2006). Davies (2000) suggests this can be attributed to a number of reasons including an explosion of information supported by improvements in technology, a more informed and educated public, a need for cost containment and increased productivity, a growth in the size and capabilities of the research community and an increased emphasis on accountability. Walshe (2009) argues that contemporary health care has not only witnessed a change in social attitudes towards power and authority but the public now have a greater awareness of their rights and needs. This adjustment is probably relative rather than absolute. But nevertheless, Walshe (2009) contends that the notion of a passive, grateful, public and an authoritative, unchallengeable, dominant health care professional is beginning to shift. Institutions, he proposes are more accountable, less conservative and not so complacent and closed (ibid). Although society may be more skeptical and challenging about the role of science and expertise, Freiberg & Carson (2010) make an interesting observation that the public still seem to want policy decisions to be based on rigorous evidence.

A central point to this discussion, is how do we define evidence in relation to evidence based policy making, how is this evidence made more accessible to policymakers and what factors impact on its accumulation and realisation in practice (Sutcliffe and Court 2005). Davies (2004) argues that the very notion of evidence is supposed to signpost a move away from its selective use or the use of untested views that are inspired by ideological standpoints, prejudices or

speculative conjecture. It is, of course, self-evident that policy should be informed by some kind of evidence, but the more interesting debate is whether evidence can ever pertain to some objective reality with transferable truths, or whether it reflects a socially constructed reality. That is, different people will view evidence differently (Frieberg & Carson 2010). Rycroft-Malone (2006) posits that there is no such thing as *the evidence*. In most cases evidence is not as certain as people would like it to be. It is rarely static, can be contextually bound and is often individually determined (ibid). So, for example, the evidence that supports a temporal relationship between good hand hygiene and reductions of HCAI is very difficult interpret, but there are enough indications for it be used selectively, or at least accentuated by scientists, politicians, practitioners, and the public to support a certain course of action.

Developing this argument Whyte (2013) poses a number of concerns about evidence based policy making. He believes it is wrong to assume that evidence derives from neutral observers. Rather it can spawn from academic elites who enter a field of practice because of their commitment to a particular policy agenda. Moreover, as they are natural supporters of their own policies there is a tendency to overstate the credibility and importance of the evidence. Not only does this inflate the reputation of an academic and create a demand for their expertise, it can provide a powerful mechanism for them to impose their values on society. According to Whyte (2013) a by-product of this is the concealment of doubt which is viewed positively as a *noble-cause corruption*. In other words, expressing doubt can introduce an unnecessary caution in relation to enforcing policy recommendations. Rather caustically Pawson (2006) opines

that much of the head nodding towards evidence based policy making is mere lip service. He argues that as one ascends the intervention hierarchy complex research findings are necessarily distilled into oversimplified sound bites.

Whyte (2013) agrees with the thrust of this argument and maintains that the slightest scrutiny of evidence-based policy recommendations is too *irksome* for most journalists and politicians. As such the mere declaration that a policy is evidence-based is enough to convince some people of its wisdom. Coalter (2007) notes the anomaly that those further down the intervention hierarchy, such as individuals responsible for activating a policy, are often excluded or find it difficult to access the arena where policy is made. This is a point that has been made throughout the study as *working clinicians*, rarely engage with the media, write or contribute to research articles, or hold positions in strategic or operational trust groups. As a result this can induce inflated or intellectually incoherent recommendations. A further criticism closely aligned to this is that evidence based policy making places too much emphasis on the role of causal knowledge to improving efficiency. In relation to hand hygiene there is a particular problem in using an empiricist/positivist approach to describe the correlation between good/poor hand hygiene and high/low rates of HCAI.

Running alongside notions of causation and correlation is the argument that there is insufficient attention to the normative, institutional and organisational context in which decisions are made and choices taken (Sanderson 2006). Rycroft-Malone (2006) believes that clinicians need to be allowed to interpret and then implement evidence based recommendations depending on the specific environmental and patient circumstances that confront them. Scientific

justification alone does not necessarily convince an audience. According to Sanderson (2006) a policy must be embedded in its institutional and organisational context and recognise the normative order of informal rules, routines, norms and values. He suggests that practitioners do not simply deal with uncertainty on a technical basis using evidence, but manage ambiguity on a practical basis making astute judgments about the appropriateness of policy action.

The argument here is that policies in health care do not necessarily need more scientific proof but more deliberation. Currently they can be created, implemented, and evaluated in many environments by a plethora of stakeholders including the government, the media, professional associations, interest groups, public opinion and others. Paradoxically, this rarely includes nurses who, as the biggest health care profession, bear the primary responsibility for the implementation of many policies. As McLeod & Spee (2003) argue, it is nurses who typically move health policies from the printed page into everyday practice. Nursing, of course, is not a single homogenous group and here we may be more concerned with the more junior, ward based clinician, rather the senior nurse manager or specialist practitioner. As indicated throughout this study the latter are probably comfortable with the existing hand hygiene discourse. The former, despite their relevance to policy implementation, seem to have great difficulty in accessing policy making arenas (Sundquist 2009, Fletcher 2007, Buresh & Gordon 2006, Hofler 2006, Davies 2004, and Mechanic & Reinhard 2002). Toofany (2005) believes that typically nurses working in practice do not see the development of policy to be

a nursing issue. Sundqvist (2009) concludes that this lack of engagement is partly explained by the hegemonic structures that often shape the creation, implementation, and evaluation of policy. That is, there is a certain faith that academics, clinical experts and managers know what they are doing.

Therefore the first recommendation from this study is that nurses should become more policy active. This is supported by Prime Minister's Commission on the Future of Nursing and Midwifery in England (2010, 95) that proposed nurses need to be pro-active in relation to policy making and this should include those in clinical practice, not just a minority at the top of national organisations. The essence of this study is that policy is a product of a deeply embedded discourse of hand hygiene around its utility, problems and solutions. This is drawn from, among other things, scientific evidence, lay expectations, political priorities, organisational imperatives and common sense. If research manuscripts in high ranking journals and articles in newspapers are beyond the scope of most practising nurses, letters pages are not and could prove a useful way to offer an alternate view from practice and stimulate further discussion. Speaking out or raising concerns about sub-optimum practice, not complying with policies, is both challenging and complex; loyalty to the organisation, self-interest and fear of reprisals are all potential barriers (Gallagher 2010).

But encouragingly perhaps more so than at any time in history professional bodies and trade unions are offering local support and guidance to HCWs to raise concerns about any part of their work (NMC 2013, RCN 2013). If speaking out in public forums is the first step, the next should be gaining access to the organisation's infection control committee or offering an opinion

on its recommendations. For the remainder of this study I will focus on two areas of hand hygiene practice that could be addressed by including the authentic voice of practice.

9.4 Risk Management or Rule Compliance

NHS trusts govern hand hygiene behaviour through organisational policies that produce instructions analogous with the 5 moments of hand hygiene. The 5 moments is said to improve performance by allowing HCWs to develop a geographical visualisation of the key moments for hand hygiene (WHO 2009). While the concept is relatively new and therefore not always explicitly stated in policies, the moments have been recommended as best practice for some considerable time (Larson 1995). That is, staff should decontaminate their hands before touching a patient, before clean/aseptic procedures, after body fluid exposure/risk, after touching a patient, and after touching patient surroundings (Sax et al 2009). Having established the *rules* of when HCWs should cleanse their hands, organisations then take an unequivocal stance to compliance and reinforce this through linguistic devices like modal verbs and the punitive language of zero tolerance and disciplinary action.

This approach represents one end of what has been called the rule compliance - risk management continuum. Rule compliance and risk management are both common concepts for the way safety is managed in hazardous industries. Hopkins (2011) argues that while the two ideas are not mutually exclusive, wherever possible risk management should be converted to rule compliance. This enthusiasm for standardisation is predicated on the view that errors and deviations are the result of limitations in the cognitive psychology or social

abilities of the practitioner (Dekker 2011). That is, front line works often lack the requisite skills to make effective risk assessments or are compromised by risk taking characteristics that place them at odds with their organisational policies (Hopkins 2011). Moreover, according to McDonald, Waring & Harrison (2006) rules-based approaches have been endorsed by the Government, the National Patient Safety Agency, the media and operational experts as they provide some legitimate basis from which otherwise powerless managers can attempt to exercise control over wayward clinicians. In essence limiting the capacity for individual discretion and diversion is thought to be the answer to poor compliance.

This chimes with the way hand hygiene is managed in NHS trusts. When discussing their model, the architects of the 5 moments acknowledge that they faced some fundamental difficulties when producing their recommendations. These were rooted in the lack of detailed scientific evidence on hand transmission and its implications in the aetiology of specific infectious outcomes. Even infection control experts have difficulties in reaching a consensus on the relative risk levels of different care activities (Sax et al 2007). The response was such that if the relative risk level of a specific care task is unknown, *a safe system* would be to treat them all on an equal level (Sax et al 2009). The argument is made more forcibly by Paul Weaving, the editor of the British Journal of Infection Control who opines ‘that trying to identify which unclean hand caused a HCAI is a bit like identifying which cigarette killed you; they are all dangerous’ (Weaving 2007: 5) as such they should all be treated with equal vigour’

While the argument is understandable, the consequence of separating risk assessment from compliance means that opportunities for hand hygiene escalate exponentially. The WHO note that the average number of actions varies markedly between clinical areas. But drawing on a number of studies the review indicates that HCWs clean their hands between 5 and 42 times per shift or in the region of 1.7–15.2 times per hour (WHO 2009). However, even these are probably conservative estimations for some departments and specialities. For example, Chou et al (2012) identified one hundred and fifty hand hygiene episodes during the course of a morning ward round. Biddle & Shah (2012) quantified the hand hygiene rates of anaesthetists in a busy metropolitan operating room and discovered that in some cases this amounted to 54 opportunities per hour. While it has been noted that a higher number of hand-hygiene opportunities per hour correlates with lower hand-hygiene compliance (Erasmus et al 2010, Pittet et al 2009) this kind of intelligence is seldom included in policy documents. Rather than seen as a legitimate reason for non-compliance policies rarely consider the contextual detail in which the behaviour is performed.

Alcohol Hand Rub (AHR) is said to be the cornerstone of the Clean Your Hands Campaign (Wilson 2009) as it appears to be the natural solution to many of the problems associated with non-compliance. When the ten second hand wash was exposed as a myth (Myers & Parini 2003), AHR was made increasingly available at the point of care and promoted as something that could be easily assimilated into the HCWs work stream. That it had improved microbiological efficacy and skin tolerance made the case even more

compelling (Allegranzi et al 2013). For all of these reasons it is now considered the gold standard for hand cleansing in health care settings (WHO 2009). If *being busy* has been used by HCWs as a catch-all justification, or excuse, for inadequate practice (Nicol 2009) AHR largely makes this redundant. Indeed a recent observational study concluded that the frequency of hand-hygiene opportunities is no longer the primary barrier to achieving optimal hand-hygiene compliance (Lebovic et al 2013).

Because the availability of AHR allows hand hygiene to be performed to an almost unlimited amount of times, and omission still occurs, this has led to a focus on the social cognitive variables like attitude, motivation, knowledge, social norms and accountability (WHO 2009). Important as these are, it backgrounds another fundamental issue. That is not whether it is possible for HCWs to perform hand hygiene at every opportunity, but whether it is reasonable to expect them to do so when the demands may escalate to over 100 times in a working day. Potentially, a HCW could be required to clean their hands three times in one minute as they move from different zones around a single patient's bedside. That many of these contacts are low risk, low contact and may suffer from the law of diminishing returns merely adds to the conundrum. Indeed it could be argued that the prolific nature of hand hygiene opportunities has become infection prevention and controls very own *Elephant in the Room*. Elephant in the room is a metaphorical idiom that describes an obvious truth that is being ignored or goes unaddressed. The expression also applies to an obvious problem or risk no one wants to discuss (Cambridge

University Press 2009). In other words policy makers seldom wish to discuss the implications that their guidance has in the real world.

9.5 One Size Fits All

This *one size fits all* approach to hand hygiene compliance runs the risk of turning a hand hygiene policy into a theoretical construct and a victim of the theory practice gap. The theory practice gap was first described in seminal works in the UK and USA (Kramer 1974, Bendall 1976, Melia 1987). The general idea is that there is a gap between theory and practice and this is a by-product of several factors, the first being theory, which can be found in textbooks and activities like research and associated with formal education. The second is practice, associated with the everyday work of the HCW in daily contact with patients. The third, which is less tangible, is the disparity between the two (Ousey & Gallagher 2007). While some see the *gap* as something to celebrate as it provides impetus and momentum to improve practice (Haigh 2008), others couch it as an area of conflict (Rafferty, Allcock & Lathlean 1996). Here academics and practitioners set themselves as rival claimants to an independent and privileged reality.

Critical of an *elite* who pursue unrealistic expectations, Sellman (2010) suggests that they would benefit from exposure to a healthy dose of reality. In a similar vein Haigh (2008) argues that any discussion of theory and practice needs to understand the nature of theory and how it is applied in a context-specific and responsible manner. Moreover the adoption of the ideal theory must be open to interpretation and adjustment. However, the idea of interpretation and adjustment would be anathema to those responsible for a

hand hygiene policy. They would probably argue that there is *evidence* that any contact, no matter how brief, has the potential to cause a HCAI. Although this is true, there is also evidence to suggest that the transmission model is inefficient and will frequently breakdown in any case. Moreover, what a literal interpretation of an operational hand hygiene policy does do is turn it into something of a nirvana concept.

The term nirvana concept has been given to theories that personify an ideal image of the world; a horizon that organisations strive to reach (Molle 2008). That is while the likelihood of reaching the nirvana of 100% compliance with hand hygiene guidelines may be low; the mere aspiration makes it an attractive and useful focal point for practice improvement. Indeed high aspirations can be a healthy means of improving practice. Moreover, the use of unambiguous language, documented in this study and housed in policy documents, could assist the HCW rather than confuse them. Exploiting the PRECEDE model of health promotion, Forrester, Bryce & Media (2010) propose that successful application of desired policies and procedures requires a good understanding of what is required and why. This is supported by Lebovic et al (2013) who maintain that a gateway to practice improvement is a clear expectation of performance.

While sympathetic to the argument, nirvana concepts are not just about aspirations, they are not always scientific and rarely neutral. Instead, they often come from a complex web of interests, ideologies, and power that typify a certain view, approach, or *solution* to a problem (Molle 2007). The authoritative, punitive language and zero tolerance that are witnessed in hand

hygiene policies not only characterises actions or omissions as mistakes but imbues them with a moral loading they may not deserve. In addition, portraying them as neglectful acts excludes other constructions of the same omissions (Dekker 2012). For example, HCWs might not see their hand hygiene omissions as a mistake, but rather a struggle to meet irreconcilable goals under enormous constraints. The nirvana concept erases their construction of what may be wrong and prevents any critical discussion of the model itself. If this were heard it would give rise to a different discussion and set of counter measures.

9.6 The Impact of Policy on Nurses

Picking up on the idea that nirvana concepts are rarely neutral it is important to consider the impact that a high profile and challenging policy has on the workers that are required to perform it. Health care is a difficult, demanding job, characterised by high expectations, deep personal commitment, and low tolerance for error. In particular, a hand hygiene policy bears a heavy impact on nurses. In their study Fries et al (2012) found that nurses averaged 5–10 times more hand hygiene opportunities per day than other health care professions. Similarly, Pittet et al (2009) reported that nurses accounted for 67% of observed hand-hygiene opportunities, physicians for 15% and other HCWs for 18%. As a result nurses are always likely to attract the type of public criticism reported in Chapter Six of this study. Drawing the net wider following the publication of the Mid-Staffordshire NHS Foundation Trust enquiry on February 6th 2013, it would seem that in official reports and popular culture, hand hygiene has become something of a proxy for the incompetent and uncaring nurse.

The Mid-Staffordshire report stated, among other things, that basic standards were not observed, fundamental rights to dignity were not respected and overall there was a lack of care, compassion and humanity. The Francis Report made a number of observations of hand hygiene facilities, the inadequate practices of staff, poor attention to the hands of patients and the inadequate knowledge of staff. Some of the comments can be seen below:-

‘The staff rarely washed their hands or wore a gown or gloves when dealing with patients’ (p 18)

‘With her daughter observing a nurse take blood from her mother and then another patient without washing her hands in between’ (p 103)

‘Whilst his family were required to wear aprons and gloves when visiting the patient; however, nurses did not do so, nor were they seen to wash their hands’.
(p 106)

‘Many of the nursing staff were not smart in appearance and wore jewellery and had painted finger nails and failed to wash their hands after attending to patients’ (206)

The Public criticism of nurses goes further. The satirical magazine Private Eye runs a cartoon called Fallen Angels. This parodies the idiocies of modern ing (Salvage 2012). The example below came from a 2013 edition.



On recent television, in a 2013 edition of the comedy show 8 out of 10 cats, the irreverent comedian Jimmy Carr, made the following quip, ‘64% of people don’t wash their hands after they go to the toilet – we call those people nurses’

Investigating the work of nurses, Kalisch et al (2009, 2010, 2011) examined experiences of *missed care*, and argued that nurses were all too familiar with their omissions, could readily identify examples, but were reluctant to do this openly. The authors theorised that this was not because of indifference, but because a frank omission of poor care brought on a range of emotions, including anger, sadness, frustration, worry and lowered self-esteem. In essence, nurses felt guilty for not providing quality care, but had a sense of powerlessness to do anything about it and had a fear of repercussions if they should admit it. This strikes a chord with two recent surveys that reported the profession feels short staffed, under increasing pressure, had difficulties keeping hydrated because of delayed lunch breaks and regularly worked between six and ten extra hours a week (Nursing Times 2013, RCN 2013). Gould & Drey (2013: 92) consider the impact that the continual criticism of hand hygiene standards has on staff morale. They assert that ‘HCWs need to feel valued. Health care is no longer a popular career option: apportioning blame could promote high levels of staff turnover that will not contribute to improved patient safety’.

All of this does not excuse poor standards of care, but in defining a *Just Organisation*, Dekker (2012) argues that an individual’s accountability should be intimately informed by their responsibilities. In other words, a HCW should only be held to account for a practice that is reasonably achievable. Even those

who are strong advocates of hand hygiene admit to some concern. At its most optimistic, Son (2011) concedes it is unclear how recommendations and guidelines, in a busy hospital setting, translate to everyday practice. More pessimistically, Pittet (2004), perhaps the leading world authority on hand hygiene, notes that some guidelines are unrealistic in daily working conditions. Having total compliance as an aspiration is laudable but if this then translates to pejorative rhetoric this is, as Dekker (2012) argues, unjust. Moreover, unjust criticism erodes confidence, self-worth and optimism which is seen as an important pre-requisite of good nursing care (White 2009, Kroner & Biermann 2007, Moreira et al 2007).

9.7 An Alternate Approach

A study by Schweon & Kirk (2011) criticised the exhaustive nature of hand hygiene recommendations and the assumption that all patient contacts should be treated the same. They went on to question whether recommendations should be tiered. Although writing from the perspective of long term care settings, a similar argument could be advanced for different types of contacts. As Sax et al (2007) point out, the total number of hand exposures in a healthcare facility might reach as many as several tens of thousands per day as HCWs touch a continuous sequence of surfaces. As the number of hand hygiene opportunities increase, they become disproportionately *brief encounters* and with it these types of contacts carry lower rates of compliance (Dedrick et al 2007). Using a stochastic model to simulate the spread of MRSA between patients, Beggs et al (2009) proposed that it is the frequency of high-risk events, rather than average probability that, in reality, governs whether or not transmission will occur. Articulating their *evidence* of diminishing returns,

when compliance is low, high-risk events occur relatively frequently, however as compliance increases, the rate at which high-risk events occur, rapidly decreases, until a point is reached, beyond which, further hand hygiene is unlikely to yield any greater benefit.

The *tiering* of hand hygiene opportunities may be considered a pragmatic answer to the problems of compliance. However, given the priority that is afforded to reducing HCAI, the heightened patient anxiety and expectations of acquiring an infection, and the capricious nature of the transmission model, a return to the halcyon days of 1995 when compliance was based on the duration and nature of contact is extremely unlikely. However, drawing on the symbolic importance of discourse there is a seemingly small, but important adjustment that policies can make that allows the aspiration of excellence but acknowledges the context in which the behaviour is performed. In a discussion of deontic modals in Chapter Seven, it was revealed how *must*, and *should* were used in relation to hand hygiene frequency. Both words carry an expectation and obligation but *must* is generally seen as more unremitting (Lomaton et al 2010). *Must* was by far the more common when it came to hand hygiene frequency possibly because of the belief that *should* lacks precision or shows confusion or vagueness. However, the type of hedge that *should* represents for a hand hygiene policy does necessarily suggest a lowering of standards. Instead, it merely reflects an accurate representation of current practice. Moreover, the strength of language implied by *must* cannot be justified given the current evidence of compliance rates.

The transfer of scientific evidence into daily routine is challenging. In times of very high workload and fast flow of activity, policies need to be sufficiently flexible to respond to the contingent nature of events (McDonald et al 2006). As Dancer (2010a: 3) points out because of the dynamic nature of practice people 'will not, or cannot, always clean their hands'. Recognising this point the influential Joint Commission in North America have reworded their standard from 90% compliance, which many hospitals could not achieve, to 'hospitals need to work to improve compliance' (Boyce 2013: 94). However, even 90% is out of step with the verb *must*. To suggest, as some might, that a move to *should* would provide an escape hatch for HCWs who would then stop cleaning their hands is fanciful. HCWs understand the importance of hand hygiene and are generally motivated to perform this well, but as Larson, Quiros & Lin (2007) report, the content of guidelines and policies has little impact on behaviour if the advice is seen as unworkable.

Naturally trusts want HCWs to comply with hand hygiene policies and the use of *must*, because it erases ambiguity, is possibly seen as the best way to achieve this. However, *must* also promotes a sense of didacticism which some argue has a long history in infection prevention and control (May & Meyers 2006). Critical of this didactic approach Mah & Meyers (2006: 73) suggest that it 'yields disappointing results in a postmodern era of social fragmentation and intellectual ambiguity' (ibid: 73). A rebuttal of didactics is supported by those who opine that this approach to behaviour change is insufficient to assure that nurses incorporate evidence-based practice (Labrecque, Sauerland, Donovan et al 2013, McFarlin, Williamson, Gray, et al 2013, Borg , Cookson, Gu'rc et al

2008). *Must* may hint at strong leadership but others argue that something that is excessively strong, controlling and top-down has a negative impact on the responsiveness of HCWs (Cunningham, Kenohan & Rush 2006). According to McFarlin, Williamson, Gray et al (2013) didactic approaches can inadvertently force individuals into a dependent role and as a result on-going compliance only comes from policing behaviours. The problems associated with this will be returned to in the next passage.

Therefore the second recommendation for this study is that hand hygiene policies use the term *should* rather than *must* when describing hand hygiene frequency. This is not a radical departure from what already exists as a number of trusts, albeit the minority, already do this. Whether this comes from an *enlightened* position, a more forgiving standpoint or simply semantics cannot be determined from this study. Importantly, *should* does not condone poor practice. It does cement notions of obligation and accountability and continues to strive for a standard where no hand hygiene opportunities are missed. But it also takes a more facilitative, less punitive approach that recognise what people know, but rarely speak of. In some clinical scenarios the policies become unworkable. A final point is that if trusts do persist in using the word *must* then disciplinary action is not only a possibility but becomes an obligation against those who do not conform to the mandate. There is little evidence that this has happening at the moment. Moreover, if the 40% compliance from research studies is an accurate representation it is highly likely that large swathes of any trusts workforce will be implicated.

9.8 Audit

A compelling reason why trusts may resist modifying their approach to hand hygiene policy and compliance is that the current strategy appears to reap dividends. Transparency through public reporting is a facet of contemporary healthcare as it is thought that this imposes a necessary discipline on hospitals and engenders a climate of safe practice (Morton, Mengersen, Waterhouse et al 2010). As a result many organisations post hand hygiene information and compliance rates on their websites and report very high levels of performance (Gould et al 2011). This can work to reassure potential patients and their families that everything possible is being done to provide a safe, clean hospital environment. It also suggests that managers take infection prevention and control seriously (Millar 2011b). According to Walshe (2009) society has progressively withdrawn its trust from health care professionals and instead places its faith in systems of measurement, information, audit and control. Cook (2006) agrees and argues that in modern health care accountability is rendered through the measurement of performance as quantifiable outputs.

However, what is claimed in the name of audit may be different from what is actually achieved. Humphrey & Owen (2010) argue that audited organisations can emerge from the process as legitimate, reliable, efficient and effective even though the audit practices employed could be shown to be highly questionable in terms of their technical reliability or systematic effectiveness. Recording hand hygiene behaviour through direct observation may be the gold standard in light of the evidence, but it is also a highly challenging replete with methodological problems (WHO 2009). Although the audit of hand hygiene has taken place for some considerable time (Hay 2006) historically this has

focused on the facilities necessary to perform good hand hygiene. For example, audit has concentrated on the availability of adequate sinks, soap, towels, hot water and a policy, rather than the actual performance of the HCW. The audit of infrastructure indicators is often seen as a useful way to overcome obstacles to compliance (WHO 2009).

9.9 Direct Observation

Because trusts have made considerable investments in infection prevention and control and have markedly improved their hand hygiene infrastructure, what counts as acceptable knowledge has been transformed. The Health Act 2008 (Department of Health 2008b) imposes a legally binding duty on trusts. It not only highlights the importance of adequate hand washing facilities and hand rubs, but also mandates that there should be a rolling audit programme that is embedded in local clinical governance frameworks. Indeed, the direct observation of behaviour became an integral part of the national Clean Your Hands Campaign (Reichardt Ko'niger, Bunte-Scho'nberger et al 2011). It was endorsed by the Department of Health (2008c) who attest that frequent observation, monitoring and feedback of policy embeds change and provides assurances that it is implemented on the ground, by all staff every day. The real time, direct observation, of behavior has high currency because it allows an observer to document the frequency of opportunities, those that are missed, the thoroughness with which they are performed, timely intervention to correct poor practice and the on-going identification of local barriers and solutions (Gould, Drey & Creedon 2011).

In a similar vein Haas & Larson (2008: 40) argue the best way to improve hand hygiene performance is to 'assess the barriers, measure the rates, educate the staff, make products available and hold staff accountable', Conceptually the management of hand hygiene fits well with modern thinking on organisational performance. This is rooted in a positivist, rationalist and mechanistic model that conceives organisations as entities whose structures and workings can be objectively analysed and described and whose functioning is a rational process in which everything can be made clear (Walshe 2009). Chan & Chan (2000) suggest that contemporary health care provision is shaped and provided on modernist lines that is characterised by a belief in an underlying and unifying truth. The search for this truth, that is, hand hygiene performance, should be objective, causal and made through impartial observation (Newbold 2005).

The strength of audit comes from an associated faith in measurement and numbers. In current hand hygiene audits performance can be assessed, written down and assigned a numerical value. This is popular because one of the defining characteristics of measurements is that it excludes judging or guessing. Measurements, in principle, are replicable and are not dependent on when, where and by whom the measurement is done (Power 2004). Moreover, numbers are powerful because they promote control, legitimacy and sense making. They gain people's attention, whether this be policy makers, politicians, the public or the media as numbers objectify organisational realities, and in so doing provide the power and authority to act (Louise-Denis, Langley & Rouleau 2006). According to Gordon (2008) numbers can point to

acceptable solutions and maximise the efficiency of the organisational machine by manipulating and controlling the behaviours and activities of the workforce.

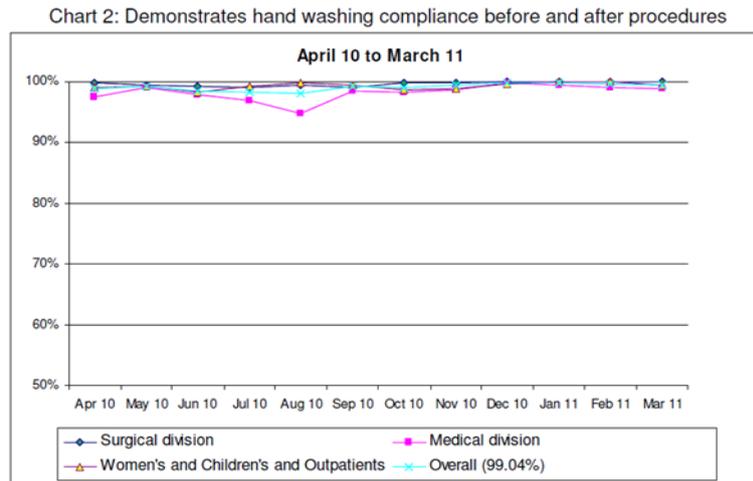
9.10 Use of Measurement by Trusts

As Power (2004) alludes the success of an audit depends upon the creation of an auditable performance. He goes on to examine how various practices have become institutionally acceptable ways of conducting audits, even though there are clear question marks over their claims of objectivity and functional capacity (Humphrey & Owen 2010). If trusts are going to use compliance with hand hygiene policies as an institutional metric for the quality of care, it is vital that the information is credible and trustworthy (Gould, Drey & Creedon 2011). Figure 2, overleaf, is taken from the annual infection prevention and control report of Barnsley Hospital NHS Foundation Trust. The result of 99.04% was similar to other randomly selected sites, for example, 99% (West Hertfordshire Hospitals 2012), 98% (Central Manchester University Hospital 2013), and 97% (Homerton University Hospital 2012). The accompanying narrative from Barnsley NHS Trust was typical of those reported in this study. If any unit did not achieve a pre-determined score, in this case compliance below 100%, they would be placed in the equivalent of special measures.

How trusts assemble these results and the degree of scrutiny they receive before distribution did not form a part of this study. As such it cannot be argued, with any certainty, whether or not they are not a faithful representation of practice. However, given what is known about the complexities of hand hygiene compliance and its enduring nature, 99.04% is a very high figure not previously reported in any empirical study.

Figure 2: Annual Infection Control Report Barnsley NHS Trust

The programme of hand hygiene observational audits of 10 per week per ward led by the matrons with the support of clinical audit continues. Those areas where compliance rate is less than 100% will be put on special measures with daily monitoring. Results of these audits are disseminated by the matrons to the division as well as the IPCC. A web based tool developed by clinical audit for hand hygiene data collection has resulted in significant improvement in data quality.



There may be a number of different reasons to explain why there is a major discrepancy between the results recorded in empirical studies and those reported by NHS trusts. Research studies report an average compliance rate of around 40%. In contrast, trusts record levels in excess of 90%. This is markedly different and at odds. The WHO (2009) and the Joint Commission (2009) both acknowledge that hand hygiene observation is a sophisticated activity that requires training, skill and experience. It is sensitive to different observation periods and observation locations (Boyce 2013), and cannot be maintained for any length of time without fatigue and data loss (Gould et al (2005). In their study calculating a 60-minute total observation period, Fries et al (2012) reported that at best observers captured 1.7% of the average total number of opportunities per day and 0.5% at worst. They concluded that even close observers would capture different versions of reality depending on when

they started and finished and who they sampled. The trusts examined in Chapter Seven would often use as little as 10 observations a month (East Sussex Trust) to base their projections and hospital wide compliance rates. As a percentage of total hand hygiene opportunities this number is so small as to be almost incalculable.

Although it is not always clear, personal experience suggests that these observations are invariably devolved down to a nurse who works in the clinical area. This is in itself problematic. A study by Dhar, Tansek & Toftey (2010) found that when unit-based observers performed the observations there was a marked bias toward greater compliance than when this was completed by a third party, non-unit-based observer. The NAO (2009) report identified a similar theme when nurses suggested that compliance with the WHO five moments of hand hygiene was high, above 90% on all aspects. Gould et al (2011) captures the essence of the problem by arguing that because there is such a strong emphasis placed on the importance of good hand hygiene it is likely that a HCW will inflate their levels of compliance if this is solely conducted by means of a self-report. As well as understanding the importance of hand hygiene a HCW is also aware that a report of poor performance will activate a number of punitive measures ranging from repeating the audit, to taking disciplinary action. This suggests that misleading results might not just be the result of methodological difficulties and cognitive biases.

9.11 Manipulation and Mendacity

Elaine Larson, an eminent infection control writer and strong advocate of hand hygiene, adds an important note of caution to auditors. In the Joint Commissions report (Larson 2009) she warns that before people embark on a measurement programme they need to decide why they are monitoring hand hygiene and what they are going to do with the information. The Department of Health would probably respond that the precision attained through measurement and quantification hold the HCW accountable and embed improvements in practice. As discussed earlier, measurement has and is intended to have a public face, a surface which is visible and transparent to outside observers and expert analysts. However, it does more than this. Public announcements demonstrate initiative, strength and ensure control (Hoeyer & Niels Lynoe 2009). When organisations make these announcements they indicate that patient safety is important in their institution (Winkler (2005). In relation to hand hygiene, high compliance rates can form part of a public-relations exercise that make the trust appear modern, responsible and deliver high standards of care.

However, the more a trust becomes concerned with the representation of its audit results the more staff can become involved in elaborate games of compliance. Audit has the potential to distort and drive unintended and unwanted consequences. It can lead to what Walshe (2009) has labelled *perverse behaviours* that often subvert or undermine the intentions of the original performance measurement. For example, when NHS Accident & Emergency Departments were given the performance indicator that 98% of

patients should be seen and discharged within 4 hours, Perkins & Seddon (2006) discuss how trusts managed the target through a number of dysfunctional acts. These included starting and stopping the clock at different stages in the patient journey, opening a short-stay ward if the patient threatened to *breach* and moving patients even though their evaluation was not complete. In addition, the authors found that managers sometimes bullied staff to meet the target. As a consequence the target may have been reached but it did not necessarily improve the quality of care.

In the case of hand hygiene compliance it is possible that in collecting their data the auditor has been allowed to operate what Brown & Crawford (2003) have called a *street level bureaucracy*. The thrust of which is that practitioners are given relative autonomy when it comes to making the decisions of who, how and when to audit. Moreover, so long as the audit reports a 90% or equivalent figure, how they were obtained becomes a no go area for management. Indeed management may be motivated to avoid scrutinising the work of practitioners too closely as to avoid responsibility in the event of complaints, scandals or results that were subsequently found to be misleading. In her study Cooke (2006) found that NHS trust managers had considerable scepticism about the value of audit and quality measurement. She reported that managers felt that most audit and quality assurance activity became a *ritual of verification* that was often used to subject *problem* areas to *microscopic* surveillance possibly as a means of tacit punishment. Cooke concluded that measurement and reporting systems were important to managers simply because they are under pressure to demonstrate that they are in place.

9.12 An Alternate Approach

The WHO (2009) call for interventions in hand hygiene to be based on *theory*. This includes the observation of HCWs during patient care activity by trained and validated observers as this is recognised as the gold standard for hand hygiene monitoring (Sax et al 2009). There are a number of observational tools including the Lewisham Tool, the Feedback Intervention Trial (FIT), Health Protection Scotland and Essential Steps (incorporated into other audits). These tools share a common theme: they are labour intensive, particularly if performed attentively. As Gould & Drey (2013) point out this type of activity is beyond the capacity of most infection control teams in NHS Trusts whose chief remit is to operate a clinical service. Passing down the responsibility to equally hard pressed clinicians, which tends to be custom and practice for most trusts, simply adds the additional problem of objectivity.

To paraphrase Power (2004), the way trusts complete their observations of hand hygiene behaviour has become a function of administrative and managerial proceduralism. Rather than enhancing practice, measurement has the potential to misdirect people's perceptions of quality and undermine innovation. In a translation of Goodhart's law, Strathern (1997) contends when a measure becomes a target, it ceases to become a good measure. In other words, once an organisation sets a compliance figure, and then widely disseminates this within their policies, the only thing that matters is that wards and departments report that figure. As an outsider looking in, it seems remarkable that trusts do not question their own hand hygiene data before sending it out for public consumption. Clearly what is essentially a research

activity is ill-suited to NHS organisations that do not have the time or resources to do it effectively, and have a vested interest to report favourable results.

Therefore the third recommendation from this study concerns the role of audit and how trusts perform these and how they use the results. Without question, observing the hand hygiene practice of HCWs and providing feedback are important components of an improvement programme. However, setting an arbitrary 90% or 100% standard, allowing ward based clinicians to manage and report their own data, punishing non-compliers and then using the results as a quality metric to reassure anxious patients and their families, is not only ethically unsound but does little to improve practice. Muller & Detsky (2010) call this an *indicator based approach* to practice improvement as it is based upon rules and mandates. The goal here is not necessarily to enhance the quality of hand hygiene but to protect the organisation from external scrutiny. Larson (2013) reckons that not only does this lead to an overestimation of behaviour but also undermines a real intention to improve performance.

Rather than performing large scale frequency audits which require considerable time and training, clinical environments would be better served performing small scale, local audits that work to educate staff rather than punish them. For example, it is well documented that HCWs overuse soap and water and underuse AHR when cleaning their hands (Lebovic et al 2013, Forrester et al 2010). If this were replicated in a ward audit this kind of intelligence, communicated to staff could be used as a catalyst to change behavior. As indicated in the evaluation of the Clean Your Hands Campaign when HCWs adjust to using more AHR they naturally improve their compliance because the

use of rub increases without a concomitant decrease in the use of soap (Stone et al 2012).

As discussed earlier it is extremely unlikely that any NHS trust would return to a position where they would tier their hand hygiene opportunities as necessary or unnecessary. Nevertheless it is well established that HCWs' compliance with hand hygiene policies is consistently higher after patient contact and body fluid exposure than before patient contact and after contact with the patient's surroundings (Costers, Viseur, Catry & Simon 2012). Therefore an insightful piece of work would be to conduct an audit around comparing different care activities. This is not original and something already picked up by some audit tools, but the difference here would be that the discrepancies between care activities would provide the focus of the audit. This would free staff to examine their practice without carrying a heavy mandate to achieve a pre-determined, yet artificial numeric. If the data was then used to inform and educate, performance would naturally improve without recourse to punitive action. A final example concerns hand hygiene technique. Pittet (2008) calculated that compliance might be assumed to be 50%, but it is likely that in at least 50% of those cases technique would be sub-optimal. This means a more accurate compliance figure would be 15%. Yet technique does not seem to form any part of public reporting.

I have given three examples suitable for audit. The use of AHR, inconsistencies between different care activities and the role of hand hygiene technique, there are many more. The underlying theme here is a focus on education and development and not punitive action. As Dekker (2012) suggests a learning

organisation must be allowed to hear bad news. 40% compliance is not unremarkable and often reflects what people actually do, particularly as the demands of the standard, in some clinical settings, is extreme. If the NHS is serious about improving practice trusts need to rethink whether it is helpful to complete hand hygiene audits in their current form and whether communicating these to the public is not an example of transparency but one of deception.

9.13 Conclusion and Summary

As Slater (2007) might put it, hand hygiene has become a part of a 'rationalistic beaurocratic discourse of regulation which has revealed itself through an increasingly extensive rule system, the scientific measurement of objective standards and the minimisation of the scope of human error'. Behind this he argues 'lies a faith in the efficacy of surveillance as a directive force in human affairs' (ibid: 264). Without doubt good hand hygiene is a vital component of an infection prevention and control strategy but given the complexity of the evidence some of the claims made on its behalf, elucidated in this study, are difficult to sustain. Even opinion leaders acknowledge it is difficult to determine a definitive causal relation between hand hygiene and HCAI because of the lack of statistical significance, the presence of confounding factors and the absence of randomisation. Gould & Drey (2013: 88) leading writers on hand hygiene in the UK, note that 'extravagant claims have been made regarding the benefits of hand hygiene, eagerly seized upon by managers and governments who need to demonstrate reduced HCAI rates,

improved patient safety and to reassure the public that HCAI is taken seriously'. The findings of this study concur with these sentiments.

There is much that can be done to improve the quality of hand hygiene in NHS hospitals I applaud the innovative work of the Clean Your Hands Campaign. However, would maintain that a literal interpretation of the 5 moments of hand hygiene is not realistic in some high impact areas. Moreover, for some the nirvana of 100% compliance with policies may not yield the expected benefits as many of these are low contact and low risk (Beggs et al 2009). Despite this hand hygiene has developed into something of a polemic, the utility of the 5 moments is backgrounded and there are continuous exhortations to clean hands everytime. While some omissions of care can and should be avoided, treating all acts of non-compliance as blameworthy acts that could be subject to disciplinary action is unhelpful at best and very damaging to cultures of care at worse.

As a result this study calls for NHS trusts to make three changes to the way they manage hand hygiene that allows them to strive for excellence while at the same time acknowledge the realities of practice. First, there should be greater emphasis on the experience of practising clinicians when formulating operational policies. Moreover there should be a duty of candour when these opinions are sought. Second the use of modal verbs in local policy documents need to be changed from *must* to *should* when it comes to hand hygiene frequency. This would more clearly outline a HCWs obligation and their accountability, but recognises the dynamic and contingent nature of practice. The couching of *should* in documents could be further advanced by reference

to practicability and context-dependent levels of risk which may indicate valid omission. Third, observing hand hygiene is a useful method to understand the hand hygiene behaviour of staff. But as means of measuring compliance, using the results as a metric for the quality of care and publicising it on public platforms is fraught with difficulties. Observation is a complex and sophisticated activity ill-suited to busy NHS organisations. At best the results are misleading and at worse unethical and mendacious. Audit programmes should continue, but these should not be routine, crude tick box exercises that are subject to large scale aggregation and pre-determined values. Rather they should be nuanced, explicitly planned, small scale and educational.

References

- Abbassi K (2008) Doctors: the media's favourite worst nightmare. *Journal Royal Society Medicine* 101: 99-103.
- Abela M & Borg N (2012) Impact on hand hygiene compliance following migration to a new hospital with improved resources and the sequential introduction of WHO recommendations. *American Journal of Infection Control* 40: 737-741.
- Abeyasinghe S & White K (2010) Framing disease: The avian influenza pandemic in Australia. *Health Sociology Review* 19: 369–381.
- Aboelela S, Stone P & Larson E (2007) Effectiveness of bundled behavioural interventions to control healthcare-associated infections: a systematic review of the literature. *Journal of Hospital Infection* 66: 101–108.
- Adams J (2005) Risk Management: It's not rocket science: It's more complicated: www.socialaffairsunit.org.uk/blog/archives/000318.php accessed 12 December 2012.
- Adolphs S, Brown B, Carter R et al (2004) Applied clinical linguistics: corpus linguistics in health care settings. *Journal of Applied Linguistics* 1: 9-28.
- Allan S (2010) *News Culture* (3rd edition). New York: Open University Press.
- Allegranzi B, Storr J, Dziekan G et al (2007) The first global patient safety challenge “clean care is safer care” from launch to current progress and achievements. *Journal of Hospital Infection* 65: 115-123.
- Allegranzi B & Pittet D (2009) Role of hand hygiene in healthcare-associated infection prevention. *Journal of Hospital Infection* 73: 305-315.
- Allegranzi B, Sax H & Pittet D (2013) Hand hygiene and healthcare system change within multi-modal promotion: a narrative review. *Journal of Hospital Infection* 83: 3–10.

Allen P (2000) Accountability for clinical governance: developing collective responsibility for quality in primary care. *BMJ* 321: 608-611.

American Psychological Association (2009) *Publication Manual of the American Psychological Association* (6th edition): American Psychological Association.

Anderson W (2008) Corpus linguistics in the UK: Resources for sociolinguistic research. *Language and Linguistic Compass* 2/2: 352-371.

APIC (2012):

http://www.apic.org/resource/_tinymcefilemanager/apic_strategic_framework_022012.pdf

Apthorpe R & Gasper D (1996) *Arguing Development Policy: Frames and Discourses. Introduction: Discourse Analysis and Policy Discourse*. London: Routledge.

Askarian N, Mirzaei K, Mundy L et al (2004) Assessment of knowledge, attitudes and practices regarding isolation precautions among Iranian healthcare workers, *Infection Control Hospital Epidemiology* 26: 105–108.

Audit Bureau of Circulation (2013):

<http://www.guardian.co.uk/media/table/2013/feb/08/abcs-national-newspapers>

Bacchi C (2000) Policy as discourse: What does it mean? Where does it get us? *Discourse Studies in the Cultural Politics of Education* 21: 45-57.

Bacchi C (2009) *Analysing policy: What's the problem represented to be?* Melbourne, VIC: Pearson Education.

Backmann C, Zoutman D, Marck B et al (2008) An integrative review of the current evidence on the relationship between hand hygiene interventions and the incidence of HCAI. *American Journal of Infection Control* 36: 333-348.

Bail K, Cook R, Gardner A et al (2009) Writing ourselves into a web of obedience: A nursing policy analysis. *International Journal of Nursing Studies* 46: 1457-1466.

Baker P (2006) *Using Corpora in Discourse Analysis*. Continuum: London.

Baker P, Gabrielatos C, Khosravini M et al (2008) A useful methodological synergy? Combining critical discourse analysis and corpus linguistics to examine discourses of refugees and asylum seekers in the UK press. *Discourse Society* 19: 273-306.

Baker P & Ellece S (2011) *Key Terms in Discourse Analysis*. Continuum: London.

Banfield K & Kerr K (2005) Could hospital patients hands constitute a missing link? *Journal of Hospital Infection* 61: 183–8.

Banja J (2010) The normalization of deviance in healthcare delivery. *Business Horizon* 53: 1-13.

Barash P, Cullen B, Stoelting K et al (2009) *Handbook of Clinical Anaesthesia* (6th edition). Lippincott: Philadelphia.

Bastian L, Edgecombe K & Bowden M (2008) Increasing hand hygiene compliance to reduce infection rates: is valid comparison of compliance methods possible? A literature review. *Healthcare Infection* 13: 38-47.

Bearman, G, Marra A, Sessle C et al (2007) A controlled trial of universal gloving versus contact precautions for preventing the transmission of multidrug-resistant organisms. *American Journal of Infection Control* 35: 650-655.

Bednarek M (2006) *Evaluation in Media Discourse: Analysis of a Newspaper Corpus*. London: Continuum.

Bednarek M & Caple H (2012) *News Discourse*. London: Continuum.

Beggs C, Shepherd S & Kerr K (2008) Increasing the frequency of hand washing does not lead to commensurate reductions in staphylococcal infection in a hospital ward. *BMC Infectious Diseases* 8: 114-121.

Beggs C Shepherd S & Kerr K (2009) How does healthcare worker hand hygiene behaviour impact upon the transmission of MRSA between patients?: an analysis using a Monte Carlo model. *BMC Infectious Diseases* 2: 1-9.

Behague D, Tawiah C, Rosato M et al (2009) Evidence-based policy-making: The implications of globally-applicable research for context-specific problem-solving in developing countries. *Social Science and Medicine* 69:1539-1546.

Bell A & Garrett P (1998) *Approaches to Media Discourse*. Oxford: Wiley-Blackwell.

Bendall E (1976) Learning for reality. *Journal of Advanced Nursing* 1: 3-9.

Berkenkotter C & Huckin T (1995) *Genre Knowledge in Disciplinary Communication: Cognition. Culture/Power*. Lawrence Erlbaum Associates. Hillsdale: NJ.

Best J (2008) *Damned Lies and Statistics: Untangling Numbers from the Media, Politicians and Activists*. California: University of California Press.

Bhaiji Y (2008) *Network Security Technologies and Solutions*. CISCO Press.

Biber D (2006) *University Language: A Corpus Based Study of Spoken and Written Registers*. Amsterdam: John Benjamins Publishing.

Biber D, Connor U & Upton T (2007) *Discourse on the Move: Using Corpus Analysis to Describe Discourse Structure*. Amsterdam: John Benjamins Publishing.

Biber D, Conrad S & Leech G (2002) *Longman Student Grammar of Spoken and Written English*. Pearson Education ESL.

Biddle C & Shah J (2012) Quantification of anaesthesia providers' hand hygiene in a busy metropolitan operating room: what would Semmelweis think? *American Journal of Infection Control* 40: 756-759.

Birenbaum-Carmeli D, Banerjee A & Taylor S (2006) All in the family: Media presentations of family assisted suicide in Britain. *Social Science and Medicine* 63: 2153-2164.

Bitchener J & Basturkmen H (2006). Perceptions of the difficulties of postgraduate L2 thesis students writing the discussion section. *Journal of English for Academic Purposes* 5: 4-18.

Bissell P, May C & Noyce P (2004) From compliance to concordance: barriers to accomplishing a re-framed model of health care interactions. *Social Science and Medicine* 58: 851-862.

Bissonnette J (2008) Adherence: a concept analysis. *Journal of Advanced Nursing* 63: 634–643.

Blackledge A (2005) *Discourse and Power in a Multilingual World*. Amsterdam: John Benjamins Publishing.

Blessing J, Forister J & Glenn J (2013) *Introduction to Research and Medical Literature for Health Professionals* (3rd edition). Burlington: Jones & Bartlett Learning.

Blommaert J (1999) The debate is open. In Blommaert J (ed) *Language Ideological Debates*. Berlin/New York: Mouton de Gruyter.

BMA News (2008) Anonymous letter, Invest to beat the bugs. *BMA News* 27.

Boogaerts M, Grealish L & Ransse K (2008) Policy and practice exploring tensions to develop practice. *Practice Development in Healthcare* 7: 49-57.

Borg M, Cookson B, Gu'rc D et al (2008) Infection control and antibiotic stewardship practices reported by south-eastern Mediterranean hospitals collaborating in the ARMed project. *Journal of Hospital Infection* 70: 228-234.

Boswell C & Cannon S (2011) *Introduction to Nursing Research: An Evidence-Based Practice Approach* (2nd edition). Sudbury, MA: Jones & Bartlett Publishers.

Bourdieu P (1984) *Distinction: A Social Critique of the Judgement of Taste*. London: Routledge.

Bowen S & Zwi A (2005) Pathways to "Evidence-Informed" Policy and Practice: A Framework for Action. *PLoS Med* 2: 166-172.

Boyce J & Pittet D (2001) Semmelweis and the aetiology of puerperal sepsis 160 years on: an historical review. *Epidemiology of Infection* 136: 1-9.

Boyce J & Pittet D (2002) Guidelines for hand hygiene in healthcare settings: recommendations of the healthcare infection control practices advisory committee. *Infection Control and Hospital Epidemiology* (suppl 12), S3 – S40.

Boyce J (2008) Hand hygiene compliance monitoring: current perspectives from the USA. *Journal of Hospital Infection* 70: 2–7.

Boyce J (2013) Update on hand hygiene. *American Journal of Infection Control* 41: 94-96.

Boyce T, Murray E & Holmes A (2009) What are the drivers of the UK media coverage of meticilin resistant *Staphylococcus aureus*, the inter-relationships and relative influences. *Journal of Hospital Infection* 73: 400-407.

Brannigan E, Murray E & Holmes A (2009) Where does infection control fit into a hospital management structure? *Journal of Hospital Infection* 73: 392-396.

Brighton P & Foy D (2007) *News Values*. London: Sage.

Brinn T & Jones M (2008) The composition of editorial boards in accounting: a UK perspective. *Accounting, Auditing & Accountability Journal* 21: 5-35.

Broadfoot K, Deetz S & Anderson D (2004) *Multi-Leveled, multi-method approaches to organizational discourse*. In Grant D et al (ed): *The handbook of organizational discourse* 193-212. London: Sage.

Broemeling L (2007) Studies in the history of probability and statistics: Semmelweis and cholera fever. A statistical analysis 147 years later: <http://ebookbrowse.com/semmelweis-pdf-d13713232>

Brooks D & Herbert L (2006) Gender, race and media representation. *Gender and Communication in Mediated Contexts* 5: 297-317.

Brown B & Crawford P (2003) The clinical governance of the soul: deep management and the self regulating subject in integrated community mental health teams. *Social Science and Medicine* 56: 67-81.

Brown B & Crawford P (2009) Post antibiotic apocalypse?: discourses of mutation in narratives of MRSA Post antibiotic apocalypse? *Sociology of Health and Illness* 31 508–524.

Brown B & Crawford P, Nerlich B & Koteyko N (2008) The habitus of hygiene: Discourses of cleanliness and infection control in nursing work. *Social Science & Medicine* 67: 1047–1055.

Brown B, Nerlich B, Crawford P et al (2009) Hygiene and Biosecurity: The Language and Politics of Risk in an Era of Emerging Infectious Diseases. *Sociology Compass* 2/6: 1–13.

Brown C & Lilford R (2009) Should the UK's government deep cleaning of hospitals programme have been evaluated. *Journal of Infection Prevention* 10: 143-147.

Bryce E, Copes R, Gamage B et al (2008) Staff perception and institutional reporting: two views of infection control compliance in British Columbia and Ontario three years after an outbreak of severe acute respiratory syndrome. *Journal of Hospital Infection* 69: 169-176.

Bryman A (2008) *Social Research Methods* (3rd edition). New York: Oxford University Press.

Buresh B & Gordon S (2006) *From silence to voice: What nurses know and must communicate to the public* (2nd edition). Toronto, Ontario, Canada: Canadian Nurses Association.

Burnett E (2009) Innovative infection prevention and control teaching for nursing students: a personal reflection. *Journal of Infection Prevention* 10: 204-210.

Burr V (2003) *Social Constructionism* (2nd edition). New York: Routledge.

Bynum B (2001) Hospitalism. *The Lancet* 357: 1372.

Calder P (2011) More citations but a fall in impact factor. *British Journal of Nutrition* 106: 789-792.

Cambridge University Press (2009) *Cambridge Academic Content Dictionary*.

Campbell E (2002) The rhetorical language of numbers: the politics of criminal statistics. *Radical Statistics Group*:
<http://www.radstats.org.uk/no075/campbell.htm>.

Campbell N (1998) *Writing Effective Policies and Procedures: A Step by Step Resource for Clear Communication*. AMACOM, a division of American Management Association.

Cantrell D, Shamiriz O, Cohen M et al (2009) Hand Hygiene compliance by physicians marked heterogeneity due to local culture. *American Journal of Infection Control* 37: 301-305.

Cantrell S (2008) Hand hygiene formula: 2 clean hands 4 good health. *Healthcare Purchasing News*; November 1.

Cardo D, Dennehy P, Halverson P et al (2010) Moving toward elimination of healthcare associated infections: A call to action. *Infection Control and Hospital Epidemiology* 31: 1101-1105.

Carney M (2006) *Health Service Management: Culture, Consensus & the Middle Manager*. Cork: Oak Trees Press.

Caulfield H (2005) *Vital Notes for Nurses: Accountability*. Oxford: Wiley-Blackwell.

Central Manchester University Hospital (2013):

<http://www.cmft.nhs.uk/media/603473/infection%20prevention%20and%20control%20report%202013.pdf> Accessed January 2013.

Chambers R, Boath E & Rogers D (2007) *Clinical Effectiveness and Clinical Governance Made Easy* (4th edition). Radcliffe: Oxford.

Chan J & Chan J (2000) Medicine for the millennium: the challenge of postmodernism. *MJA* 172: 332-334.

Chan P Dipper A, Kelsey P et al (2010) Newspaper reporting of meticillin-resistant *Staphylococcus aureus* and 'the dirty hospital' *Journal of Hospital Infection* 75: 318-322.

Chaudhuri A (1993) Infection control in hospitals: has its quality-enhancing and cost effective role been appreciated. *Journal of Hospital Infection* 25: 1-6.

Cheek J (2004) At the margins? Discourse analysis and qualitative research. *Qualitative Health Research* 14: 1140-1150.

Cheng S, Kuo C & Kuo C (2012) Research article title in applied linguistics. *Journal of Academic Language and Learning* 6: 1-14.

Chittleborough C, Nicholson A, Basker E, et al (2012) Factors influencing hand washing behaviour in primary schools: process evaluation within a randomized controlled trial. *Health Education Research* 27: 1055-1068.

Chou T, Kerridge J, Kulkarni M et al (2010) Changing the culture of hand hygiene compliance using a bundle that includes a violation letter. *American Journal of Infection Control* 38: 575-578.

Chou D, Achan P & Ramachandran M (2012) The World Health Organisations 5 moments of hand hygiene: the scientific foundation. *Journal of Bone Joint Surgery* 94: 441-445.

Clarke J & Everest M (2006) Cancer in the mass print media: Fear, uncertainty and the medical model. *Social Science and Medicine* 62: 2591-2600.

Cleaver F & Franks T (2008) Distilling or diluting: negotiating the water research-policy interface. *Water Alternatives* 1: 157-177.

Coalter F (2007) *A Wider Social Role for Sport: Who's Keeping the Score?* London: Routledge.

Coetzer A (2009) Hedging in occupational therapy research texts. *South African Journal of Occupational Therapy* 39: 16-26.

Cohen W & Johnson R (2005) *Filth: Dirt, Disgust and Modern Life.* *Minnesota Press* 39: 17-26.

Coker R, Atun R, & McKee M (2008) *Health Systems and the Challenge of Communicable Diseases; Experiences from Europe and Latin America.* UK: Open University Press.

Cole M (2005) Using a motivational paradigm to improve handwashing compliance. *Nurse Education in Practice* 6: 156-162.

Cole M (2007) Should nurses take a pragmatic approach to hand hygiene? *Nursing Times* 103: 32-33.

Cole M (2008a) The true cost of healthcare associated infection. *Journal of Orthopaedic Nursing* 12: 136-138.

Cole M (2008b) HCAI challenging the assumptions. *British Journal of Healthcare Management* 14: 376-381.

Cole M (2008c) An honest account or fuel for the fire? *British Journal of Nursing* 17: 412.

Cole M (2009a) Exploring the hand hygiene competence of student nurses: A case of flawed self assessment. *Nurse Education Today* 29: 380-388.

Cole M (2009b) Storytelling: It's place in place in infection control education. *Journal of Infection Prevention* 10: 154-158.

Cole M (2010) Cinderella service to health service priority: infection control in the UK. *British Journal of Nursing* 19: 116 - 120.

Cole M (2011) Patient safety and healthcare associated infection. *British Journal of Nursing* 20: 1122-1126.

Cole P & Harcup T (2010) *Newspaper Journalism*. London: Sage

Collins P, Abelson J, Pyman H et al (2006) Are we expecting too much from the print media? An analysis of newspaper coverage of the 2002 Canadian healthcare reform debate. *Social Science and Medicine* 63: 89-102.

Collins J & Hughes D (2011) The silent killer in media stories: Representations of hypertension as health risk factor in French-language Canadian newspapers. *Health, Risk & Society* 13: 577-592.

Collins English Dictionary: Home Edition (2009) Glasgow: Harper-Collins.

Committee of Public Accounts (2000) Press release by House of Commons. London.

Committee of Public Accounts (2005) 24th report 2004-05.

Cook D, Beckman T & Bordage G (2007) A systematic review of titles and abstracts of experimental studies in medical education: many informative elements missing. *Medical Education* 41: 1074–1081.

Cook C, Brismee J, Courtney C et al (2010) Publishing a scientific manuscript on manual therapy. *Journal of Manual Manipulative Therapy* 17: 141-147.

Cooke H (2006) The surveillance of nursing standards: An organisational case study. *International Journal of Nursing Studies* 43: 975–984.

Cookson B, Mathai E, Allegranzi B et al (2009) Comparison of national and subnational guidelines for hand hygiene. *Journal of Hospital Infection* 72: 202-210.

Cooper B, Medley G & Scott G (1999) Preliminary analysis of the transmission dynamics of nosocomial infections: stochastic and management effects. *Journal of Hospital Infection* 43: 131-147.

Coppage C (1961) Handwashing in patient care: United States Public Health Service.

Costers M, Viseur N, Catry B & Simon A (2012) Four multifaceted countrywide campaigns to promote hand hygiene in Belgian hospitals between 2005 and 2011: impact on compliance to hand hygiene. *European Surveillance* 3: 17-18.

Cotter C (2010) *News Talk: Investigating the Language of Journalism*. New York: Cambridge University Press.

Crawford P & Brown B (2008) Soft authority: ecologies of infection management in the working lives of modern matrons and infection control staff. *Sociology of Health and Illness* 30: 756-771.

Crawford P, Brown B, Neilich B & Koteyko N (2008) The “moral careers” of microbes and the rise of matrons: An analysis of methicillin-resistant *Staphylococcus aureus* 1995-2006. *Health Risk and Society* 10: 331-347.

Creamer E & Humphries H (2008) The contribution of beds to healthcare associated infection: the importance of adequate decontamination. *Journal of Hospital Infection* 69: 8-23.

Creedon S (2005) Healthcare workers' hand decontamination practices: compliance with recommended guidelines *Journal of Advanced Nursing* 51: 208-216.

Creswell J (2009) *Research Design: Qualitative, Quantitative and Mixed Methods Approach* (3rd edition). California: Sage.

Cunningham J, Kernohan W & Rush T (2006) Bed occupancy, turnover intervals and MRSA rates in English hospitals. *British Journal of Nursing* 15: 656-660.

Currie E & Maynard A (1989) The economics of hospital acquired infection. *Centre for Health Economics* 56: 28-29.

Curtis V, Danquah L & Aunger R (2009) Planned, motivated and habitual hygiene behaviour: an eleven country review. *Health Education Research* 24: 655-673.

Daily Mail (2013) @<http://hanlonblog.dailymail.co.uk/2012/12/first-get-rid-of-the-nursing-stations-.html>

Dancer S (2010a) Control of Transmission of Infection in Hospitals Requires More than Clean Hands. *Infection Control and Hospital Epidemiology* 31: 958-960.

Dancer S (2010b) Pants, policies and paranoia. *Journal of Hospital Infection* 74: 10-15.

Dancer S (2009) The role of environmental cleaning in the control of hospital acquired infection. *Journal of Hospital Infection* 73: 378-385.

Dancer S (2004) How do we assess hospital cleaning? A proposal for microbiological standards for surface hygiene in hospitals. *Journal of Hospital Infection* 56: 10-15.

Darbyshire P (2008) Never mind the quality, feel the width: the nonsense of 'quality', 'excellence', and 'audit' in education, health and research. *Collegian: Journal of the Royal College of Nursing Australia* 15: 35-41.

Davis L (2010) Impact Factor: What is it? Do we need it. *Journal of the Association for Vascular Access* 16: 106.

Davies C (2004) Political leadership and the politics of nursing. *Journal of Nursing Management* 12: 235-241.

Davies H, Nutley S & Mannion R (2000) Organisational culture and quality of health care. *Quality in Health Care* 9: 111-119.

Davies H, Nutley S & Smith P (2000) What Works? *Evidence-based Policy and Practice in Public Services*. London: Policy Press.

Davies N (2008) *Flat Earth News*. London: Chato & Windus.

De Bono S, Heling G & Borg M (2014) Organizational culture and its implications for infection prevention and control in healthcare institutions. *Journal of Hospital Infection* 86: 1-6.

Dedrick R, Sikowitz-Cochran R & Cunningham C (2007). Hand hygiene practices after brief encounters with patients: An important opportunity for prevention. *Infection Control and Hospital Epidemiology* 28: 341-345.

Dekker S (2011) *Patient Safety: A Human Factors Approach*. Florida: CRC Press.

Dekker S (2012) *Just Culture* (2nd edition). Hampshire: Ashgate.

Delaney L & Gunderman R (2008) Hand Hygiene. *Radiology* 246: 15-19.

Dehn T (2008) Bare below the elbows – informed common sense? *Annals of Royal College of Surgeons of England* 90: 128–129.

Denyer S, Hodges N & Gorman S (2011) *Hugo & Russell's Pharmaceutical Microbiology* (8th edition). West Sussex: Wiley-Blackwell.

Denzin N & Lincoln Y (2008) *Strategies of Qualitative Inquiry* (3rd edition). California: Sage.

DePaola L & Fried J (2007) Hand hygiene: the most effective way to prevent the spread of disease. *Access* 9: 22- 28.

De-Waard A, Breure L, Kircz G & Van Oostendorp H. (2006) Modeling rhetoric in scientific publications. *International Conference on Multidisciplinary Information Sciences and Technologies, InSciT2006*.

De-Wandel D, Maes L, Labeau S et al (2010) Behavioural determinant of hand hygiene compliance in intensive care units. *American Journal of Critical Care* 19: 230-239.

De-Writz C & Kitson D (2007) *A Sense of English: Conditional and Modal Verbs*. Luxan.

Department of Health (1995) *Hospital Infection Control: Guidance on the control of infection in hospital*. DH/PHLS: London.

Department of Health (1997) *The New NHS: Modern Dependable*. DH: London.

Department of Health (1998) *A first class service: Quality in the new NHS*. DH: London.

Department of Health (2000) *NHS Plan: Clean Hospitals*. DH: London.

Department of Health (2003a) *Winning Ways: Working Together to Reduce HCAI*. DH: London:

Department of Health (2003b) *Getting ahead of the curve: a strategy for combating infectious diseases*. DH: London.

Department of Health (2004a) *Towards cleaner hospitals and lower rates of infection: A summary of action*. Available at: www.dh.gov.uk (accessed 27 July 2011).

Department of Health (2004b) *NHS Cleaning Manual 2004*. DH: London.

Department of Health (2005) *Full Regulatory Impact Assessment*. DH: London.

Department of Health (2006a) *Going further, faster: Implementing the saving lives delivery programme, sustainable change for cleaner, safer care*. DH: London.

Department of Health (2006b) *Essential steps to safe, clean, care: Reducing health care associated infection*. DH: London.

Department of Health. (2007a) *Saving lives: Reducing infection, delivering clean and safe care*. DH: London.

Department of Health (2007b) *Uniforms and workwear: an evidence base for developing local policy*. DH: London.

Department of Health (2008a) *Clean, safe care: reducing infection and saving lives* DH: London.

Department of Health (2008b) *Health and Social Care: Code of practice for the prevention and control of healthcare associated infections*. DH: London.

Department of Health (2008c) *Board to ward how to embed a culture of HCAI prevention in acute trusts*. DH: London.

Department of Health (2012) *The operating framework*. DH: London.

Develotte C and Rechniewski E (2004) Discourse analysis of newspaper headlines: a methodological framework for research into national representations (<http://wjfms.ncl.ac.uk/titles.htm> accessed April 2012).

Dew K (2007) A health researcher's guide to qualitative methodologies. *Australian and New Zealand Journal of Public Health* 31: 433-437.

Dhar S, Tansek R & Toftey E et al (2010) Observer bias in hand hygiene compliance reporting. *Infection Control and hospital Epidemiology* 8: 869-870.

Dimond B (2005) *Legal Aspects of Nursing* (4th edition). Essex: Pearson Education.

Diniz L (2005) Comparative review: *TEXTSTAT 2.5*, *ANTCONC 3.0*, and *COMPLEAT LEXICAL TUTOR 4.0*. *Language Learning & Technology* 9: 22-27.

Ditchburn I (2006). Should doctors wear ties? *Journal of Hospital Infection* 63: 227-228.

Donelan K, Buerhaus P, DesRoches C et al (2008) Public perceptions of nursing careers: The influence of the media and nursing shortages. *Nursing Economics* 26: 143-165.

Douglas M (1966) *Purity and Danger: An Analysis of Concepts of Pollution and Taboo*. London: Routledge.

Dry S & Leach M (2010) *Epidemics: Science, Governance and Social Justice*. Oxon: Earthscan.

Drummond M (1991) Evaluation of the costs and benefits of reducing hospital infection. *Journal of Hospital Infection* 18: 85-93.

Dummond H (1993) *Power and Involvement in Organisations: An Empirical Examination of Etzioni's Compliance Theory*. Leeds: Ashgate.

Dudley-Evans T (1994). *Genre Analysis: an approach to text analysis for ESP*. Coulthard M (ed) *Advances in Written Text Analysis*. London: Routledge.

Duerden B (2007) Confronting infection in the English National Health Service. *Journal of Hospital Infection* 65: 23-26.

Duerden B (2008) Tackling healthcare associated infections in the NHS – progress so far. *British Journal of Infection Control* 9: 4-7.

Duerden B (2009) Responsibility for managing healthcare associated infection: where does the buck stop? *Journal of Hospital Infection* 73: 414-417.

Earl M, Jackson M & Rickman L (2001) Improved rates of compliance with hand antisepsis guidelines: a three-phase observational study. *American Journal of Nursing* 101: 26–33.

Eckmanns T, Behnke M, Gastmeier P et al (2006a) Compliance with antiseptic hand rub use in intensive care units: The Hawthorne Effect. *Infection Control and Hospital Epidemiology* 27: 931-934.

Edgcumbe D (2009) Patients' perceptions of hospital cleanliness are correlated with rates of methicillin-resistant *Staphylococcus aureus* bacteraemia. *Journal of Hospital Infection* 71: 99-101.

Edgeworth J (2011) Has decolonization played a central role in the decline in UK methicillin-resistant *Staphylococcus aureus* transmission? A focus on evidence from intensive care. *Journal Antimicrobial Chemotherapy* 66: 41-47.

Edmund M (2010) Don't shoot the messenger: Downside of 'zero-tolerance' approach to infections. *Hospital Infection Control* 35: 61-72.

Ehrenkranz, J, MacIntyre A, Herbert R et al (2011) Control of Health Care-associated Infections (HAI): Winning Both the Battles and the War. *Journal of General Internal Medicine* 26: 340–2.

Eichelberger L (2007) SARS and New York's Chinatown: the politics of risk and blame during an epidemic of fear. *Social Science and Medicine* 65: 1284-1295.

Emmerson A, Enstone J, Griffin M et al (1996). The second national prevalence survey of infection in hospitals – overview of results. *Journal of Hospital Infection* 32: 175-190.

Erasmus V, Brouwer W & van Beeck E et al (2009) A qualitative exploration of reasons for poor hand hygiene among workers: lack of positive role models and of convincing evidence that that hand hygiene prevents cross infection. *Infection Control and Hospital Epidemiology* 30: 415-419.

Erasmus, V, Daha T & Brug H (2010) Systematic Review of Studies on Compliance with Hand Hygiene Guidelines in Hospital Care. *Infection Control and Hospital Epidemiology* 31: 283-294.

Etzioni A (1975). *A comprehensive analysis of complex organizations*. New York: Free Press.

Etzioni A (1997) *Modern Organisations*. Englewood Cliffs. New York: Prentice Hall.

Evangelista L (1999) Compliance: a concept analysis. *Nursing Forum* 34: 5-11.

Fahy K (2008) Writing for publication: the basics. *Women and Birth* 21: 86-91.

Fairclough N (1992) *Discourse and Social Change*. Cambridge: Polity Press.

Fairclough N (1995) *Critical Discourse Analysis*. Boston: Addison Wesley.

Fairclough N (2003) *Analysing Discourse: Textual Analysis for Social Research*. London: Routledge.

Fairclough N (2006) *Language and Globalization*. London: Routledge.

Fairclough N & Wodak R (1997) *Critical Discourse Analysis*. In van Dijk T (ed) *Discourse as Social Interaction 2*: London: Sage.

Fakhri A (2004) Rhetorical properties of Arabic research article introductions. *Journal of Pragmatics* 36: 1119-1138.

Farkas D (1999) The logical and rhetorical construction of procedural discourse. *Technical Communication: First Quarter* 42-54.

Farrington M & Pascoe G (2001) Risk management and infection control – time to get our priorities right in the UK. *Journal of Hospital Infection* 47: 19-24.

Farrington R, Rabindran J, Crocker G et al (2010) “Bare below the elbow” and quality of hand washing: A randomized comparison study. *Journal of Hospital Infection* 74: 86-88.

Farrow T & O'Brien A (2005) Discourse analysis of newspaper coverage of the 2001/2002 Canterbury, New Zealand mental health nurses' strike. *International Journal of Mental Health Nursing* 14: 187-195.

Fauci A (2001) Infectious Diseases: Considerations for the 21st Century. *Clinical Infectious Disease* 32: 675-685.

Fellowes C, Kerstein R & Clark J (2006) MRSA on tourniquets and keyboards, *Journal of Hospital Infection* 64: 86-88.

Ferguson C (2008) Does the use of alcohol-based hand rubs reduce the incidence of hospital acquired infection? Retrieved December 2012: <http://www.bestbets.org/bets/bet.php?id=1563>.

Fischer F (2003) *Reframing Public Policy: Discursive Politics and Deliberative Practices*. Oxford: Oxford University Press.

Fletcher K (2007) Image: Changing how women nurses think about themselves. Literature review. *Journal of Advanced Nursing* 58: 207-215.

Fletcher M (2009) Hand hygiene and infection in hospitals: what do the public know; what should the public know? *Journal of Hospital Infection* 73: 397-399.

Flowerdew J (1999). Problems in writing for scholarly publication in English: The case of Hong Kong. *Journal of Second Language Writing* 8: 243-264.

Flowerdew L (2004) *The argument for using English specialised corpora to understand academic and professional language*. In Connor U & Upton T (ed) *Discourse in the Profession* 11-33. North America: John Benjamins.

Flynn R (2002) Clinical governance and governmentality, *Health, Risk & Society* 4: 155-173.

Forrester L, Bryce E & Media A (2010) Clean Hands for Life: results of a large, multicentre, multifaceted, social marketing hand-hygiene campaign. *Journal of Hospital Infection* 74: 225-231.

Foucault M (1980) Two lectures. In Gordon C (ed) *Power/knowledge, selected interviews and other writings 1972–1977*. London: Harvester Press.

Fowler R (1985) Power: van Dijk T (ed) In *Handbook of Discourse Analysis* 4. London: Academic Press.

Fowler R (1991) *Language in the News. Discourse and Ideology in the Press*. London: Routledge.

Fraise A (2007) Decontamination of the environment. *Journal of Hospital Infection* 65: 58-59.

Francis G (1995) *Corpus-driven grammar and its relevance to the learning of English in a cross-cultural situation*. In Pakir A (ed) *English in Education: Multicultural Perspectives*. Singapore: Unipress.

Frazer V (2010) Don't shoot the messenger: Downside of 'zero-tolerance' approach to infections. *Hospital Infection Control* 35: 61-72.

Freedom of Information Act (2000) Office of Public Sector Information. Crown Copyright.

Freeman S (2011) Charge nurses' perception of infection control. *Mental Health Practice* 14: 26-29.

Frieberg F & Scherman M (2005) Can a teaching and learning perspective deepen understanding of the concept of compliance? A theoretical discussion. *Scandinavian Journal of Caring Sciences* 19: 274-279.

Frieberg A & Carson W (2010) The Limits to Evidence-Based Policy: Evidence, Emotion and Criminal Justice. *The Australian Journal of Public Administration* 69: 152–156.

Fries J, Segre A, Thomas G et al (2012) Hand Hygiene via Human Observers: How Should We Be Sampling? *Infection Control and Hospital Epidemiology* 33: 689-695.

Fuller C, Slade R, Charlett A et al (2006) National observation study of the effectiveness of the Cleanyourhands campaign (NOSEC). *Journal of Hospital Infection* 64 (Suppl 1):S53.

Gabrielatos C (2014) @ <http://www.gabrielatos.com/CLDA-Biblio.htm>

Gallagher A (2010) Whistleblowing: what influences nurses on whether to report poor practice? *Nursing Times* 106: 22-25.

Galtung J & Ruge M (1965) The structure of foreign news. *The Journal of Peace Research* 1: 64-90.

Gardner A, Stamp M, Scheckler W et al (1962) The infection control sister. *Lancet* 6: 710-71.

Garner J & Favero M (1985) CDC guideline for handwashing and hospital environmental control. *Infection Control* 7: 231-243.

- Garner J (1996) Hospital infection control practices advisory committee. Guideline for isolation precautions in hospitals. *Infection Control and Hospital Epidemiology* 17, 53-80.
- Garrett L (2005) The next pandemic. *Foreign Affairs* 84: 3-22.
- Gawande A (2008) *Complications: A Surgeon's Notes on an Imperfect Science* (2nd Edition). Surrey: Profile Books.
- Gilbert T (2003) Exploring the dynamics of power: A Foucauldian analysis of care planning in learning disabilities service. *Nursing Inquiry* 10: 37-46
- Gilens M (1999). *Why Americans Hate Welfare: Race, Media, and the Politics of Antipoverty Policy*. Chicago: University of Chicago Press.
- Gilles I, Bangerter A & Clemence A (2013) Collective symbolic coping with disease threat and othering: A case study of avian influenza *British Journal of Social Psychology* 52: 83-10.
- Gill R (2007) *Gender and the Media*. Cambridge: Polity Press
- Gill J, Kumar R, Todd J et al (2006) Methicillin-resistant *Staphylococcus aureus*: Awareness and perceptions. *Journal of Hospital Infection* 62: 333-337.
- Gillett K (2012) A critical discourse analysis of British national newspaper representations of the academic level of nurse education: too clever for our own good? *Nursing Inquiry* 19: 297-307
- Glynn A, Ward V, Wilson J et al (1997) *Hospital-acquired Infection: Surveillance, Policies and Practice*. Public Health Laboratory Service: London.
- Gooberman-Hill R, French M, Dieppe P & Hawker G (2009) Expressing Pain and Fatigue: A New Method of Analysis to Explore Differences in Osteoarthritis Experience. *Arthritis & Rheumatism* 61: 353-360

Goldmann D (1986) Nosocomial infection control in the United States of America. *Journal of Hospital Infection* 8: 116-9.

Goldmann D (2006) System failure versus personal accountability: The Case for Clean Hands. *New England Journal Medicine* 355: 121-123.

Gordon S & Nelson S (2005) An end to angels. *American Journal of Nursing* 105: 62-69.

Gordon N (2008) Organisational change and redesign in the NHS: Undesirable negative consequences at the coalface. *Mental Health Practice* 11: 31-34.

Gould D (2005) Infection control: the environment and service organisation. *Nursing Standard* 20: 57-65.

Gould D, Hewitt-Taylor J, Drey N et al (2007a) CleanYourHandCampaign: critiquing policy and evidence base. *Journal of Hospital Infection* 65: 95-101.

Gould D, Chudleigh J, Drey N et al (2007b) Measuring handwashing performance in health service audits and research studies. *Journal of Hospital Infection* 66: 109-115.

Gould D & Brooker C (2008) *Infection Prevention and Control: Applied Microbiology for Healthcare*. New York: Palgrave Macmillan.

Gould D & Drey N (2008) Hand hygiene technique. *Nursing Standard* 6: 42-46.

Gould D, Drey N, Moralejo D et al (2008) Interventions to improve hand hygiene compliance in patient care. *Journal of Hospital Infection* 68: 193-202.

Gould D, Drey N & Millar M (2009) Patients and public knowledge, sources of information and perceptions about health care associated infection. *Journal of Hospital Infection* 72: 1-8.

Gould D (2010a) Auditing hand hygiene practice. *Nursing Standard* 25: 50-56.

Gould D (2010b) Hand hygiene guidance works best when it can be adapted to local needs. *Nursing Standard* 25: 32.

Gould D (2010c) Measurement and interpretation of hand hygiene compliance rates. *Journal of Hospital Infection* 74: 84.

Gould D, Drey N & Creedon S (2011) Routine hand hygiene audit by direct observation: has nemesis arrived? *Journal of Hospital Infection* 77: 290-293.

Gould D, Moralejo D, Drey N & Chudleigh J (2011). Interventions to improve hand hygiene compliance in patient care. *Cochrane Database of Systematic Reviews* 8 <http://openaccess.city.ac.uk/360/>

Gould D & Drey N (2013) Types of interventions used to improve hand hygiene compliance and prevent healthcare associated infection. *Journal of Infection Prevention* 14: 88-93.

Gramsci A (1971) *Selections from the Prison Notebooks of Antonio Gramsci*. New York: International Publishers.

Greenhalgh T & Russell J (2006) Reframing evidence synthesis as rhetorical action in the policy making drama. *Health Policy* 1: 34-42.

Greenhalgh T & Russell J (2009) Evidence based policy making: A critique. *Perspectives in Biology and Medicine* 52: 304-318.

Green D, Wigglesworth N, Keegan T & Wilcox M (2006) Does Hospital Cleanliness Correlate with Meticillin-Resistant Staphylococcus Aureus Bacteraemia Rates? *Journal of Hospital Infection* 64: 184-186.

Gries S (2009) What is corpus linguistics. *Language and Linguistic Compass* 3: 1225-1241.

Griffiths P, Renz A & Rafferty A (2008) *The impact on organisation and management factors on infection control in hospitals: a scoping review*. Kings College London.

- Gwyn R (2002) *Communication Health and Illness*. London: Sage.
- Habibi P (2008) Genre analysis of research article introductions across ESP. *Psycholinguistics and Sociolinguistics IJAL*11: 87-111.
- Habibzadeh F & Yadollahie M (2010). Are shorter article titles more attractive for citations? cross-sectional study of 22 scientific journals. *Croatian Medical Journal* 51: 165-170.
- Hagan M (2004) Research paper titles in literature, linguistics and science: Dimensions of attraction. *Journal of Pragmatics* 36: 293-317.
- Haigh A (2008) Editorial: Embracing the theory/practice gap. *Journal of Clinical Nursing* 18: 1-2.
- Halan Y (2009) *Effective Editing: A Practical Handbook to Developing Good Editing Skills*. Sterling Publishers: New Delhi.
- Hale A (2003) Management of safety rules: The case of railways. *Safety Science Monitor* 7: 1-11.
- Haley R, Culver D, White J et al (1985a) The nationwide nosocomial infection rate. *American Journal of Epidemiology* 121: 159-167.
- Haley R, Culver D, White J et al (1985b) The efficiency of infection surveillance and control programmes in preventing nosocomial infection in US hospitals. *American Journal of Epidemiology* 121: 182-205.
- Hanna D, Davies M & Dempster M (2009) Psychological processes underlying nurses' handwashing behaviour *Journal of Infection Prevention* 10: 90-95.
- Harbarth S, Albrich W & Pittet D (2004) Semmelweis' legacy: insights from an international survey among 265,000 students in 32 countries. *International Journal of Hygiene and Environmental Health* 207: 481-485.
- Harcup T & O'Neil D (2001) What is News? Galtung and Ruge Revisited. *Journalism Studies* 2: 277.

Hardin G & Noonan D (1998) *Managing the commons* (2nd ed). Bloomington: Indiana University Press.

Hartley J (2005) To attract or inform. What are titles for? *Journal of Technical Writing and Communication* 35: 203-213.

Hartley J (2007a) Colonic titles. *The Journal of the European Medical Writers Association* 16: 147-149.

Hartley J (2007b). There's more to the title than meets the eye: Exploring the possibilities. *Journal of Technical Writing and Communication* 37: 95–101.

Hartley J (2012) New ways of making academic articles easier to read. *International Journal of Health and Clinical Psychology* 12: 143-160.

Harvey J & Koyeyko N (2013) *Exploring Health Communication Language in Action*. Oxon: Routledge.

Harwood N (2005) Nowhere has anyone attempted . . . In this article I aim to do just that. A corpus-based study of self-promotional I and we in academic writing across four disciplines. *Journal of Pragmatics* 37: 1207–1231.

Haas J (2006) Measurement of infection control department performance: State of the science. *American Journal of Infection Control* 34: 543-549.

Haas J & Larson E (2007) Measurement of compliance with hand hygiene. *Journal of Hospital Infection* 66: 6-14.

Haas J & Larson E (2008) Compliance with hand hygiene guidelines: where are we in 2008? *American Journal of Nursing* 108: 40-44.

Hatch M & Cunliffe A (2009) *Organisation Theory: Modern, Symbolic, and Postmodern Perspectives* (2nd edition). Oxon: Oxford University Press.

Haukelid K (2008) Theories of (safety) culture revisited – an anthropological approach. *Safety Science* 26: 413–426.

Hay A (2006) Audit in infection control. *Journal of Hospital Infection* 62: 270-277.

Hays J (2010) Eight Recommendations for Writing Titles of Scientific Manuscripts. *Public Health Nursing* 27:101–103.

Head M, Fitchett J & Cooke M (2013) UK Investment in global infectious disease research 1997-2010. *Lancet Infectious Diseases* 13, 55-64.

Healthcare Commission (2007) *Healthcare associated infection: what else can the NHS do?* Healthcare Commission: London.

Health Protection Agency (2009) *Surveillance of healthcare associated infections report*. London: HPA.

Health Service Executive (2012) *HSE Procedure for developing Policies, Procedures, Protocols and Guidelines*. OQRO29. No 3.

Heffernan C, Misturelli F & Thomson K (2011) The representation of highly pathogenic avian influenza in the Chinese media. *Health, Risk & Society* 13: 603-620.

Herring A & Lockerbie S (2010) *The coming plague of avian influenza*. In: *Plagues and Epidemics: Infected Spaces Past and Present*. Oxford: Berg Publishers.

Hellqvist B (2010) Referencing in the humanities and its implications for citation analysis. *Journal of the American Society for Information Science and Technology* 61: 310–318.

Hengi T & Gould M (2002) Rules of thumb for writing research articles. http://www.itc.nl/library/papers/hengl_rules.pdf

Higgins A & Hannan M (2013) Improved hand hygiene technique and compliance in healthcare workers using gaming technology. *Journal of Hospital Infection* 84: 32-37.

Higgins I (2010) Doing clinical research: The challenges and benefits. *Contemporary Nurse* 35: 171-181.

Hilton S, Hunt K, Langan M et al (2010) Newspaper media representations on the introduction of HPV vaccination programme for cervical preventions in the UK. *Social Science and Medicine* 70: 942-950.

Hoeyer K & Lynoe N (2009) An organisations perspective on ethics as a form of regulation. *Medicine, Health Care and Philosophy* 12: 385-392.

Hofler L (2006) Learning from the best: The benefits of a structure health policy fellowship in developing nursing health policy leaders. *Policy, Politics, & Nursing Practice* 7:110-113.

Holloway I & Freshwater D (2007) *Narrative Research in Nursing*. Oxon: Wiley-Blackwell.

Holly C, Salmond S & Saimbert M (2012) *Comprehensive Systematic Review for Advanced Nursing*. New York: Springer.

Holmes C (2002) Academics and practitioners: nurses as intellectuals. *Nursing Inquiry* 9: 73–83.

Homerton University Hospital (2012): http://www.homerton.nhs.uk/uploaded_files/Patient_information/Infection%20Control/binder1_annual_report_201213.pdf accessed January 2013

Hooker C, Carter S & Davey H (2009) Writing the risk of cancer: Cancer risk in public policy. *Health Risk & Society* 11: 541-560.

Hopkins A (2011) Risk-management and rule-compliance: Decision-making in hazardous industries. *Safety Science* 49: 110-120.

Hopkins S, Shaw K & Simpson L (2011) *English National Point Prevalence Survey on Healthcare-associated Infections and Antimicrobial Use: Preliminary Data*. Health Protection Agency.

Horsfall J & Cleary M (2000) Discourse analysis of an “observation levels” nursing policy. *Journal of Advanced Nursing* 32: 1291-1297.

Hospital Infection Society (2007) The Third Prevalence Survey of Healthcare Associated Infections In Acute Hospitals 2006 - England [Summary of Preliminary Results 27th February 2007] Hospital Infection Society (HIS) & Infection Control Nurses Association (ICNA).

Howard A (1988) Infection control organization in hospitals in England and Wales, 1986: Report of a survey undertaken by a Hospital Infection Society Working Party. *Journal of Hospital Infection* 1: 183-191.

Huang T & Wu S (2008) Evaluation of a training programme on knowledge and compliance of nurse assistants’ hand hygiene in nursing homes. *Journal of Hospital Infection* 68: 164-170.

Huckin T (2002) *Critical Discourse Analysis and the Discourse of Condescension*. In Barton E & Stygall G (ed) *Discourse Studies in Composition*: New York: Hampton.

Huebner J, Frank U, Kappstein I et al (1989) Influence of architectural design on nosocomial infections in intensive care units: a prospective two year analysis. *Intensive Care Medicine* 15: 179-183.

Hughes J, Blackman H & McDonald E (2011) Involving service users in infection control practice. *Nursing Times* 107: 18-19.

Hughes R (2008) *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*. Rockville (MD).

Hui A & Stickley T (2007) Mental health and mental health service user perspectives on involvement: a discourse analysis. *Journal of Advanced Nursing* 59: 416-426.

Humphrey C & Owen D (2010) Debating the Power of Audit. <http://www.apira2013.org/past/apira1998/archives/pdfs/41.pdf>: accessed October 2014 .

Husain T, Michel G & Shiffman R (2009) The Yale guideline recommendation corpus: A representative sample of the knowledge content of guidelines. *International Journal of Medical Informatics* 78: 354-363.

Hyland K (1998) Writing without conviction? Hedging in science research articles. *Applied Linguistics* 17: 433-454.

Hyland K (2001) Humble servants of the discipline? Self mention in research article. *English for Specific Purposes* 20: 207-226.

Hyland K (2002) What do they mean? Questions in academic writing. *Text* 22: 529-577.

Hyland K (2005) Stance and engagement: a model of interaction in academic discourse. *Discourse Studies* 7: 173-192.

Hyland K (2009) *Academic Discourse*. London: Continuum.

Hyland K (2010) Constructing proximity: Relating to readers in popular and professional science. *Journal of English for Academic Purposes* 9: 116-127.

Hyland K & Salager-Meyer F (2008) Science writing. In Cronin B (ed) *Annual Review of Information Science and Technology* 42: 297-338.

Infection Control Nurses Association (2005) *Audit Tools for Measuring Infection Control Guidelines*. DH: London.

Ingram T (2009) Compliance: A Concept Analysis. *Nursing Forum* 44: 189-194.

Ioannidis J (2007) Limitations are not properly acknowledged in the scientific literature. *Journal of Clinical Epidemiology* 60: 324-329.

Iyengar S (1997) Overview: In Iyengar S & Reeves R (eds) *Do the media govern? Politicians, voters and reporters in America*. Richmond: Sage.

Jackowski M (2010) Writing Conclusions. *Radiologic Technology* 82: 98-99.

Jackson D, Haigh C & Watson R (2009) Editorial: Nurses and publications – the impact of the impact factor. *Journal of Clinical Nursing* 18: 2537–2538.

Jackson R & Cole M (2010b) Healthcare workers uniforms: roles, types and determining policy. *British Journal of Nursing* 19: 438-441.

Jacques T & Sebire N (2012) The impact of article titles on citation hits: an analysis of general and specialist medical journals. *The Journal of the Royal Society of Medicine Short Reports* 1: 2.

Jalilifar A (2010) Research Article Introductions: Sub-disciplinary variations in applied linguistics. *Journal of Social Sciences and Humanities* 2: 29-55.

Jamali H & Nikzad M (2011) Article title type and its relation with the number of downloads and citations, *Scientometrics* 88: 653-661.

Jarvis W (2007) The United States approach to strategies in the battle against healthcare-associated infections: transitioning from benchmarking to zero tolerance and clinician accountability. *Journal of Hospital Infection* 65: 3–9.

Jeanes A, Moore J, Nicol C et al (2012) Wristwatch use and hospital-acquired infection. *Journal of Hospital Infection* 74: 16-21.

Jenner E, Watson P, Miller L et al (2002) Explaining hand hygiene practice: an extended application of the Theory of Planned Behaviour. *Psychology, Health and Medicine* 7: 312-326.

Jenner E, Fletcher B, Watson P et al (2006) Discrepancy between self-reported and observed hand hygiene behaviour in healthcare professionals. *Journal of Hospital Infection* 63: 418-422.

Jenner E & Wilson J (2000) Educating the infection control team – past present and future. A British perspective. *Journal of Hospital Infection* 46: 96-105.

- Jinks A & Bradley E (2004) Angel, handmaiden, battleaxe or whore? A study which examines changes in newly recruited student nurses' attitudes to gender and nursing stereotypes. *Nurse Education Today* 24: 121–127.
- Johansson S (2008) Gossip sport and pretty girls, *Journalism Practice* 2: 402-413.
- Johnson A (2007) Johnson outlines new measures to tackle hospital bugs. DH: London.
- Joffe H (1998) Social Representation and the Aids Field. *Psychology in Society* (PINS) 24: 21-39.
- Joffe H (1999) *Risk and 'the Other'*. Cambridge: Cambridge University Press.
- Joffe H (2003) Risk: From perception to social representation *British Journal of Social Psychology* 42: 55–73.
- Joffe H & Haarhoff, G (2002) Representations of far-flung illnesses: The case of Ebola in Britain. *Social Science and Medicine* 54: 955–969.
- Joffe H, Washer P & Solberg C (2011) Public engagement with emerging infectious disease: The case of MRSA in Britain. *Psychology and Health* 26: 667–683.
- Joint Commission (2009) *Measuring hand hygiene adherence: overcoming the challenges*. The Joint Commission.
- Jonas K & Morton T (2012) *Restoring Civil Societies: The Psychology of Intervention and Engagement Following Crisis*. West Sussex: Wiley-Blackwell.
- Jones L (2013) Cleaning, HCAI and Public Confidence. Available at: <http://www.socialpartnershipforum.org/SiteCollectionDocuments/Cleaning%20HCAI%20and%20Public%20Confidence.pdf> accessed June 2013.

Jones H (2009) Policy making as discourse: a review of recent knowledge-to-policy literature. *A Joint IKM Emergent-ODI Working Paper 5*: 1-37.

Jones L (2009) *Cleaning, HCAI and Public Confidence*. Available at: <http://www.socialpartnershipforum.org/CurrentWorkProgrammes/Pages/Healthcareandassociatedinfections.aspx> accessed August 2011.

Jones L & Lederman S (2006) *Human Hand Function*. New York: Oxford University Press.

Jucker A, Schreier D & Hundt M (2009) *Corpora: Pragmatics and Discourse*. Amsterdam: Rodopi.

Juma P (2005) Hand hygiene: simple and complex. *International Journal of Infectious Disease* 9: 3-14.

Kalisch B, Landstrom C & Hinshaw A (2009) Missed nursing care: a concept analysis. *Journal of Advanced Nursing* 65: 1509–1517.

Kalisch B & Lee K (2010) The impact of teamwork on missed nursing care. *Nursing Outlook* 58: 233-241.

Kalisch B & Lee K (2011) Do staffing levels predict missed nursing care? *International Journal for Quality in Health Care* 23: 302–308.

Kanoksilapatham B (2005) Rhetorical structure of biochemistry research articles. *English for Specific Purposes* 24: 269-292.

Kanter B (2006) *Embodying Research: A study of student engagement in research writing*. Unpublished PhD Thesis: <http://dspace.iup.edu/bitstream/handle/2069/36/Susan%20Kanter.pdf?sequence=1> accessed June 2012.

Kay K & Glass N (2011) Debunking the manual handling myth: an investigation of manual handling knowledge and practices in the Australian private health sector. *International Journal Nursing Practice* 17: 231-237.

Kaye D (2012) Video auditing with feedback improved hand hygiene compliance among HCWs. *Clinical Infectious Diseases* 54: 1-7.

Keen A (2007) Writing for publication: pressures, barriers and support strategies. *Nurse Education Today* 27: 382–388.

Kelly J, Fealy G & Watson R (2012) The image of you: constructing nursing identities in YouTube. *Journal of Advanced Nursing* 68: 1804–1813.

Kelsey M (2000) The management and control of hospital acquired infection in acute NHS trusts in England – the who, how and what. *Journal of Hospital Infection* 44: 157-159.

Ketefian S, Dai Y, Hanucharurnkul S, Mendes I & Norman I (2010) Environments for nursing scholarship and journal impact factor in five countries. *International Nursing Review* 57: 343-351.

Kilpatrick C (2009) The global impact of hand hygiene campaigning. *Eurosurveillance* 14: 1-2.

Kings Fund (2008) Healthcare-associated infections. Stemming the rise of the superbug? <http://www.kingsfund.org.uk/sites/files/kf/briefing-healthcare-associated-infections-stemming-rise-of-superbug-rachel-turner-kings-fund-july-2008.pdf> accessed September 2012.

Kippist L & Fitzgerald A (2009) Organisational professional conflict and hybrid clinician managers: the effects of dual roles in Australian health care organisations. *Journal of Health Organization and Management* 23: 642-655.

Knight L & Steinbach T (2008) Selecting an appropriate publication outlet: A comprehensive model of journal selection criteria for researchers in a broad range of academic disciplines. *International Journal of Doctoral Studies* 3: 59-79.

Korniewicz D (2007) Hand hygiene compliance and health care associated infection: who is responsible? *Touch Briefings* 37-38.

Koteyko N (2006) Corpus Linguistics and the Study of Meaning in Discourse. *The Linguistics Journal* 2: 132 -157.

Koteyko N, Brown B & Crawford P (2008) The dead parrot and the dying swan: The role of metaphor scenarios in UK press coverage of Avian Flu in the UK in 2005–2006. *Metaphor and Symbol* 23: 242–261.

Koteyko N & Carter R (2008) Discourse of transformational leadership in infection control. *Heath: An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine* 12: 479-499.

Koteyko N & Nerlich B (2008) Modern matrons and infection control practices: aspirations and realities. *British Journal of Infection Control* 9: 18-22.

Koteyko N, Nerlich B, Crawford P & Wright N (2008) Not rocket science' or 'No silver bullet'? Media and Government Discourses about MRSA and Cleanliness. *Applied Linguistics* 29: 223-243.

Kramer M (1974) *Reality Shock: Why Nurses Leave Nursing*. St. Louis: The C.V. Mosby Company.

Kretzer E & Larson E (1998) Behavioral interventions to improve infection control practices. *American Journal of Infection Control* 26: 245-253.

Kroner S & Biermann A (2007) The relationship between confidence and self concept: Towards a model of response confidence. *Intelligence* 35: 580-590.

Labrecque S, Sauerland C, Donovan R et al (2013) Didactic Power Point Teaching Method Is Not Enough to Assure Compliance. *American Journal of Infection Control*: Presentation Number 5-315 APIC 40th Annual Conference j Ft Lauderdale, FL j June 8-10.

Langdon-Neuner E (2007) Titles in medical articles: What do we know about them? *The Journal of the European Medical Writers Association* 16: 158-161.

Langdridge D & Butt T (2004) The fundamental attribution error: A phenomenological critique. *British Journal of Social Psychology* 43: 357–369.

Larson A (2005) In the public interest: autonomy and resistance to methods of standardising nurses, advice and practices from a health centre in Perth, Western Australia. *Nursing Enquiry* 12: 135-143.

Larson B (2005) The war of the roses: demilitarizing invasion biology. *Frontiers in Ecology and the Environment* 3: 495-500.

Larson B, Nerlich B & Wallis P (2005) Metaphors and Biorisks: The War on Infectious Diseases and Invasive Species. *Science Communication* 26: 243-266.

Larson E (1988) Guideline for use of topical antimicrobial agents. *American Journal of Infection Control* 16: 253-266.

Larson E (1995) APIC Guideline for handwashing and hand antisepsis in health care settings. *American Journal of Infection Control* 23: 251-269.

Larson E (1997) A retrospective on infection control. Part 1: Nineteenth century--consumed by fire. *American Journal of Infection Control* 25: 236-241.

Larson E (1999) Skin hygiene and infection prevention: more of the same or different approaches? *Clinical Infectious Disease* 29: 1287-1294.

Larson E (2004) State of the science Time for a “no excuses/no tolerance” (NET) strategy. *American Journal of Infection Control* 33: 548-557.

Larson E (2009) Joint Commissions Best Practices on HCW Hand Hygiene: www.modernmedicine.com/search/apacesoir/search_Larson

Larson E (2013) Monitoring hand hygiene: meaningless, harmful or helpful. *American Journal of Infection Control* 41: 42-45.

Larson E, Early E & Cloonan P (2000) An organisational climate interventions associated with increased handwashing and decreased nosocomial infection. *Behavioural Medicine* 26: 14-22.

Larson E, Aiello A & Cimiotti J (2004) Assessing nurses' hand hygiene practices by direct observation. *Journal of Nursing Measurement* 12: 77-89.

Larson E & Aiello A (2006) Systematic risk assessment methods for the infection control professional. *American Journal of Infection Control* 34: 323-326.

Larson E, Quiros D & Lin S (2007) Dissemination of the CDC's hand hygiene guideline and impact on infection rates. *American Journal of Infection Control* 35: 666-675.

Latour B (1990) *Drawing Things Together*. In Lynch M & Woolgar E (eds) *Representation in Scientific Practice*. Cambridge: MIT Press.

Leavitt J (2009) Leaders in health policy: A critical role for nursing. *Nursing Outlook* 57:73-77.

Lebovic G, Siddiqui N & Muller M (2013) Predictors of hand hygiene compliance in the era of alcohol-based hand rinse. *Journal of Hospital Infection* 83: 276-283.

Le-Grand J (2006) *Motivation, Agency and Public Policy: Of Knights and Knaves, Pawns and Queens*. Oxon: Oxford University Press.

Lens V (2005) Advocacy and argumentation in the public arena: a guide for social workers. *Social Work* 50: 3- 7.

Mullins L (2007) *Management and Organisational Behaviour*. 8th edition Pearson Education Limited: UK.

- Lloyd-Hughes R, Talbot S & Jumaa P (2008) Bedside Bibles, notes trolleys and other forgotten sites for cleaning. *Journal of Hospital Infection* 69: 200-201.
- Lillian D (2008) Modality, persuasion and manipulation in Canadian conservative discourse. *Critical Approaches to Discourse Analysis Across Disciplines* 2: 1-16.
- Lingaas N & Fagernes E (2009) Development of a method to measure bacterial transfer from hands. *Journal of Hospital Infection* 30: 427-432.
- Lipscombe M (2008) Mixed methods nursing studies: A critical realist critique. *Nursing Philosophy* 9: 32-45.
- Lomotan E, Michel G & Lin Z (2010) How “should” we write guideline recommendation? Interpretation of deontic terminology in clinical practice guidelines: survey of the health services community. *Quality Safety Health Care* 19: 503-513.
- Louise-Denis J, Langley A & Rouleau A (2006) The power of numbers in strategizing. *Strategic Organisation* 4: 349-377.
- Ludwick R & Cipriano M (2006) Ethics: What would you do? Ethics and infection control. *Online Journal Issues in Nursing*. Available at www.nursingworld.org/ojin
- Lunenburg F (2011) Compliance Theory and Organizational Effectiveness. *International Journal of Scholarly Academic Intellectual Diversity* 14: 1-4.
- Lynn N & Lea S (2003) A phantom menace and the new apartheid: the social construction of asylum-seekers in the United Kingdom. *Discourse and Society* 14: 425-452.
- Machin D & Mayr A (2012) *How to Do Critical Discourse Analysis: A Multimodal Introduction*. London: Sage.

MacLean S, Black D & Shaw T (2006) *A Decade of Human Security: Global Governance and New Multilateralisms*. Hampshire: Ashgate.

McFarlin J, Williamson T, Gray B et al Behavior Change for Improved Hand Hygiene Compliance- Engaging Staff in Learning Publication. *American Journal of Infection Control* 36: 160-161.

McLeod E & Spee R (2003) Uncovering Meaning: How Nursing Knowledge Changes Policy in Practice. *Nursing Science Quarterly* 16: 115-119.

Mah M & Meyers G (2006) Toward a socio-ethical approach to behaviour change. *American Journal of Infection Control* 34: 73-79.

Magee T (2008) Bare below the elbows – C.difficile times for a health secretary. *Annals of Royal College of Surgeons of England (Suppl)* 90: 126–128.

Magos A, Maclean A, Baker D et al (2007) A cheap soundbite. *British Medical Journal* 335: 684.

Magiorakos A, Suetens C, Boyd L et al (2009) National hand hygiene campaigns in Europe 2000-2009:

www.eurosurveillance.org/viewarticle.aspx?ArticleId=19120.

Mahfouz A (2013) A critical discourse analysis of the police new story framing in two Egyptian newspapers before January 25 revolution. *European Scientific Journal* 9: 309-322.

Manias E & Street A (2000) The handover: uncovering the hidden practices of nurses. *Intensive Critical Care Nursing* 16: 373-83.

Manning G & Curtis K (2011) *The Art of Leadership* (4th Edition). New York: McGraw-Hill.

Mannion R, Davies H, Konteh F et al (2008) Measuring and assessing organisational culture in the NHS (OC1). *The Centre for Health and Public Services Management*: University of York.

Maskerine C & Loeb M (2006) Improving adherence to hand hygiene among health care workers. *The Journal of Continuing Education in the Health Professions* 26: 244-251.

Mautner G (2010) "Checks and balances. How corpus linguistics can contribute to CDA". In: Wodak, Ruth/Meyer, Michael (eds.): *Methods of critical discourse analysis*. London, Sage.

Mautner G (2009) Corpora and critical discourse analysis. In Baker P (ed) *Contemporary Approaches to Corpus Linguistics*. London: Continuum.

Mautner G (2007) Mining large corpora for social information: The case of the elderly. *Language in Society* 36: 51-72.

Mayor E, Eicher V, Bangerter A et al (2013) Dynamic social representations of the 2009 H1N1 pandemic: shifting patterns of sense-making and blame. *Public Understanding of Science* 22: 1011-1024.

Mazurek Melnyk B & Fineout-Overholt E (2010) Evidence-based Practice in Nursing and Healthcare: A Guide to Best Practice (2nd edition). China: Lippincott Williams & Wilkins.

McArdle F, Lee R, Gibb A et al (2006) How much time is needed for hand hygiene in intensive care? A prospective trained observer study of rates of contact between healthcare workers and intensive care patients. *Journal of Hospital Infection* 62: 304-310.

McAteer J, Stone S, Fuller C et al (2008) Development of an observational measure of healthcare worker hand hygiene behaviour: the hand hygiene observation tool. *Journal of Hospital Infection* 68: 222-229.

McBryde E, Pettit A & McElwain D (2007) A stochastic mathematical model of methicillin resistant *Staphylococcus aureus* transmission in an intensive care unit: predicting the impact of interventions. *Journal of Theoretical Biology* 245: 470-481.

McConnell J (2007) Public reporting in the UK of hospital infections. *Journal of Hospital Infection* 65: 189-190.

McDonald R, Waring J & Harrison S (2006) At the Cutting Edge? Modernization and nostalgia in a hospital operating theatre department. *Sociology* 40: 1097-1115.

McEnery T, Xiao R & Tono Y (2006) *Corpus-Based Language Studies: An Advanced Resource Book*. Oxon: Routledge.

McGillis L, Angus J, Elizabeth P et al (2003) Media portrayal of nurses perspectives and concerns in the SARS crises in Toronto. *Journal of Nursing Scholarship* 35: 211-216.

McEvoy P & Richards D (2006) A critical realist rationale for using a combination of quantitative and qualitative methods. *Journal of Research in Nursing* 11: 66-78.

McGuckin M, Waterman R & Shubin A (2006) Consumer attitude about health acquired infection and hand hygiene. *American Journal Medical Quality* 21: 342-346.

McNair B (2009) *News and Journalism in the UK*. (5th edition). London: Routledge.

Mears A, White B, Cookson M et al (2009) Healthcare-associated infection in acute hospitals: which interventions are effective? *Journal of Hospital Infection* 71: 307-313.

Mechanic D & Reinhard S (2002) Contributions of nurses to health policy: Challenges and opportunities. *Nursing and Health Policy Review* 1: 7-15.

Medical Research Council. (1941) *The prevention of hospital infection of wounds. MRC War Memorandum 6*. HMSO: London.

Medical Research Council (1944) *The control of infection in hospitals. MRC War Memorandum 11*: HMSO: London.

Meeres P (1980) Surveying infection in hospital. *Journal of Hospital Infection* 1: 3-4.

Meeres P, Aylifee G, Emmerson A et al (1981) Report on the national survey of infection in hospitals. *Journal of Hospital Infection* 2 (Supplementary): 1-11.

Melia K (1987) *Learning and Working: the Occupational Socialisation of Nurses*. London: Tavistock Press.

Memish Z, Soule B & Cunningham G (2007) Infection control certification: A global priority. *American Journal of Infection Control* 35: 141-143.

Michie S (2004) Changing clinical behaviour by making guidelines specific. *BMJ* 328: 342-345.

Millar M (2011a) Infection Control Risks. *Journal of Hospital Infection* 71: 103-107.

Millar M (2011b) Patient rights and healthcare-associated infection. *Journal of Hospital Infection* 79: 99-102.

Ministry of Health, Central Health Services Council Standing Medical Advisory Committee (1959) Staphylococcal infections in hospitals: Report of the sub-committee, London HMSO.

Molle F (2007) Sacred cows, storylines and nirvana concepts: insights from the water sector: http://horizon.documentation.ird.fr/exl-doc/pleins_textes/divers11-03/010045846.pdf

Molle F (2008) Nirvana concepts, narratives and policy models: insights from the water sector. *Water Alternatives* 1: 131–156.

Moreira T (2007) Entangled evidence: knowledge making in systematic reviews in healthcare. *Sociology of Health & Illness* 29: 180–197.

Morgan A (2010) Discourse analysis: An overview for the neophyte researcher. *Journal of Health and Social Care Improvement*, May issue.

Morton A, Mengersen K, Waterhouse M et al (2010) Analysis of aggregated hospital infection data for accountability. *Journal of Hospital Infection* 76: 287-291.

Muller M & Detsky A (2010) Public reporting of hospital hand hygiene compliance: helpful or harmful? *JAMA* 304: 1116-1117.

Mulvey D, Redding P, Robertson C et al (2011) Finding a benchmark for monitoring hospital cleanliness. *Journal of Hospital Infection* 77: 25-30.

Murphy J (1995) *The Constructed Body: AID, Reproductive Technology and Ethics*. New York Press: Albany.

Murray R (2009) *Writing for Academic Journals* (2nd edition). Berkshire: Open University Press.

Murray E & Holmes A (2012) Addressing healthcare-associated infections and antimicrobial resistance from an organisational perspective: progress and challenges. *Journal of Antimicrobial Chemotherapy* 67: 29–36.

Myers G (1989) The pragmatic of politeness in scientific articles. *Applied Linguistics* 10: 1-35.

Myers F & Parini S (2003) Hand hygiene: understanding and implementing the CDC's new guideline. *A Supplement to Nursing Management* 34: 1-16.

Naidu V (2009) *Management and Entrepreneurship*. New Delhi: IK International Pvt Ltd.

National Audit Office (2000) *The management and control of hospital acquired infections in acute NHS trusts in England*. London: The Stationery Office.

National Audit Office (2004) *Improving patient care by reducing the risk of hospital acquired infection: a progress report*. London: The Stationery Office.

National Audit Office (2009) *Reducing Healthcare Associated Infections in Hospitals in England*. London: The Stationery Office.

National Audit Office (2011) *National Health Service Landscape Review*. London: The Stationary Office.

National Health Service Estates (2001) *National standards of cleanliness for the NHS*. Norwich: The Stationery Office.

National Institute for Health and Clinical Excellence (2003) *Infection control: prevention of healthcare-associated infection in primary and community care*. London: NICE.

National Institute for Health and Clinical Excellence (2012) *Infection: Prevention and control of healthcare-associated infections in primary and community care*. London: NICE.

National Patient Safety Agency (2004) *Ready, steady, go: The full guide to implementing the cleanyourhands campaign in your Trust*. National Patient Safety Agency.

National Patient Safety Agency (2008a) *Clean Hands Saves Lives, Patient Safety Alert* (2nd edition). National Patient Safety Agency.

National Patient Safety Agency (2008b) *Guide to implementing patient safety alert*. National Patient Safety Agency.

National Patient Safety Agency (2009) Revised healthcare cleaning manual. Available at: www.nrls.npsa.nhs.uk/resources/?entryID45=61830 (accessed 27 August 2012).

Nerlich B & Halliday C (2007) Avian flu: the creation of expectations in the interplay between science and the media. *Sociology of Health & Illness* 29: 46–65.

Nerlich B, Brown B & Crawford P (2009) Health, hygiene and biosecurity: Tribal knowledge claims in the UK poultry industry. *Health, Risk & Society* 11: 561–577.

Nerlich N & James R (2009) The post-antibiotic apocalypse" and the "war on superbugs": catastrophe discourse in microbiology, its rhetorical form and political function. *Public Understanding of Science* 18: 574 -590.

Neuhauser D (2005) Surgical experience, hospital size and severity adjusted mortality. *Quality Safety Health Care* 14: 67–68.

Newbold D (2005) Foundation trusts: economics in the post modern hospital. *Journal of Nursing Management* 13: 439-447.

NHS Estates (2001) *Infection control in the built environment: design and planning*. London: The Stationery Office.

NHS Estates (2002) *National standards of cleanliness for the NHS*. Norwich: The Stationery Office.

NHS Executive. Governance in the new NHS: Controls assurance standards 1999/2000: Risk Management and organisational controls. Health Service Circular HSC 1999/23.

NHS Management Executive. Clinical Governance: quality in the new NHS. Health Service Circular HSC 1999/065.

NHS Workforce Census (2008) <http://www.nursingtimes.net/are-modern-matrons-making-a-difference/1567618.article> accessed November 2011.

Nicol P, Watkins R, Donovan R et al (2009) The power of the vivid experience. *Journal of Hospital Infection* 72: 36-42.

Noakes T, Borresen J, Huw-Butler T et al. (2008) Semmelweis and the aetiology of puerperal sepsis 160 years on: an historical review. *Epidemiology Infection* 136: 1-9.

Nodoushan M (2011) A Structural Move Analysis of Discussion Sub-genre in Applied Linguistics. *International Journal of Language Studies*: <http://nile.lub.lu.se/ojs/index.php/elears/article/view/54s53>

Noritomi D, Chierago M, Bly B et al (2007) Is compliance with hand disinfection in the intensive care unit related to work experience? *Infection Control and Hospital Epidemiology* 28: 362–364.

Norton L (1999) The philosophical basis of grounded theory and their implications for research practice. *Nurse Researcher* 7: 31-43.

Novoa A, Sunyet T, Saia M et al (2007) Evaluation of hand hygiene adherence in a tertiary hospital. *American Journal of Infection Control* 35: 676-683.

Nursing Times (2013) Exclusive: Nurses feeling under pressure, understaffed and undervalued. <http://www.nursingtimes.net/nursing-practice/clinical-zones/management/exclusive-nurses-feeling-under-pressure-understaffed-and-undervalued/5063786.article> accessed October 2013.

Nursing and Midwifery Council (NMC) (2008) THE CODE: Standards of conduct, performance and Nursing and ethics for nurses and midwives. London, NMC.

Nursing & Midwifery Council (2013) *Raising Concerns: Guidance for Nurses and Midwives*. London.

Nutley S Walter I & Davies H (2007) *Using Evidence: How Research Can Inform Public Service*. Bristol: Polity Press.

O'Boyle C, Henly S & Larson E (2001) Understanding adherence to hand hygiene recommendations: the theory of planned behavior. *American Journal of Infection Control* 29: 352-360.

O'Byrne P (2008) The dissection of risk: a conceptual analysis. *Nursing Inquiry* 15: 30–39.

Odom-Forren J (2011) The normalization of deviance: a threat to patient safety. *Journal of Perianesthetic Nursing* 26: 216-219.

Ofcom (2009) Report to the Secretary of State on the Media Ownership Rules: <http://stakeholders.ofcom.org.uk/binaries/consultations/morr/statement/morrstatement.pdf> accessed May 2011.

Orpin D (2005) Corpus linguistics and critical discourse analysis: Examining the ideology of sleaze. *International Journal of Corpus Linguistics* 10: 37-61.

Orsi G (2008) MRSA: an old and new enemy. *Healthcare Infection* 13: 73-75.

Ousey K & Gallagher P (2007) The theory–practice relationship in nursing: A debate. *Nurse Education in Practice* 7: 199–205.

Paley J (2007) *The Philosophy of Nurse Education*. In Drummond J & Standish P (ed): New York: Palgrave Macmillan.

Paltridge B (2006) *Discourse Analysis*. London: Continuum.

Pan A, Domenighini F, Signorini L et al (2008) Adherence to hand hygiene in an Italian long-term facility. *American Journal of Infection Control* 36: 495-497.

Panter-Brick C & Fuentes A (2011) *Viral Panic, Vulnerabilities and the Next Pandemic*. London: Berghahn Press.

Parahoo K (2006) *Nursing Research: Principles, Process and Issues* (2nd edition). New York: Palgrave MacMillan.

Parmelli E, Flodgren G, Schaafsma M et al (2011) The effectiveness of strategies to change organisational culture to improve healthcare performance. *The Cochrane Collaboration*. JohnWiley & Sons.

Partington A (2008) *The Armchair and the Machine: Corpus Assisted Discourse Studies*. In Taylor C et al (eds) *Corpora University Language Teachers*. Bern: Peter Lang.

Pattison N (2006) A critical discourse analysis of provision of end of life care in key UK critical care documents. *British Association of Critical Care Nurses, Nursing in Critical Care* 11: 198-208.

Pattison S & Wainwright P (2010) Is the 2008 NMC code ethical? *Nursing Ethics* 17: 9-18.

Pawson R (2006) *Evidence Based Policy: A Realist Perspective*. London: Sage.

Pellegrino E (2004) Prevention of medical error: Where professional and organisational ethics meet. In Sharpe V (ed). *Accountability: Patient Safety and Policy Reform* 83-98. Washington DC: Georgetown University Press.

Pellowe C, Pratt R & Loveday H et al (2004) The epic project: updating the evidence-base for national evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England: a report with recommendations. *British Journal of Infection Control* 15: 10-16.

Perencevich N & Treise D (2010) Methicillin-Resistant Staphylococcus aureus and the Media. *Infection Control and Hospital Epidemiology* 31: 48-50.

Perez-Llantada C (2010) The Discourse Functions of Metadiscourse in Published Academic Writing: Issues of Culture and Language. *Nordic Journal of international Studies* 9: 41-68.

Perkins R & Seddon M (2006) Quality improvement in New Zealand healthcare. Part 5: measurement for monitoring and controlling performance—the quest for external accountability. *NZ Medical Journal* 119: 1-10.

Perry C (2006) The Infection Control Nurse in England – Past, Present and Future. *International Federation of Infection Control* 2: 125 – 131.

Pessoa-Silva C, Posfay-Barbe K, Pfister R et al (2005) Attitudes and perceptions toward hand hygiene among healthcare workers caring for critically ill neonates. *Infection Control Hospital Epidemiology* 26: 305–311.

Phillips N & Hardy C (2002) *Discourse analysis: investigating processes of social construction*. London: Sage.

Philips N & Hardy C (2004) *Discourse and Power*. In Grant D et al (eds) *The Handbook of Organizational Discourse*. London: Sage.

Pittet D (2004) The Lowbury lecture: behaviour in infection control. *Journal of Hospital Infection* 58: 1–13.

Pittet D (2005) Infection control and quality health care in the new millennium. *American Journal of Infection Control* 33: 258-267.

Pittet D, Mourouga P & Perenger T (1999) Compliance of handwashing in a teaching hospital. *Annals of International Medicine* 130: 126-130.

Pittet D, Hugonnet S & Mourouga P (2000) Effectiveness of a hospital wide programme to improve handwashing compliance. *Lancet* 356: 1307-1312.

Pittet D, Allegranzi B, Sax H et al (2006) Evidence based model for hand transmission during patient care and the role of improved practices. *Lancet Infectious Diseases* 6: 641-652.

Pittet D, Allegranzi B & Storr J (2008) Infection control as a major World Health Organization priority for developing countries. *Journal of Hospital Infection* 68: 285-292.

Pittet D, Allegranzi B & Boyce J (2009) The World Health Organization guidelines on hand hygiene in health care and their consensus recommendations. *Infection Control Hospital Epidemiology* 7: 611-622.

Pittet D, Panesar S, Wilson K et al (2011) Involving the patient to ask about hospital hand hygiene: a national patient safety agency feasibility study. *Journal of Hospital Infection* 77: 299-303.

Plowman R, Graves N, Griffin M et al (2001) The rate and cost of hospital-acquired infections occurring in patients admitted to selected specialties of a district general hospital in England and the national burden imposed. *Journal of Hospital Infection*, 47: 198-209.

Plowman R, Graves N, Griffin M et al (1999) The socio-economic burden of hospital acquired infection. London: Public Health Laboratory Service.

Porzig-Drummond R, Stevenson R, Case T & Oaten M (2009) Can the emotion of disgust be harnessed to promote hand hygiene? Experimental and field-based tests. *Social Science and Medicine* 68: 1006–1012.

Pojanapunya P & Watson Todd R (2010) Relevance of findings in results to discussion sections in applied linguistics research. *Proceedings of the International Conference: Doing Research in Applied Linguistics* 51-60:

Pollit D & Beck C (2011) *Nursing Research: Generating and Assessing Evidence for Nursing Practice* (9th edition). Philadelphia: Lippincott Williams & Wilkins.

Porter R (2001) *The Cambridge Illustrated History of Medicine*. Cambridge: Cambridge University Press.

Potter J ,Wetherell M & Chitty A (1991) Quantification rhetoric for cancer on television. *Discourse and Society* 2: 333–365.

Power M (2004) Counting, control and calculation: reflections on measuring and management. *Human Relations* 57: 765-783.

Pratt R, Pellowe C, Loveday H et al (2001) The epic project: developing national evidence-based guidelines for preventing healthcare associated infections, phase 1: guidelines for preventing hospital-acquired infections. *Journal of Hospital Infection* 47 (suppl): S1-82.

Pratt R, Pellowe C, Wilson J et al (2007) epic2: National evidence-based guidelines for preventing healthcare-associated infections in NHS Hospitals in England. *Journal of Hospital Infection* 65: 1–64.

Prescott L, Harley J & Klein D (1999) *Microbial diseases and their control* In: Microbiology (4th edition). Boston: WCB McGraw-Hill.

Prielipp R, Magro M, Morell R et al (2010) The normalization of deviance: Do we (un)knowingly accept doing the Wrong thing? *AANA Journal* 78: 284-287.

Puebla M (2009) Analysis of the discussion of section of research articles in the field of psychology 1-10: http://www.esp-world.info/Articles_21/Docs/Psychology.pdf: accessed November 2010.

Punjabi P (2010) The impact of the impact factor. *Perfusion* 25: 3-4.

Rafferty A, Allcock N & Lathlean J (1996) The theory/practice 'gap': taking issue with the issue. *Journal of Advanced Nursing* 23: 685-691.

Ramesh J, Carter A & Campbell M (2008) Use of mobile phones: evidence for both benefit and harm. *Journal of Hospital Infection* 70: 160-165.

Randall D (2007) *The Universal Journalist* (3rd edition). London: Pluto.

\
Randle J, Clarke M & Storr J (2006) Hand hygiene compliance in health care workers. *Journal of Hospital Infection* 64: 205-209.

Randle J, Arthur A & Vaughan N (2010) Twenty-four-hour observational study of hospital hand hygiene compliance. *Journal of Hospital Infection* 76: 252-5.

Randle J & Clarke M (2011) Infection control nurses' perceptions of the code of hygiene. *Journal of Nursing Management* 19: 218-225.

Regan de Bere S & Peterson A (2006) Out of the dissecting room: new media portrayals of human anatomy teaching and research. *Social Science and Medicine* 63: 76-88.

Reeves S Kenaszchuk C Sawatzky-Girling B & Goldman J (2012) Understanding the “impact” of the impact factor. *Journal of Interprofessional Care* 26: 2–3.

Reichardt C, Köninger D & Bunte-Schöninger K (2013) Three years of national hand hygiene campaign in Germany: what are the key conclusions for clinical practice? *Journal of Hospital Infection* 83: 11– 16.

Reisigl M & Wodak R (2001). *Discourse and Discrimination*. London: Routledge.

Reppen R & Vach-Simpson R (2010) Corpus Linguistics in Schmitt N (ed) *An Introduction to Applied Linguistics*. New York: Hodder Education.

Richardson J (2006) *Analysing Newspapers: An Approach from Critical Discourse Analysis*. New York: Palgrave Macmillan.

Ritchie K, Iqbal K, Macpherson K et al (2005) *Health technology assessment 7: the provision of alcohol base products to improve compliance with hand hygiene*. Edinburgh: NHS Quality Improvement Scotland.

Ridley D (2012) *The Literature Review: A Step-by-Step Guide for Students* (2nd edition) (SAGE Study Skills Series) London: Sage.

Roberts J & Cookson B (2009): The management prevention and control of healthcare associated infections: An International Comparison and Review. In National Audit Office (2009) *Reducing Healthcare Associated Infections in Hospitals in England*. London: The Stationery Office.

Roland M & Stock P (2005) Comprehensive guidelines translate research findings into clinical policy for HIV infected transplant candidates and recipients. *Enfermedades Infecciosas Microbiología Clínica* 23: 331-334.

Roland M (2007) Publish and perish. Hedging and fraud in scientific discourse. *European Molecular Biology Organisation* 8: 424-428.

Römer U & Wulff S (2010) Applying corpus methods to writing research: Explorations of MICUSP. *Journal of Writing Research* 2: 99-127.

Rosenthal V, McCormick R, Guzman S et al (2003) Effect of education and performance feedback on handwashing: the benefit of administrative support in Argentinean hospitals. *American Journal of Infection Control* 31: 85–92.

Rose L, Rogel K, Redi L et al (2009) Implementation of a multimodal infection control programme during an *Acinetobacter* outbreak. *Intensive and Critical Care Nursing* 25: 57-63.

Royal Society (2011) Knowledge, networks and nations: Global scientific collaboration in the 21st century, March 28th:

<http://royalsociety.org/policy/projects/knowledge-networks-nations/report/>

Royal College of Nursing (2012) *Wipe it Out: one chance to get it right*. London: RCN.

Royal College of Nursing (2013a) *RCN Employment survey 2013*. London: RCN.

Royal College of Nursing (2013b) *Raising Concerns: a Guide for RCN Members*. London: RCN.

Rupp M, Fitzgerald T, Puumala S et al (2008) Prospective, controlled, cross over trial of alcohol based hand gel in critical care units. *Infection Control and Hospital Epidemiology* 29: 8-15.

Russell J & Greenhalgh T (2009) Rhetoric, evidence and policymaking: A case study of priority setting in primary care. *Open Learning Unit*.

Russell J, Greenhalgh T, Byrne E et al (2008) Recognising rhetoric in healthcare policy analysis. *Journal of Health Services Research and Policy* 13: 40-46.

Rycroft-Malone J (2006) The politics of the evidence based practice movements: Legacies and current challenges. *Journal of Research in Nursing* 11: 95-108.

Saint S, Kowalski C, Banaszak J et al (2010) The importance of leadership in preventing healthcare associated infection: results of a multisite qualitative study. *Infection Control and Hospital Epidemiology* 31: 901-907.

Sagi I & Yechiam E (2006) Amusing titles in scientific journals and article citation. *Journal of Information Science* 34: 680-687.

Salimi S & Yazdani M (2011) Move Analysis of the Discussion Section of Sociolinguistics and Testing Articles: Are standards met? *International Conference on Languages, Literature and Linguistics* 354-358.

Slater B (2007) Governing UK Medical Performance: A Struggle for Policy Dominance. *Health Policy* 82: 263-75.

Salvage J (2012) The value of praise. *Practice Nursing* 23: 224.

Sammer C Lykens K, Singh K et al (2010) What is patient safety culture? A review of the literature. *Journal of Nursing Scholarship* 42: 156-65.

Sanderson (2006) Complexity, “practical rationality” and evidence based policy making. *Policy and Politics* 34: 115-132.

Savage J & Moore L (2004) *Interpreting Accountability*. London: Royal College of Nursing.

Sax H, Uçkay I, Richet H et al (2007a) Determinants of Good Adherence to Hand Hygiene Among Healthcare Workers Who Have Extensive Exposure to Hand Hygiene Campaigns. *Infection Control Hospital Epidemiology* 28: 1267–1274.

Sax H, Allegranzi B, Uçkay I et al (2007b) My five moments of hand hygiene: a user-centred design approach to understand, train, monitor and report hand hygiene. *Journal of Hospital Infection* 67: 9-21

Sax H, Allegranzi B, Chraïiti M et al (2009) The World Health Organisation hand hygiene observation method. *American Journal of Infection Control* 37: 827-34.

Schabrun S (2006) Healthcare equipment as a source of nosocomial infection: a systematic review. *Journal of Hospital Infection* 63: 239-245.

Schneider J, Moromisato D, Zemetra B et al (2009) Hand hygiene adherence is influenced by role models. *Paediatric Critical Care* 10: 360-3.

Schub T & Caple C (2011) Evidence based care sheet hand hygiene. September 2009, Retrieved from:
<http://web.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=49f9477e-c811-4c9e-b8ba-5f533de8b5d5%40sessionmgr11&vid=15&hid=11>-accessed January 2012.

Schubert M, Clarke S, Glassc T et al (2009) Identifying thresholds for relationships between impacts of rationing of nursing care and nurse- and patient-reported outcomes in Swiss hospitals: A correlational study. *International Journal of Nursing Studies* 46: 884–893.

Schweon S & Kirk J (2011) A realistic approach towards hand hygiene for long-term care residents and health care personnel. *American Journal of Infection Control* 39: 336-338.

Schwartz L, Woloshin S, Andrews A et al (2012) Influence of medical journals on the quality of associated coverage: retrospective cohort study. *BMJ* 344: 8164.

- Schwitzer G (2008) How do journalists cover treatments, tests, products and procedures? An evaluation of 500 stories. *PLoS Med* 5: 700-704.
- Scoones I (2012) *Avian Influenza: Science, Policy and Politics*. London: Routledge.
- Scott M & Tribble C (2006) *Textual Patterns: Key Words and Corpus Analysis In Language Education*. Philadelphia: John Benjamins
- Scrivener R, Hand T & Hooper R (2011) Accountability and responsibility: Principle of Nursing Practice. *Nursing Standard* 25: 35-36.
- Seale C (2010) How the mass media report social statistics: A case study concerning research on end of life decisions. *Social Science and Medicine* 71: 861-868.
- Seale C (2002) Cancer heroics: A study of news reports with particular reference to gender. *Sociology* 36: 107-126.
- Seale C, Boden S, Williams S et al (2007) Media constructions of sleep and sleep disorders. *Social Science and Medicine* 65: 418-430.
- Seale C & Charteris-Black J (2008a) The interaction of class and gender in illness narratives. *Sociology* 42: 453-469.
- Seale C & Charteris-Black J (2008b) The interaction of age and gender in illness narratives. *Ageing and Society* 28: 1025-1043
- Semmler I (1998) Ebola goes: The filovirus from literature into film. *Literature and Medicine* 17: 149-174.
- Sebille V, Chevret S, Valleron A (1997) Modelling the spread of resistant nosocomial pathogens in an intensive care unit. *Infection Control and Hospital Epidemiology* 18: 84-92.
- Sellman D (2010) Mind the gap: philosophy, theory, and practice. *Nursing Philosophy* 11: 85-87.

Shaw P (2007) Introduction in Fløttum K (ed) *Language and Discipline Perspectives on Academic Discourse*. Newcastle: Cambridge Scholars Press.

Shaw S (2010) Reaching the parts that other theories and methods can't reach: How and why a policy-as-discourse approach can inform health related policy. <http://hes.sagepub.com/content/14/2/196> accessed April 2011.

Shaw S & Greenhalgh T (2008) Best research ---- for what? Best health ----- for whom? A critical exploration of primary care research using discourse analysis. *Social Science and Medicine* 66: 2506-2519.

Shay L (2008) A concept analysis: Adherence and weight loss. *Nursing Forum* 43: 42-52.

Sheldon T (2005) The healthcare quality measurement industry: time to slow the juggernaut? *Quality and Safety in Health Care* 14: 3-4.

Shiffman R, Michel G, Krauthammer M et al (2010) *Writing Clinical Practice Guidelines in Controlled Natural Language*. (In Fuchs N editor): *Proceedings Controlled Natural Language*. New York: Springer.

Shralkar S, Rennie A, Snow M et al (2003) Doctors' knowledge of radiation exposure: questionnaire study, *British Medical Journal* 327: 371-372.

Silvestri L, Petros A, Sarginson R et al (2005) Handwashing in the intensive care unit: a big measure with modest effects. *Journal of Hospital Infection* 59: 172-179.

Simmonds B (1981) Guidelines for hospital environmental control, section 1, antiseptics, hand washing and hand washing facilities in Centres for Disease Control and Prevention (CDC), (ed). *CDC Hospital Infections Programme (HIP) Guidelines for Prevention and Control of Nosocomial Infections*. Atlanta, GA, Springfield 6-10.

Simmons N (2006) Computer keyboards and the spread of MRSA. *Journal of Hospital Infection* 64: 88.

Simpson P & Mayr A (2009) *Language and Power: A Resource Book for Students*. Oxon: Routledge.

Siso M (2009) Titles or Headlines? Anticipating conclusions in biomedical research article titles as persuasive journalistic strategy to attract busy readers. *Journal of English and American Studies* 39: 29-54.

Smith R (2006) Responding to global infectious disease outbreaks: Lessons from SARS on the role of risk perception, communication and management *Social Science and Medicine* 63: 3113–3123.

Smith J (2007) Critical discourse analysis for nursing research. *Nursing Inquiry* 14: 60–70.

Smith P Watkins K & Hewlett A (2011) Infection control through the ages. *American Journal of Infection Control* 40: 35-42.

Smith S, Young V, Robertson C & Dancer S (2012) Where do hands go? An audit of sequential hand-touch events on a hospital ward. *Journal of Hospital Infection* 80: 206-2011.

Snow M & White G (2006) Mentors hand hygiene practice influence students hand hygiene rates. *American Journal of Infection Control* 34: 18-24.

Sochalski J (2004) Is more better? The relationship between nurse staffing and quality of nursing care in hospitals. *Medical Care* 42: 67-73.

Social and Public Health Services Unit <http://www.sphsu.mrc.ac.uk/research-programmes/pe/mda/> accessed July 2012.

Soler V (2007) Writing titles in science: an exploratory study. *English for Specific Purposes* 26: 90-102.

Son C, Chuck T, Childers T et al (2011) Practically speaking: rethinking hand hygiene improvement programs in health care settings. *American Journal of Infection Control* 39: 716-724

Sontag S (1991) *Illness as Metaphor/AIDS and its Metaphors*. Harmondsworth: Penguin.

Spellberg B, Guidos R, Gilbert D et al (2008) The Epidemic of Antibiotic-Resistant Infections: A Call to Action for the Medical Community from the Infectious Diseases Society of America. *Clinical Infectious Diseases* 46: 155–64.

Spencer R & Perry C (2004) Winning ways. *Journal of Hospital Infection* 58: 245-246.

Stacey G & Cole M (2009) Addressing infection control training in pre-registration mental health training. *Journal of Mental Health Training* 4: 3-10.

Stebbins S, Stark J & Vokotich C (2010) Compliance with a multi-layered non-pharmaceutical intervention in an urban elementary school setting. *Journal of Public Health Management Practice* 16: 316-324.

Stenvall M (2008) Unnamed sources as rhetorical constructs in news agency reports. *Journalism Studies* 9: 229–43.

Stockert A & Mahfouzz T (2012) Superbugs: Current Trends and Emerging Therapies http://cdn.intechopen.com/pdfs/38654/InTech-superbugs_current_trends_and_emerging_therapies.pdf accessed January 2013.

Stone S, Slade R, Fuller C et al (2007a) Cleanyourhands Campaign: A critique of the critique. *Journal of Hospital Infection* 66: 288-289.

Stone S, Slade R, Fuller C et al (2007b) Early communication: Does a national campaign to improve hand hygiene in the NHS work? Initial English and Welsh experience from the NOSEC study (National Observational Study to Evaluate the CleanYourHandsCampaign). *Journal of Hospital Infection* 66: 293-296.

Stone S, Fuller C, Savage J et al (2012) Evaluation of the national clean your hands campaign to reduce bacteraemia and *Clostridium difficile* in hospitals in England and Wales by improved hand hygiene: four year, prospective, ecological, interrupted time series study. *BMJ* 12: 344-355.

Strathern M (1997) Improving ratings: audit in the British University system. *European Review* 5: 305-321.

Stubbs M (2006) Corpus analysis: *The state of the art in three types of unanswered questions*. In Thompson G & Hudson S (eds) *Systems and Corpus* London: Equinox.

Sutton R (1999) The Policy process an overview.

<http://www.odi.org.uk/resources/download/1868.pdf> accessed March 2009.

Sundquist S (2009) *Stories from Select Saskatchewan Formal Registered Nurse Leaders in Policy: A Content Analysis*. Unpublished MSc.

<http://ecommons.usask.ca/handle/10388/etd-07062009-105252> accessed June 2013

Sutcliffe S & Court J (2005) *Evidence-Based Policymaking: What is it? How does it work? What relevance for developing countries*. Overseas Development Institute.

Swales J (1990). *Genre Analysis: English in Academic and Research Setting*. Glasgow: Cambridge University Press.

Swales J (2004) *Research Genres: Exploration and Applications*. Cambridge: Cambridge University Press.

Swales J & Feak C (1994) *Academic Writing for Graduate Students: Essential Tasks and Skills: A Course for Nonnative Speakers of English*. Ann Arbor, MI: University of Michigan.

Tannen D (2002) Agonism in academic discourse. *Journal of Pragmatics* 34: 1651-1669.

Tashakkori A & Teddie C (2003) *Mixed Methodology: Combining Qualitative and Quantitative Approaches* (2nd edition). California: Sage.

Tavolacci M, Merle V, Pitrou D et al (2006) Alcohol-based hand rub: influence of healthcare workers' knowledge and perception on declared use. *Journal of Hospital Infection* 64: 149-155.

Taylor C (2008) What is corpus linguistics? What the data says ICAME Journal 32: 179-200

Taylor K (2004) Improving patient care by reducing the risk of hospital acquired infection: A progress report by the National Audit Office. *British Journal of Infection Control* 5: 4-5.

Taylor K, Plowman R & Roberts J (2001) *The Challenge of Hospital Acquired Infection*. National Audit Office: London.

Tenbenschel T (2004) Does more evidence lead to better policy? *Policy Studies* 25: 198-207.

Tenopir C, King D, Spencer J & Wu L (2009) Variations in Article Seeking and Reading Patterns of Academics: What Makes a Difference? *Library & Information Science Research*.

Teske S (2011) A Study of Zero Tolerance Policies in Schools: A Multi-Integrated Systems Approach to Improve Outcomes for adolescence. *Journal of Child and Adolescent Psychiatric Nursing* 24: 88-97.

Thompson G & Hunston S (2000) *Evaluation: An introduction*. In Hunston S and Thompson G (eds) *Evaluation in Text. Authorial Stance and the Construction of Discourse*. Oxon: Oxford University Press.

Thompson P & Tribble C (2001) Looking at citation: Using corpora in English for academic purposes. *Language Learning and Technology* 13: 91-105.

- Thonney T (2011) Teaching the conventions of Academic Discourse. *National Council of Teachers of English* 347-362.
- Timmermans S & Berg M (2003) The gold standard: the challenge of evidence based medicine in healthcare. Philadelphia. Temple University Press.
- Tognini-Bonelli E (2001) *Corpus linguistics at work*. Amsterdam: John Benjamins.
- Toofany S (2005) Nurses and health policy. *Nursing Management* 12: 26-30.
- Torrey T (2012) Public Restrooms Vs Hospitals – Who Wins the Handwashing Contest: <http://patients.about.com/b/2010/09/30/public-restrooms-vs-hospitals-who-wins-the-handwashing-contest.htm> accessed October 2012.
- Traynor M (2006) Discourse analysis: theoretical and historical overview and review of papers in the Journal of Advanced Nursing. *Journal of Advanced Nursing* 54: 62-72.
- Umscheid C Mitchell M, Doshi J et al (2011) Estimating the proportion of healthcare-associated infections that are reasonably preventable and the related mortality and costs. *Infection Control and Hospital Epidemiology* 32: 101-114.
- Ungar S (1998) Hot crises and media reassurance: a comparison of emerging diseases and Ebola Zaire. *British Journal of Sociology* 49: 36-56.
- Van de Mortel T & Murgu M (2006) An examination of covert observation and solution audit as tools to measure the success of hand hygiene observation. *American Journal of Infection Control* 34: 95-99.
- Van Dijk T (1997a) *Discourse as Social Interaction*, Volume 1.
- Van Dijk T (1997b) *Discourse as Social Interaction*, Volume 2.
- Van Dijk T (2001) Critical Discourse Analysis. In Schiffrin D et al (eds) *The Handbook of Discourse Analysis*. Oxon: Blackwell.

Van Dijk T (2005) Contextual knowledge management in discourse production: A CDA perspective. In Wodak R & Chilton P (eds) *A New Agenda in Critical Discourse Analysis*. Philadelphia: John Benjamins.

Van Dijk T (2006) Discourse and Manipulation. *Discourse and Society* 17: 359-383.

Van Hout T & Jacobs G (2008) News production theory and practice: fieldwork notes on power, interaction and agency. *Pragmatics* 18: 59-85.

Vaughan D (2004) *Organizational rituals of risk and error*. In Hunter B & Power M (eds) *Organizational encounters with risk*: Cambridge: Cambridge University Press.

Virtanen T (2008) Adverbials of manner and manner plus in written English: Why initial placement? *Journal of Linguistics* 21: 271-293:

Vladimirou D (2007) I suggest that we need more research: Personal reference in linguistics journal articles. *Papers from the Lancaster University Postgraduate Conference in Linguistics and Language Teaching, Papers from LAEL PG 1*: 139-157.

Voss A & Widmer A (1997) No time for handwashing? Can we afford 100% compliance? *Infection Control Hospital Epidemiology* 18: 205-208.

Wachter R & Pronovost P (2009) Balancing "no blame" with accountability in patient safety. *New England Journal of Medicine* 361: 1401-1406.

Wahl-Jorgensen K (2002) Understanding the conditions for public discourse: four rules for selecting letters to the editor. *Journalism Studies* 3: 69-81.

Wald P (2007) *Contagious: Cultures, Carriers and the Outbreak Narrative*. Durham: Duke University Press.

Walker N, Gupta R & Cheesbrough J (2006) Blood pressure cuffs: friend or foe. *Journal of Hospital Infection* 63: 167-169.

Wallis P & Nerlich B (2005) Disease metaphors in new epidemics: the UK media framing of the 2003 SARS epidemic. *Social Science & Medicine* 60: 2629–2639.

Walshe K (2009) Evidence based policy and management. In Mahon A et al (eds) *Health Policy and Management*. Berkshire: Open University Press.

Walshe K & Smith J (2011) *Healthcare Management* (2nd edition). Berkshire: Open University Press.

Ward D (2011) The role of education in the prevention and control of infection: A review of the literature. *Nurse Education Today* 31: 9-17.

Washer P (2004) Representations of SARS in the British newspapers. *Social Science and Medicine* 59: 2561–2571.

Washer P (2005) Representations of “newly emerging” infectious diseases in the British Newspapers:

<http://www.inter-disciplinary.net/ptb/mso/hid/hid4/Peter%20Washer%20-%20Oxford%20paper.pdf> accessed December 2011.

Washer P (2006) Representations of mad cow disease. *Social Science and Medicine* 62: 457–466.

Washer P (2010) *Emerging Infectious Diseases and Society*. New York: Palgrave Macmillan.

Washer P & Joffe H (2006) ‘The hospital ‘Superbug’ Social representations of MRSA,’ *Social Science and Medicine* 63: 2141–52.

Washer P, Joffe H, Solberg C (2008) Audience readings of media messages about MRSA. *Journal of Hospital Infection* 70: 42-47.

Watterson P (2004) Using indicator development to revise infection control activities in an acute NHS trust. *Journal of Nursing Management* 12: 403-410.

Weaver K & Olson J (2006) Understanding Paradigms for Nursing Research. *Journal of Advanced Nursing* 53: 459-468.

Weaving P & Cooper T (2006) Infection control is everyone's business. *Nursing Management* 12: 18-22.

Weaving P (2008) Comment on 'Editorial: Hand hygiene — It's still important' by Paul Weaving, *British Journal of Infection Control* 8: 4-5.

West Hertfordshire Hospitals (2012):
http://www.westhertshospitals.nhs.uk/about/board_meetings/2012/september/documents/Item%2011%20Infection%20Control%20Annual%20Report%20W HHT%202011-2012.pdf Accessed January 2012.

Wellings K (1988) *Perceptions of risk - media treatment of AIDS*. In Aggleton P & Homans H (eds) *Social aspect of AIDS*. London: Falmer Press.

Wendt C (2004) Differences in hand hygiene behaviour related to the contamination risk of healthcare activities in different groups of healthcare workers. *Infection Control and Hospital Epidemiology* 25: 203-206.

Weston D (2013) *Fundamental of Infection Prevention and Control: Theory and Practice*. West Sussex: Wiley-Blackwell.

Whatley V, Jackson L & Taylor J (2012) Improving public perceptions around cleanliness and health care associated infection in hospitals *Journal of Infection Prevention* 13: 192-199.

Whitby M & McLaws M (2004) Handwashing in healthcare workers: accessibility of sink location does not improve compliance. *Journal of Hospital Infection* 58: 247-253.

Whitby M, Pessoa-Silva C, McLaws M et al (2007) Behavioural considerations for hand hygiene practices: the basic building blocks. *Journal of Hospital Infection* 65: 1-8.

White K (2009) Self-Confidence: A Concept Analysis. *Nursing Forum* 44: 103-113.

White N (2010) Make It a Policy: The keys to creating a comprehensive policy and procedure manual. *Compliance Matters*: October 54-57.

Whitehead H, May D & Agahi H (2007) An exploratory study into the factors that influence patients perceptions of cleanliness in an acute NHS hospital. *Journal of Facilities Management* 5: 275–289.

Whyte J (2013) *Quack Policy: Abusing Science in the Cause of Paternalism*. The Institute of Economic Affairs. London.

Widmer A, Conzelmann M, Tomic M et al (2007) Introducing alcohol based hand rub for hand hygiene: the critical need for training. *Infection Control of Hospital Epidemiology* 28: 50-54.

Wilson K (2009) CleanYourHandsCampaign: Reducing Healthcare Related Infections. *Cases in Public Health Communication & Marketing* 3: 114-131.

Wilson N, Pope C, Roberts L & Crouch R (2014) Governing healthcare: finding meaning in a clinical guideline for the management of non specific low back pain. *Social Science & Medicine* 102: 138-145.

Winkler E (2005) The ethics of policy writing: how should hospitals deal with moral disagreement about controversial medical practices? *Journal of Medical Ethics* 31: 559-566.

Wiggins S (2009) *Discourse Analysis*. In Reis H & Sprecher S (eds) *Discourse Analysis in Encyclopaedia of Human Relationships*. California: Sage.

Wilcox M & Dave J (2000) The cost of hospital-acquired infection and the value of infection control. *Journal of Hospital Infection* 45: 81-4.

Williams J (2009) *Style: The basics of clarity and grace* (3rd edition). New York: Pearson Longman.

Williams K (2011) The audience strikes back: new audience and reception theory. *Understanding Media Theory*. London: Bloomsbury Academic.

Wilson J (2006) *Infection Control in Clinical Practice* (3rd Edition). Bailliere Tindall.

Wilson J, Loveday H, Hoffman P et al (2007) Uniform: an evidence review of the microbiological significance of uniform policy in the prevention and control of healthcare associated infection. *Journal of Hospital Infection* 66: 301-307.

Wilson K (2009) cleanyourhands: Reducing Healthcare Related Infections. *Cases in Public Health Communication & Marketing* 3: 114-131.

Winterman D (2012) *Handwashing: Why are the British so bad at washing their hands?* BBC News Magazine.

Woollard K (2008) MRSA in hospitals: time for a culture change. *Medical Journal Australia* 118: 61-64.

Worthy B (2008) The future of freedom of information in the United Kingdom. *The Political Quarterly* 79: 100-108.

Working Party Report (1990) Guidelines for the control of epidemic methicillin resistant Staphylococcus aureus. *Journal of Hospital Infection* 16: 351-377.

World Health Organisation (2009) *Guideline on hand hygiene in healthcare*. Geneva: WHO.

World Health Organization (2011) Report on the burden of endemic health care-associated Infection worldwide: clean care is healthy care. Geneva: WHO.

Wren J, Kozak K, Johnson K et al (2007) The write position. *European Molecular Biology Organisation* 8: 987-991.

Yang R & Allison D (2003) RAs in Applied Linguistics: moving from results to conclusions. *English for Specific Purposes* 22: 365-384.

Yngve A (2011) Editorial Is the emperor nude? Impact factor or health impact factor. *Public Health Nutrition* 14: 753.

Yuan C, Dembry L, Higa B et al (2009) Perceptions of hand hygiene practices in China. *Journal of Hospital Infection* 68: 164-170.

References from the Academic Corpus

Bahal A et al (2007) Hand hygiene compliance: universally better post-contact than pre-contact in healthcare workers in the UK and Australia. *British Journal of Infection Control* 8: 24-27.

Boscart V et al (2010) Defining the configuration of a hand hygiene monitoring system. *American Journal of Infection Control* 38: 518-522.

Creedon S (2005) Healthcare workers' hand decontamination practices: compliance with recommended guidelines *Journal of Advanced Nursing* 51: 208–216.

Duggan J et al (2008) Inverse correlation between level of professional education and rate of handwashing compliance in a teaching hospital. *Infection Control Hospital Epidemiology* 29: 534–538.

Erasmus V et al (2010) Improving hand hygiene behaviour of nurses using action planning: a pilot study in the intensive care unit and surgical ward. *Journal of Hospital Infection* 76: 161-164.

Eveillard M et al (2009) Measurement and interpretation of hand hygiene compliance rates: importance of monitoring entire care episodes. *Journal of Hospital Infection* 72: 211-217.

Haas J & Larson E (2008) Impact of wearable alcohol gel dispensers on hand hygiene in an emergency department. *Academic Emergency Medicine* 15: 393–396.

Harbarth S et al (2010) Interventional study to evaluate the impact of an alcohol-based hand gel in improving hand hygiene compliance. *Pediatric Infectious Diseases Journal* 21: 489-495.

Helder O et al (2010) The impact of an education program on hand hygiene compliance and nosocomial infection incidence in an urban Neonatal Intensive Care Unit: An intervention study with before and after comparison. *International Journal of Nursing Studies* 47: 1245–1252.

Hugonnet S (2002) Alcohol-Based Handrub Improves Compliance With Hand Hygiene in Intensive Care Units. *Archives Internal Medicine* 162: 1037-1043.

Kohli E et al (2009) Variability in the Hawthorne effect with regard to hand hygiene performance in high- and low-performing inpatient care units. *Infection Control Hospital Epidemiology* 30: 222-225.

Korniewicz D & El Masri M (2010) Exploring the factors associated with hand hygiene compliance of nurses during routine clinical practice. *Applied Nursing Research* 23: 86–90.

Larson E et al (2005) Hand Hygiene Behavior in a Pediatric Emergency Department and a Pediatric Intensive Care Unit: Comparison of Use of 2 Dispenser Systems. *American Journal of Critical Care* 14: 304-311.

Laustesen S et al (2006) E-learning may improve adherence to alcohol-based hand rubbing: A cohort study. *American Journal of Infection Control* 37:565-568.

McCardle F (2006) How much time is needed for hand hygiene in intensive care? A prospective trained observer study of rates of contact between healthcare workers and intensive care patients. *Journal of Hospital Infection* 62, 304–310.

Mertz D et al (2010) Effect of a multifaceted intervention on adherence to hand hygiene among healthcare workers: A cluster randomized trial. *Infection Control Hospital Epidemiology* 31: 1170-1176.

Patarkul K et al (2007) Cross-sectional survey of hand-hygiene compliance and attitudes of health care workers and visitors in the intensive care units at King

Chulalongkorn Memorial Hospital. *Journal Medical Association Thailand* 88: 287-93.

Pessoa-Silva C et al (2007) Hand hygiene promotion reduction of health care associated infection risk in neonates by successful. *Pediatrics* 120: 382-390.

Picheansathian W et al (2008) The effectiveness of a promotion programme on hand hygiene compliance and nosocomial infections in a neonatal intensive care unit. *International Journal of Nursing Practice* 14: 315–321.

Pittet D, Hugonnet S & Mourouga P (2000) Effectiveness of a hospital wide programme to improve handwashing compliance. *Lancet* 356: 1307-1312.

Pittet D et al (2004) Hand Hygiene among Physicians: Performance, Beliefs, and Perceptions. *Annals of Internal Medicine* 141:1-8.

Randle J et al (2010) Twenty-four-hour observational study of hospital hand hygiene compliance. *Journal of Hospital Infection* 76: 252-255.

Rupp M et al (2008) Prospective, controlled, cross over trial of alcohol based hand gel in critical care units. *Infection Control and Hospital Epidemiology* 29: 8-15.

Sahay S et al (2010) Diurnal variation in hand hygiene compliance in a tertiary level multidisciplinary intensive care unit. *American Journal of Infection Control* 38: 535-539.

Sahud A et al (2010) An electronic hand hygiene surveillance device: A pilot study exploring surrogate markers for hand hygiene compliance. *Infection Control and Hospital Epidemiology* 31: 634-639.

Saint S et al (2009) Marked variability in adherence to hand hygiene: A 5-unit observational study in Tuscany. *American Journal of Infection Control* 37: 306-310.

Schneider J et al (2009) Hand hygiene adherence is influenced by the behaviour of role models. *Paediatric Critical Care* 10: 360-363.

Sharek P et al (2002) Effect of an Evidence-Based Hand Washing Policy on Hand Washing Rates and False-Positive Coagulase Negative Staphylococcus Blood and Cerebrospinal Fluid Culture Rates in a Level III NICU. *Journal of Perinatology* 22: 137 – 143.

van der Vegt D, & Voss A (2009) Are hospitals too clean to trigger good hand hygiene? *Journal of Hospital Infection* 72: 218-220.

Venkatesh A et al (2008) Use of electronic alerts to enhance hand hygiene compliance and decrease transmission of vancomycin-resistant Enterococcus in a hematology unit. *American Journal of Infection Control* 36: 199-205.

Newspaper References in Chronological Order

- Times September 4, 1990, Hospital Infections cost NHS 110m each year.
- Independent May 21, 1997, Nurses who do not wash their hands.
- Guardian October 13, 2000a, Doctors spurn basic hygiene.
- Guardian November 28, 2000b, Dishing the dirt.
- Mirror August 23, 2001, Health Zone: taking your life in your hands.
- Sunday Mirror January 27, 2002, Basic hygiene would save lives.
- Sunday People December 15, 2002, Death in Hospital.
- Times January 24, 2003, Swinney accused McConnell of health inaction.
- Telegraph May 23, 2003, Lessons on washing hands curb superbug.
- Mirror June 3, 2003, Medics must be clean.
- Sunday Express July 6, 2003a, Hospitals must learn all over again with staff made to wash hands and taught how to clean.
- Independent July 15, 2003, Patients to challenge staff on hand washing.
- Mail August 6, 2003a, Superbugs on the wards? Mop floors rigorously.
- Sunday Express 31 August 2003a, Hospital staff get lessons on how to scrub up.
- Express September 14, 2003, Expert predicts rise in hospital acquired infections: superbugs set to kill 150,000.
- Observer September 21, 2003, Patients fight back against infections.
- Mail December 8, 2003b, Mops and buckets not memos and more bureaucrats.
- Sun December 10, 2003, Letters page.

Mail on Sunday April 18, 2004, Laziness that lets a hospital killer run wild.

Sunday Telegraph May 16, 2004, Patients told to ask nurses: have you washed?

Guardian July 2, 2004a, Full wards staff shortages help to spread superbugs.

Independent July 13, 2004b, Huge pressure on space contributes to hospital infections.

Independent July 14, 2004a, Hospital Superbugs.

Mail July 14, 2004, Hospitals can be clean if nurses care enough.

Express September 18, 2004, A third of NHS Staff wear wrist watches or rings and a sixth don't wash hands; a scandal of superbug.

Guardian December 2, 2004b, New superbug weapons hope.

Sun January 7, 2005a, 80% of ICU docs never wash their hands.

Sun January 10, 2005b, Scrub all no-wash doctors.

Sunday Mirror January 23, 2005, Wash off ward bug.

Mail February 3, 2005a, 300,000 people catch deadly infections every year, 5000 of them die as direct result - 1500 others are left so weak they die from other illnesses – so how many MORE must die before our nurses remember to wash their hands?

Star March 15, 2005, No headline.

Sunday Express April 3, 2005, Nurse slate Anne as too posh to wash.

Sunday Telegraph April 17, 2005, My mother became target.

Express April 27, 2005a, We can't wait for another 20 years to beat MRSA.

Express May 21, 2005b, Visitors sprayed in MRSA battle.

Mail June 23, 2005b, One in 11 hit by superbugs.

Mirror June 23, 2005, 40% of hospitals losing MRSA war.

Guardian June 23, 2005, Government accused on superbugs.

Telegraph June 23, 2005, Ministers too slow to tackle hospital bug, says MP.

Express June 28, 2005c, Tea ladies not exempt from hygiene rules.

Sun September 20, 2005c, Wash your hands and wipe out MRSA.

Sunday Times December 11, 2005, Hospital patient arm themselves with wipes.

Sun July 26, 2006a, Docs too busy to wash hands of superbug that kills 6,000 a year.

Mirror July 28, 2006, A dirty little secret.

Express October 26, 2006a, Hanwashing initiative a waste of money.

Guardian October 26, 2006, Flouting of NHS hygiene as bad as drink driving.

Mail October 26, 2006, Doctors who don't wash their hands are as bad as drink drivers.

Sunday Mirror October 29, 2006, Doc has superbug in a lather.

Express November 9, 2006b, Hospital patients feel more at risk than ever.

Sunday Telegraph November 26, 2006, Thousands of hospital staff fail to wash hands correctly doctors and nurses flout hygiene rules even when treating patients.

Independent December 18, 2006, Cleaning up their acts.

Sun December 29, 2006b, Muslims refuse anti-MRSA soap.

Mail January 13, 2007a, Taxpayers pounds 2.5 bill for guide to clean hands.

Mirror January 13, 2007a, Voice of the Daily Mirror: Wash plan should be scrapped.

Sun January 17, 2007a, Kerr's washed hands of NHS.

Times May 22, 2007a, Is hygiene all washed up?

Sun May 31, 2007b, Killer hospitals.

Times June 19, 2007b, Hospital sickness.

Sunday Times July 1, 2007a, Bring back matron.

Sunday Times July 1, 2007b, Washing their hands.

Mail July 18, 2007b, Doctors to blame for superbug crises, says health chief.

Sun July 26, 2007c, Docs too busy to wash hands of superbug that kills 6,000 a year.

Sunday Mirror July 29, 2007, C-Diff Crusader.

Mirror August 7, 2007b, Hail lot better.

Telegraph September 17, 2007a, MRSA to force ban on doctors white coats.

Mirror September 28, 2007c, MRSA fight blasted.

Sun September 27, 2007c, Bug war blasted.

Times September 28, 2007c, deep cleaning to kill bugs not necessary.

Mail October 12, 2007c, A deep clean at every hospital.

Sun October 12, 2007d, NHS Killers.

Telegraph October 12, 2007b, Telegraph comment.

Express October 18, 2007, Hundreds of hospitals fail to hit hygiene target.

Sun November 2, 2007e, Tackle bugs.

Sun November 26, 2007f, Letters page.

Mail on Sunday November 27, 2007, 50m to make nurses wash their hands.

Mail December 28, 2007d, 20pc of hospital staff fail hand hygiene standard.

Mail December 28, 2007e, 20pc of hospital staff fail hand hygiene.

Sun December 28, 2007g, Use soap say stars.

Sunday Telegraph February 3, 2008, Muslim medic break superbug rules.

Express, March 11 2008a, Boxing clever in superbug battle was 2009.

Mirror March 13, 2008a, My NHS bug fight.

Express April 18, 2008b, Patients at risk as medics fail to hit hygiene standards.

Sun April 18, 2008a, Wash up doc.

Times April 25, 2008a, alcohol rubs out hygiene.

Mirror May 24, 2008b, Wind-ups a wind up: prank.

Sun May 27, 2008b, Letters page.

Times June 3, 2008b, CCTV to nab non washers.

Mirror June 20, 2008c, Lazy health staff behind hospital superbug.

Sunday Times August 10, 2008a, Doctors spread superbugs by flouting hygiene rules.

Sun September 23, 2008c, Tell your Doc to wash hands.

Mirror October 8, 2008d, I nursed my dying mum like a baby in a filthy hospital.

Sun October 9, 2008d, Dirty docs.

Mail on Sunday December 21, 2008, Zero tolerance for doctors and nurses who fail to wash their hands.

Sunday Times December 21, 2008b, Doctors face sack for not washing hands.

Express December 22, 2008c, NHS staff who don't wash will face the sack.

Sun December 22, 2008e, Axe docs for not washing hands.

Express January 15, 2009a, Doctors not getting the message.

Express January 27, 2009b, Hospital bug league tables to go on the web.

Sun March 26, 2009a, Wards bug fight.

Sun July 3, 2009b, Dirty disgrace.

Times July 8, 2009, two thirds of doctors fail to wash hands properly.

Telegraph December 29, 2009, Washing hands could give you an infection.

Times January 28, 2010a, Doctors fail to wash hands.

Times February 19, 2010b, C Diff news blackout.

Telegraph April 12, 2010b, Female doctors exempt from bare below the elbows.

Telegraph August 12, 2010a, Can we stop the superbug?

Times September 20, 2010c, Big Brother is watching you, doctor, so make sure you wash your hands.

References from Policy Corpus

Aintree University Hospitals NHS Foundation Trust, Hand Hygiene Policy 2007

Ashford & St Peters Hospital NHS Trust, Hand Hygiene Policy 2008

Avon and Wiltshire Mental Health Partnership NHS Trust, Hand Hygiene Policy 2009

Barnet and Chase Farm Hospitals NHS Trust, Hand Hygiene Policy 2009

Barnet, Enfield and Haringey, Mental Health NHS Trust, Hand Hygiene Policy 2009

Basildon and Thurrock University Hospital NHS Foundation Trust, Hand Hygiene Policy 2009

Basingstoke and North Hampshire NHS Foundation Trust, Hand Hygiene Policy 2009

Bedford Hospital NHS Trust. Hand Hygiene Policy 2009

NHS Bedfordshire, Hand Hygiene and Glove Selection Procedure 2009

Berkshire West, Hand Hygiene Clinical Care Protocol, 2008

Blackburn with Darwen, Hand Hygiene Policy, 2009

Bristol Community Health, Hand Hygiene Policy 2008

Calderstones NHS Trust, Hand Hygiene Procedure 2009

Cambridge and Peterborough NHS Foundation Trust, Infection Prevention and Control Manual 2009

Camden & Islington NHS Foundation Trust, Hand Hygiene for Healthcare Staff 2008

Central Lancashire, Hand Hygiene Procedure 2007

Central and North West London NHS Foundation Trust, Hand Hygiene Policy 2007

Chesterfield Royal Hospital NHS Foundation Trust, Hand Hygiene Policy 2008

City Hospitals Sunderland NHS Foundation Trust, Hand Hygiene Policy 2007

Countess of Chester Hospital NHS Foundation Trust, Hand Hygiene Policy 2007

Derbyshire Mental Health Services NHS Trust, Hand Hygiene Policy 2008

Devon Partnership NHS Trust, Hand Hygiene Policy 2008

Doncaster Primary Care Trust, Hand Hygiene Policy 2008

Dorset Healthcare NHS Foundation Trust, Hand Hygiene Policy 2007

Dudley Primary Care Trust, Hand Hygiene Policy and Procedure 2008

East Kent Hospitals NHS Trust, Hand Hygiene Policy 2008

East London NHS Foundation Trust, Hand Hygiene Policy 2008

East Sussex Hospitals NHS Trust, Hand Hygiene Policy 2009

Epsom and St Helier University Hospitals NHS Trust, Standard Precautions: Hand Decontamination 2007

Essex Rivers NHS Trust Hand Hygiene Procedure 2007

Frimley Park Hospital NHS Foundation Trust, Hand Hygiene Policy 2009

George Elliot Hospital NHS Trust, Hand Hygiene Policy 2009

Gloucestershire Primary Care Trust, Hand Hygiene Policy 2008

Great Yarmouth and Waveney, Hand Hygiene Policy 2008

Harrogate and District NHS Trust, Hand Hygiene Policy 2008

Heart of England NHS Foundation Trust, Hand Decontamination Policy 2008

Hereford Hospitals NHS Trust, Hand Hygiene Policy (undated)

Herefordshire Primary Care Trust, Hand Hygiene Policy 2008

Hillingdon Hospital NHS Trust, Hand Washing Policy 2009

Hull and East Yorkshire Hospitals NHS Trust, Hand Hygiene Policy 2009

James Paget Universities Hospitals NHS Foundation Trust, Hand Decontamination Policy 2009

Kensington and Chelsea, Hand Hygiene Policy 2009

Kirklees Primary Care Trust, Hand Decontamination, 2009

Leeds Partnership NHS Foundation Trust, Hand Hygiene Procedures 2009

Lincolnshire Partnership NHS Foundation Trust, Hand Hygiene Guidelines 2009

Luton and Dunstable NHS Tryst, Infection Control Manual (undated)

Maidstone and Tunbridge Wells NHS Trust, Hand Hygiene Policy 2007

Mid Essex Hospital Services NHS Trust, Hand Hygiene Policy 2008

Mid Yorkshire Hospitals NHS Trust, Hand Hygiene Policy 2008

Milton Keynes Hospital NHS Trust Hand Hygiene Policy 2007

Newcastle upon Tyne Hospitals NHS Foundation Trust, Hand Hygiene Policy 2007

NHS Brent, Hand Hygiene Policy 2008

NHS Hull, Hand Hygiene Policy 2009

NHS Luton, Hand Hygiene Policy 2009

NHS Southwark, Policy and Procedures for Hand Hygiene 2009

NHS Warrington, Hand Hygiene Policy 2009

NHS Warwickshire, Hand Hygiene Procedure 2008

Northampton General Hospital NHS Trust, Code of Practice for Hand Hygiene 2009

North Bristol NHS Trust Hand Hygiene Policy 2008

Northern Lincolnshire and Goole Hospitals NHS Trust, Hand Decontamination Policy 2009.

North Somerset Primary Care Trust, Hand Hygiene Policy 2009

North Staffordshire Combined Health Care NHS Trust, Hand Hygiene Policy NHS Trust, 2008

Northumberland, Tyne and Wear NHS Trust, Hand Hygiene Policy 2007

Northumbria Health Care NHS Foundation Trust, Hand Hygiene Policy 2009

North Middlesex University Hospital NHS Trust, Hand Hygiene Policy 2009

North Tees and Hartlepool NHS Foundation Trust, Hand Hygiene Policy 2008

Nottingham University Hospitals NHS Trust, Hand Hygiene Policy 2009

Nottinghamshire Health Care NHS Trust, Hand Hygiene Policy and Procedure 2008

Oldham Primary Care Trust, Hand Decontamination Policy 2008

Oxford Radcliffe Hospitals NHS Trust, Hand Hygiene Policy 2007

Oxford Disabilities Ridgeway Partnership, Hand Hygiene Policy and Guidance 2009

Rotherham NHS Foundation Trust, Hand Hygiene Policy 2008

Royal Orthopaedic Hospitals NHS Foundation Trust, Code of Practice for Hand Hygiene 2009

Sandwell and West Birmingham Hospitals NHS Trust, Hand Hygiene Policy 2007

Sheffield Care, Hand Hygiene Policy and Guidelines for Practice 2009

Sheffield Children's Hospital NHS Foundation Trust, Hand Hygiene Policy 2009

Somerset Community Health, Hand Hygiene Policy 2009

Southampton City Primary Care Trust, Hand Hygiene Policy 2007

Southport & Ormskirk Hospital NHS Trust, Hand Hygiene Policy 2008

South London and Maudesly NHS Foundation Trust, Hand Hygiene Clinical Guideline 2008

South Birmingham, Hand Hygiene Policy 2008

South Devon Health Services, Hand Decontamination Guidelines 2008

South Downs Health NHS Trust, Hand Hygiene Policy 2008

South East Essex Community Healthcare, Hand Hygiene Policy 2009

South Essex Partnership NHS Foundation Trust, Standard Universal Precautions for Infection Control 2007

South Gloucester Primary Care Trust, Hand Hygiene Policy 2008

South Tees Hospital NHS Trust, Hand Hygiene Policy 2008

South Tyneside NHS Foundation Trust, Hand Hygiene Policy 2007

South Warwickshire General Hospitals NHS Trust Hand Hygiene Procedure 2008

Southampton University Hospitals NHS Trust, Hand Hygiene Policy 2008

Stockport NHS Foundation Trust, Hand Decontamination Policy 2008

Stoke on Trent, Hand Hygiene Policy 2008

Suffolk Mental Health Partnership NHS Trust, Infection Control Manual 2008

Swindon Primary Care Trust, Hand Hygiene Policy 2009

Tavistock and Portman NHS Foundation Trust, Hand Hygiene Policy 2008

Trafford Primary Care Trust, Hand Hygiene Policy 2009

United Lincolnshire Hospitals NHS Trust, Hand Hygiene Guidelines 2009

University Hospital of North Staffordshire NHS Trust, Hand Hygiene Policy 2008

Waltham Forest Primary Care Trust, Infection Control Policy 2007

Warrington and Halton Hospitals NHS Foundation Trust, Policy on Hand Decontamination 2008

West Essex Primary Care Trust, Hand Hygiene Guidelines 2007

West Hertfordshire Hospitals NHS Trust, Hand Hygiene Policy 2008

West Middlesex University Hospital NHS Trust, Hand Hygiene Policy 2009

Whipps Cross University Hospital NHS Trust, Hand Hygiene Policy 2008

Wirral University Teaching Hospital NHS Foundation Trust, Hand Hygiene Policy and Procedure 2008

Worcestershire Primary Care and Mental Health Partnership Trust, Guidelines for Hand Hygiene 2009

York Hospitals NHS Foundation Trust Policy for Effective Hand Hygiene, 2008

5 Boroughs Partnership NHS Trust, Hand Hygiene Policy 2008.