

## Review Article

# Hand Washing: An Essential Infection Control Practice

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### Abstract

Hand washing is an age long infection control practice in hospital. It is aim at preventing the spread of spore forming microorganisms in the hospital environment. All persons who will engage in any hospital service must first learn the science of hand washing technique and appropriate its benefits. Extant studies reported varied compliance rate among categories of medical practitioners with an average of less than 75% compliance rate. There are policies and regulations across care settings on proper hand washing and where laws are not enacted it is propagated as health promotion activity with the ethical principles underpinning the procedure. Nurses in particular are frontliners in patients care and are therefore motivated to jointly scale up infection control with other practitioners to prevent spread of disease causing pathogens which can complicate the patients care, increase length of hospital stay, care cost and rate of hospital re-admission

**Key words:** Hand washing, infection control, compliance rate, ethical principle

### Introduction

This article essentially examine the dynamics of proper hand washing in curbing the spread of pathogenic organisms within the healthcare facilities. Research findings, empirical data and systematic review of previous studies were considered to examine evidenced based practice on hand washing and infection control, medical professionals' compliance to hand washing as well as review of available health policies and regulations regarding infection control. It also discuss ethical principle underpinning hand hygiene in a bit to improve infection control in clinical practice

### Literature Review

Hand washing technique is an age long hospital based procedure. It is a standardised infection control practice among all medical practitioners to prevent spread of pathogens from patient to patient, patient to medical practitioners and also

from medical practitioners to patient (Chipungu, Mancrueffi, Verstraete, Osbert, Manchikanti, Curtis, Chilengi (2018). It is a simple but very important aspect of hospital care services. It is an act of infection control for optimal care delivery that without it, infection can easily spread, complicate patient diagnosis, increase period of hospitalisation, cost of care and rate of hospital re-admission of patients (Alwis, Pakirisamy, San, Xiaofen, 2012; Jemal, 2018)

Patients care givers especially nurses are expected to practice the procedure as many times per shift all in the process of preventing cross-contamination during patients care (Orji, 2008; Nair, Hanumantappa, Hiremath, Sraj, Raghunath, 2014). In the United Kingdom, policies are put in place to ensure health practitioners comply with infection control practice via hand washing during clinical practice (NHS, 2008). In essence, all persons who will engage in any hospital service

must first learn the science of hand washing technique and appropriate its benefits

Hand washing is a procedure which involves thorough cleansing to get the hand free of disease-causing micro-organisms such as bacteria, virus and fungi. Hand washing is known as part of initial aspect of all nursing procedures. In fact, the recent crusade about communicable diseases such as hepatitis, cholera, typhoid, Ebola has brought the practice to the fore and it is poised to be effective infection control practice.

Furthermore, hand washing is recognised as part of infection control practice in most part of the world. Recently in some part of Africa, hand washing practices was not only seen as an infection control procedure in health facilities but a public health practice at home, school, offices and work places as a means to curtail spread of infections. For instance, during the first incidence of Ebola Epidemic in some part of West Africa, hand washing or sometimes called hand hygiene became a popular measure at preventing the spread of the haemorrhagic disease. During this period, the procedure assumed more of health promotion practice by the people rather than government ingrained policy. The process of hand hygiene or hand washing has no ethno-religion bias and is a simple procedure which mainly involve soap and water. Clean water can be easily accessible and soap need not to be medicated soaps. A simple soap which is an antiseptic can do the cleansing with water. Hand washing technique covers thorough washing of both hands, fingers, nail to elbow length. Although, literature supports the use ash, alcohol based hand sanitizers to achieve hand hygiene in the absence of soap and water however, opinion is polarised on the effectiveness of ash, alcohol and other sanitizers over the traditional hand washing with soap and water. Ayse, Eda, Kadayifci, Uluhan Ahmet, Gulcan\_ et al (2014) posited that most healthcare workers desire to perform routine hand washing procedure using soap and water as compared to alcohol-based hand hygiene disinfectant

The World Health Organisation (WHO) itemized procedure for effective hand washing which include: “1. wetting of hands over a sink or wash basin, 2. lathering of hands with soap or anti

germicide agents with foaming effects. 3. Scrubbing of both hands in a specific fashion ranging from fingers, palms, back of hands, wrist, to middle of alms close to elbow. 4. Rinse properly scrubbed hands 5. Air- dry hands or place hands over a hand dryer.” (WHO, 2009).

### **Medical practitioners’ compliance with hand washing/infection control**

Significantly, healthcare facilities are known to house considerable amount of pathogens which can be transferred from one person to another, due to this development, Cambell, (2010) opined that a multi-professional approach should be advocated for infection control and hand hygiene in hospitals. The infection control in the previous years have been left to the jurisdiction of the infection control unit of the hospitals, however, researchers soon discovered that effective infection control requires the input of all healthcare professionals in the cohort of nurses, physicians, laboratory scientists and others

Tumusiime, (2016) in a study conducted in the U.K on the compliance rate of health professionals on hand washing and infection control with 75% as the set target revealed 71% compliance rate among nurses and 61% compliance rate among physicians. Sickbert-Bennett, DiBiase, Willis, Wolak, Weber, & Rutala,(2016) noted that the hand washing compliance rate among these clinicians has increased with reduced health care associated infection, death and care cost (Magill, Edwards, Bamberg, Beldays, Dumyati & Kainer, (2014); Zimlichman, Henderson, Amir, Franz, Song & Yamin, (2013).

Moreover, the compliance and attitude of health professionals toward hand washing has generated more debate. Ayşe et al (2014) for example asserted that nurses show more compliance rate of not less than 10% higher than the compliance rate with physicians. Similarly, Akyol (2007): Alwis et al, (2012): Chipungu et al, (2018) argued that in term of compliance nurses have sense of high attitude and skill towards effective hand washing as clinician than other healthcare professionals.

Similarly, Mona & Vincent, (2013) in a study which examined practitioners compliance to hand washing in Intensive Care Unit reported that nurses

has the highest score of about 82% while the physicians has the lowest score of 43% whereas Collins & Hampton (2005) believed that physicians have sense of high attitude and skill about hand washing than other healthcare professionals. Again, Jemal (2013) reported higher compliance rate of hand washing among doctor than nurses in an observational study conducted in Ghana

Also, Ayse et al, (2014) stratified health workers hand hygiene compliance rate in line with WHO standard and results show as follows; *“compliance rate before touching the patient is 43.2%; before a clean and aseptic procedure was 8.5%; after body fluid exposure was 18.1%, after patients’ contact 68.1%; contact with patient surroundings is 43.2%”*. Consequently, compliance rate of hand hygiene is generally not up to the expected standard among nurses, physicians and other health practitioners (WHO, 2009; Onno & Rene, 2010; Tobi & Nwafor, (2013); Nair et al, 2014; Chipungu et al, 2018). Therefore, researchers have continued to conclude that there is need for health professionals to jointly step-up the game in ensuring higher compliance in hand washing/hygiene and optimum infection control.

Chatfield, Nolan, Crawford and Hallam, (2016) revealed that institutional differences, shortage of staff and individual perception affects health workers compliance with hand washing/hand hygiene. Hand washing could become unrealistic when a health worker feels the procedure is not necessary since he/she will not touch the patient. For example, Bosek & Shaner-McRae (2010) reported a scenario where a senior consultant physician had a show-off with hand washing. The visiting senior consultant felt hand washing/ hand hygiene is of no need before medical round with students indicating that he will not touch patient. However, he got a modification of his awkward idea from the middle level nurse who was the manager in-charge of the hospital ward.

Nurses have a long history of patient advocate and the confidence reposed on nurses include prevention of potential incidence that can affect the positive patient outcome. Significantly, researchers are yet to unravel why some health workers who are originally expected to champion the course of

hand hygiene and infection control lack full compliance to the model of proper hand hygiene. Ayse et al, (2014) retreated that health workers could undermined how micro-organisms can thrive on the surface of patient case file, treatment sheet, trolley, beside locker, screen

Similarly Mona & Vincent, (2013); Chipungu et al, (2018) posited that most clinicians considered hand washing as being burdensome and time consuming. Therefore, they prefer hand sanitizer, disposable glove while attending to each patient while the hand washing is reserved to the end of the round or procedure. Cole, (2009) also noted that only clinicians who are being monitored by the hospital management obey the rule down to the institutional standard to avoid being queried or questions while those not being monitored draw back to their normal non-compliance to institutional standard.

Again, an Australia study by Grayson, Stewardson, Rosso et al (2018) also revealed that clinical professionals work at their best and obey institutional order when they work under observation and monitoring. In that study, the authors report shows that for every 10% increase in clinicians’ compliance to hand washing there is a resultant reduction in the burden of staphylococcus aureus by 15% in the studied hospitals. This finding is in consonance with Onno and Rene (2010) result where improved hand washing lead to significant reduction in the rate of infections. Nonetheless, Tobi & Nwafor, (2013); Chipungu et al, (2018) retreated that sometimes the fault is from the hospital management by not providing necessary hospital materials for proper hand washing and largely infection control

### **Health Policy and Regulation on Infection Control**

There are pockets of health policies around the world on infection control especially among the health workers, patients and others who’s line of job has to do with medical services to prevent nosocomial (hospital acquire) infections. In the United Kingdom, the National Health Scheme clearly enacted a policy on infection control in hospital. This policy prescribed that health professionals, patients and all hospital attendees

must be protected from acquiring nosocomial infections (NHS, 2008).

Today, with “the Health and Social Act 2008” in place, several of the hospitals in the U.K have key into the NHS policy (Mayfield & Dull, 2011) and it is a matter of commitment and trust that all and sundry perform hand hygiene before they can engaged in patients care. In the same vein, the regulation enables the provision of protocol, items, appropriate technology and simple information on hand washing and infection control both in hospitals and public places (NHS, 2016).

Cambell (2010); Bosek & Shaner-McRae (2010); Collins & Hampton (2005) asserted that as a matter of national policy in the U.K, any health professional who violates the enacted law on hand washing/infection control should be made to face the hospital disciplinary action irrespective of his/her discipline, rank and file. In other settings outside U.K where there is no “Act” or law on proper hand washing technique, the procedure is propagated as a habit in which the public can easily imbibe. This was the case in Nigeria during Ebola outbreak to curtail the spread of the disease and it was judged to be a veritable and sustainable health promotion habit.

#### **Hand washing and infection control: Ethical consideration**

Ethical obligations are code of conduct that drive the standard of practice of any profession. It is the hallmark of behavioural expectation of the practitioner at a certain instance in their professional pursuit. Within the health care profession, ethical principles are seen as a big deal which must be adhered to. Nurses in particular are the frontliners in patient care and they provide 24 hours continuous care to patients. Thus, because of this position they occupied, nurses are highly inclined with basic ethical principles in meeting the health care need of the patients. In this regards, hand washing/hand hygiene is a routine procedure nurses perform at every procedure and patient care to maintain asepsis thereby preventing spread of spore forming micro-organisms which can complicate the patients care, increase length of hospital stay, care cost and rate of hospital re-admission (Nair et al, 2014, Jemal, 2018)

Furthermore, nurses uphold ethical principle of normalifcence (do no harm) which informed them not to do harm to patient, self and the hospital environment. Nurses therefore must work with infection control unit of the hospital to improve their knowledge and practice on infection control amidst the varied patients’ diagnosis and care needs. Sometimes, patients’ acuity, severity and comorbidities influence microbial growth and nurses are expected to ensure routine hand hygiene to prevent hospital acquired infections. In some settings, nurse-patient assignment, work load, staffing challenges are impediments to nurses’ effective, quality infection control in hospitals. Also, nurses at time faces ethical dilemma in the line of their duty. Despite all these, nurses are trained and expected to tenaciously uphold nursing ethics and jurisprudence.

#### **Conclusion**

Hand washing is a paradox of infection control. Studies have shown that infection control is at optimal where routine hand washing is practiced. It is a simple but effective infection control practice aim at reducing microbial load in hospitals. However, despite research findings are supporting the efficacy of hand washing in infection control, some clinicians were reported noncompliant with the procedure. Compliancy varies within and across medical practice. A study put acceptable compliance rate among medical practitioners to be 75%. Few studies had argued that nurses demonstrated higher compliance rate than other medical practitioners yet the general conclusions is to foster joint relationship among the medical practitioners in conjunction with the infection control unit to improve infection control in hospitals.

Also, the review examined available policies and regulations regarding hand washing in hospitals as well as ethical principle underpinning the practice of hand washing among the clinicians. In the U.K for example, National health Scheme (NHS) regulation on hand hygiene prescribed that all hospital workers, patients and visitors must practice hand washing and this principle is widely spread across hospitals in the U.K. In some settings outside the U.K, hand washing was seen as a health promotion habit for preventing the spread of

infection. Consequently, proper, adequate hand washing will prevent spread of infection in hospitals thereby reducing diseases complication, care cost, length of hospital stay and rate of hospital readmission

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