



# Reversing Back to the Basic: Infection Control Strategies

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**How to cite this paper:** Miah, M., Nafisa, S., Bartley, T., Kaur, S. and Ashoub, A. (2020) Reversing Back to the Basic: Infection Control Strategies. *Open Access Library Journal*, 7: e6197.

<https://doi.org/10.4236/oalib.1106197>

**Received:** February 28, 2020

**Accepted:** April 21, 2020

**Published:** April 24, 2020

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## Abstract

Healthcare-associated infections are estimated to cost the NHS approximately £1 billion a year. In addition to increased costs, each one of these infections means additional use of NHS resources, greater patient discomfort and a decrease in patient safety. In the wake of the growing burden of healthcare-associated infections (HCAIs), the increasing severity of illness and complexity of treatment, superimposed by multi-drug resistant (MDR) pathogen infections, healthcare practitioners (HCPs) are reversing back to the basics of infection preventions by simple measures like hand hygiene. However, studies on hand hygiene compliance among healthcare workers have repeatedly shown poor compliance with hand hygiene. Prospective observational data were collected over 2 weeks on the basic hand hygiene behaviour of the employees. Prospective observational data were collected over 2 weeks. Employees from different categories were observed in different occasions for 217 times. Only 37% of the consultants were bare bellow elbow while nursing staffs, ANPs and the domestics achieved 100% performance. While it was about the alcohol hand rub use, 37% of the consultants used hand rubs before and 33% both before and after. The ANPs achieved the highest performance, 70% of them used alcohol hand rub before and after each patient contact. The healthcare practitioners need to brace themselves to inoculate the simple, basic and effective practice of hand hygiene in their daily patient care activities. From this study, it is evident that the standard was partially met.

## Subject Areas

Clinical Trials, Gastroenterology & Hepatology, Translational Medicine

## Keywords

Infection Control, Hand Hygiene, Bare Bellow Elbow, Alcohol Hand Rub

## 1. Background

The transfer of organisms between humans can occur directly via hands, or indirectly via an environmental source (e.g. clinical equipment, toys or sinks). It is universally acknowledged that the hands are the principal route by which cross-infection occurs and that hand hygiene is the single most important factor in the control of infection. Hand hygiene is now regarded as one of the most important elements of infection control activities. In 2010, in England, infectious diseases accounted for 7% of all deaths, 4% of all potential years of life lost (to age 75) and were also the primary cause of admission for 8% of all hospital bed days, and they are responsible for a large proportion of sickness absence from work [1]. It is estimated that 300,000 patients a year in England acquire a healthcare-associated infection as a result of care within the NHS, a prevalence rate of 8.2% [2]. In 2007, methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infections and *Clostridium difficile* infections were recorded as the underlying cause of or a contributory factor in, approximately 9000 deaths in hospital and primary care in England. Healthcare-associated infections are estimated to cost the NHS approximately £1 billion a year. In addition to increased costs, each one of these infections means additional use of NHS resources, greater patient discomfort and a decrease in patient safety. In the wake of the growing burden of healthcare-associated infections (HCAIs), the increasing severity of illness and complexity of treatment, superimposed by multi-drug resistant (MDR) pathogen infections, healthcare practitioners (HCPs) are reversing back to the basics of infection prevention by simple measures like hand hygiene. However, studies on hand hygiene compliance among healthcare workers have repeatedly shown poor compliance with hand hygiene. The hands of HCWs are commonly colonized with pathogens like methicillin resistant *S. aureus* (MRSA), vancomycin resistant *Enterococcus* (VRE), MDR-Gram Negative bacteria (GNBs), *Candida* spp. and *Clostridium difficile*, which can survive for as long as 150 h. Proper hand hygiene is the single most important, simplest, and least expensive means of reducing the prevalence of HAIs and the spread of antimicrobial resistance.

## 2. Method & Sample

Prospective observational data were collected over 2 weeks from 4<sup>th</sup> December to 17<sup>th</sup> December 2017. Standard was set by the local guideline and the following things were monitored for different levels of employees. If they were bare below the Elbow, if they had rings with stones or grooves or wrist watches, if they used Alcohol-based hand rub before and after each patient contact. Employees from different categories were observed on different occasions for 217 times.

## 3. Results

Within 2 weeks' time, people from different staff groups were observed on different occasions for 217 times. Consultants were observed total 27 times during

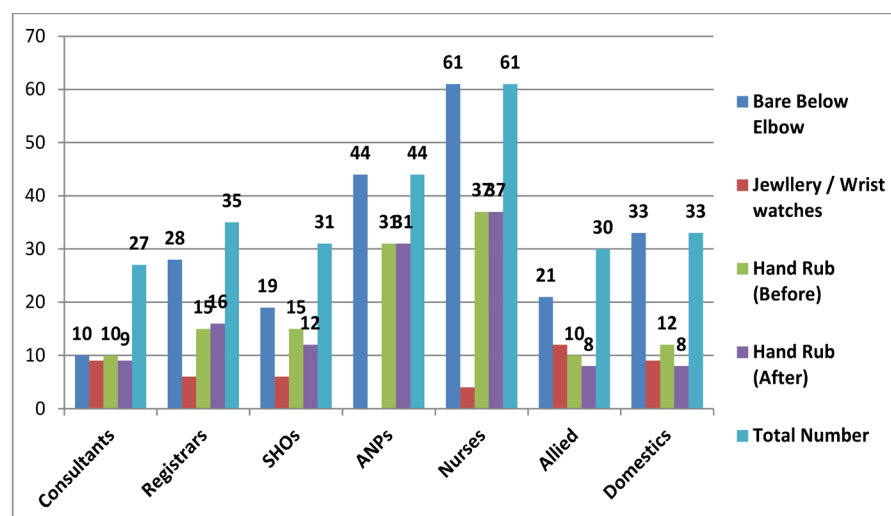
their ward round. Simultaneously Registrars were observed 35 times, SHOs 31 times, ANPs (advanced nurse practitioners) 44 times, nurses 61 times, allied professionals 30 times and the domestics 33 times. Only 37% of the consultants were bare bellow elbow while nursing staff, ANPs and the domestics achieved 100% performance (Table 1). This is obviously because of their dress code. While it was about the alcohol hand rub use, 37% of the consultants used hand rubs before and 33% both before and after. The ANPs achieved the highest performance, 70% of them used alcohol hand rub before and after each patient contact (Figure 1).

#### 4. Discussion

Hand hygiene is now regarded as one of the most important element of infection control activities. In 2010, in England, infectious diseases accounted for 7% of all deaths, 4% of all potential years of life lost (to age 75) and were also the primary cause of admission for 8% of all hospital bed days, and they are responsible for a large proportion of sickness absence from work. In most healthcare institutions,

**Table 1.** Showing the findings indifferent employees about the infection control strategies.

Employee group	Bare Below Elbow	Jewellery/Wrist watches	Hand Rub (Before)	Hand Rub (After)	Total Number
Consultants	10	9	10	9	27
Registrars	28	6	15	16	35
SHOs	19	6	15	12	31
ANPs	44	0	31	31	44
Nurses	61	4	37	37	61
Allied Health Professionals	21	12	10	8	30
Domestics/House Keepers	33	9	12	8	33



**Figure 1.** Showing performance of different level of employees in infection control strategies.

**Table 2.** Factors influencing infection control strategies.

Staff factor	Clinical factor	Environmental/Institutional factor
Physician status	Working in ITU	Believes that wearing gown and gloves take away the needs of hand hygiene
Male sex	Weekdays Vs Weekends working	Inappropriate location of the hand hygiene equipment
Lack of Role model	Understaffing	Belief of low risk of infection from inappropriate hand hygiene
Forgetfulness	Patient overcrowding	Lack of guidelines/Protocol
Not thinking about	Insufficient time	Lack of institutional priority
Lack of knowledge	Patient needs take priority	Lack of administrative sanction of the noncomplainers/rewarding compliers

adherence to recommended hand-washing practices remains unacceptably low, rarely exceeding 40 percent of situations in which hand hygiene is indicated [3] [4]. Hand hygiene reflects attitudes, behaviours and beliefs. Some of the observed/self-reported factors found to be affecting hand hygiene behaviours are enlisted in **Table 2** [2] [5]-[10]. In our study, these factors also became more evident. The basic hand hygiene behaviours were observed in different level of staff over 2 weeks. Only 37% of the consultants were found bare bellow elbow while nursing staff, ANPs and the domestics achieved 100% performance. While it was about the alcohol hand rub use, 37% of the consultants used hand rubs before and 33% both before and after. The ANPs achieved the highest performance, 70% of them used alcohol hand rub before and after each patient contact.

## 5. Conclusion

One of the reasons that microbes have survived in nature is probably their simplicity: a simple genomic framework with genetic encryption of basic survival strategies. To tackle these microbes, human beings will have to follow basic and simple protocols of infection prevention. From this study, it is evident that the standard was partially met. The healthcare practitioners need to brace themselves to inoculate the simple, basic and effective practice of hand hygiene in their daily patient care activities.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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