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Research Article

**PREVENTION OF NOSOCOMIAL INFECTION AMONG
PRIMARY HEALTHCARE PROFESSIONAL**

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Article Received: April 2022**Accepted:** April 2022**Published:** May 2022**Abstract:**

Hand hygiene decontamination remains one of the most significant and effective approaches for minimizing healthcare-associated illnesses and patient cross-infection. Florence Nightingale recommended that nurses wash their hands regularly throughout the day in 1860, exhibiting an early recognition of the effectiveness of this simple routine. We scan electronic databases such as PubMed and Embase for all relevant papers published up to 2022 on our topics. Nosocomial infection control procedures should be improved further among healthcare personnel and inpatients in designated healthcare settings that house suspected cases of emerging or undiscovered infectious diseases.

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INTRODUCTION:

Infection prevention and control are critical components of providing safe and high-quality services at the facility level [1]. With insufficient infection protection practices, the risk of developing illnesses by exposure to blood, body fluids, or contaminated items in healthcare institutions is significant [2]. In this regard, catching an infection while in a healthcare setting call into question the fundamental notion that healthcare is intended to make people well [3]. Inadequate compliance with infection prevention and control procedures clearly has a number of repercussions [4].

Every year, preventable infections in health care impact hundreds of millions of people worldwide [1,4]. Patients, healthcare workers (HCWs), support staff, medical students, and patient attendants are all affected by healthcare-associated infections (HCAIs) [5].

Cases of emerging infectious diseases such as SARS, Ebola virus disease, and MERS have frequently occurred in clusters in healthcare settings before the imported case was finally identified or community transmission was documented. In March 2003, for example, the same index SARS patient infected 19 medical staff members, one inpatient, and one family member with SARS-CoV in a hospital in Guangdong [6]. In 2003, 23 first and secondary cases were infected in a Beijing hospital, with 16 being healthcare personnel, two being inpatients, and five being family numbers [7]. Two nurses in the United States been infected with the Ebola virus while treating an Ebola patient [8]. A comparative study of the transmission of emerging infectious diseases in the healthcare setting discovered that both SARS and MERS were nosocomial super-spread at the early stage, with reproduction numbers dropping below one within 3 to 5 generations. Throughout the outbreak, more SARS cases were discovered among healthcare personnel, while MERS cases were discovered among patients seeking care in the same healthcare settings as the index case [9].

The COVID-19 pandemic has highlighted the significance of good hand hygiene to avoid cross-contamination and the spread of the SARS-CoV-2 virus [10]. When there is a threat to public health, it is critical that nurses around the world follow their professional rules of conduct. This entails nurses serving as role models for their peers and the public in clinical behaviors such as hand hygiene, as well as displaying how to analyze clinical evidence and offer best practice rather than relying on anecdotal information [10].

DISCUSSION:**Improving compliance:**

The best method to reduce and safeguard HCWs, patients, and the community from HCAIs and avoidable injuries is to adhere to infection control strategies [2,3]. Furthermore, various multifaceted factors, such as adequate knowledge of infection prevention, availability of personal protective equipment and materials, human power, training, policy and guidelines, and essential environmental health conditions, all play a significant role in achieving the goal of infection prevention [5,11]. As a result, it is critical that HCWs understand and implement the suggested infection prevention methods [11,12].

Slips and lapses in nursing are skill-based errors that occur when a piece of equipment or a medicine is omitted, or a step in a procedure, such as part of a medicine equation, is overlooked. When actions become familiar and require little conscious attention, errors are more likely to occur. Errors happen when the nurse isn't paying attention to the task and are more likely to be caused by a lack of understanding (knowledge-based errors), the application of an inaccurate rule, or the wrong application of a rule (rule-based errors) [13]. Hand hygiene compliance was evaluated from the standpoint of human factors, which include interactions between people's cognitive processes and their actions, the environment in which they operate, and the equipment they use. This knowledge can help to increase understanding of errors as well as identify ways for reducing them [13]. Suboptimal hand hygiene compliance can also emerge as a result of a healthcare worker's willful refusal to follow procedures or guidelines [14]. Deviations from procedures and protocols are purposeful choices, as opposed to slips, lapses, and blunders. According to Gluyas et al [13], the decision to disobey norms or protocols is motivated by a desire to complete tasks as quickly as possible, and the resulting errors and harm are not intended. Timing constraints and the environment may play a role in infection control violations, such as when a healthcare professional does not wash their hands before attending to a patient in an emergency.

Hand hygiene in clinical practice:

Healthcare workers should wear attire that does not extend beyond the elbow during clinical practice and when in touch with patients, and many local recommendations recommend that jewelry be limited to one basic single-band wedding ring. A water-resistant dressing should be applied to any cuts or

breaches in the skin. Nails should be short and clean, with no polish or other artificial embellishments. Wearing rings and fake nails has been linked to increased microbe carriage and, in some circumstances, the transmission of outbreak strains in small-scale observational investigations [15]. Healthcare workers should have easy access to a sink with warm water for hand washing with soap and water. When using alcohol-based hand gel, this is not necessary. Soap should be purchased from a liquid dispenser rather than a bar, which might harbor germs, or an alcohol-based hand gel should be utilized. When using soap and water, a moisturizer, which is not required when using alcohol-based hand gel, and disposable paper towels should be available [15].

Both soap and water and alcohol-based hand gel are excellent means of hand cleanliness, but each has limits. It is critical for nurses to adhere to local and national best-practice guidelines so that they are aware of the conditions under which each treatment is effective. Loveday *et al* [15] said that alcohol-based hand gel can be used for hand decontamination before and after direct patient contact and clinical care, with the exception of some scenarios where soap and water must be used. When the hands are clearly soiled or potentially contaminated with body fluids, as well as when caring for patients suffering from vomiting or diarrhea, regardless of whether gloves are worn. One reason why soap and water are essential while caring for diarrhoeal patients is that alcohol-based hand gel is ineffective against *Clostridium difficile* spores. As a result, the use of soap and water is an essential component of *C. difficile* infection hand hygiene interventions [16]. Because it is not always evident whether patients with diarrhoea have a *C. difficile* infection, it is best to start with soap and water for hand hygiene in these individuals. Although alcohol-based hand gel is efficient against Gram-negative and Gram-positive bacteria, it is less effective against some non-enveloped viruses such as rotavirus and norovirus and is dependent on the gel's alcohol concentration [17]. In cases of real or suspected norovirus, healthcare workers should follow local protocol and wash their hands with soap and water, with alcohol-based hand gel used as an added precaution. The efficiency of alcohol-based hand gel against norovirus varies depending on the kind and concentration of alcohol in the formulation, with a minimum of 60% ethanol concentration required for effectiveness [17]. The use of alcohol-based hand gel in the treatment of COVID-19 is becoming more common, with guidelines advising a concentration of at least 60% ethanol [18]. When the hands are clearly clean and nurses have not been exposed to patients with *C. difficile* or diarrhoea

of unknown origin, an alcohol-based hand gel with a 70% ethanol content is more efficient than soap and water alone at cleansing the hands and reducing the spread of infection [19].

One patient appears to have directly infected 12 others in one hospital in one research [20], resulting in a total of 20 healthcare-associated infections induced via secondary, tertiary, and quaternary transmission. We estimate a 16% assault rate among ED HCWs, which is four times higher than normal household transmission estimates [3]. Our findings add to prior reports of more widespread transmission in healthcare institutions in South Korea, Saudi Arabia, and Jordan [4,6] and imply that, in the absence of proper infection prevention measures, hospital settings may be more efficient for MERS-CoV transmission. As described during an outbreak of severe acute respiratory syndrome, transmission in healthcare settings may be facilitated by a number of factors, including: higher than usual infectiousness of patients due to high viral loads or the presence of symptoms that increase shedding; the use of procedures that aerosolize infectious respiratory illness; close patient-HCW proximity during medical encounters; and other unknown factors [21]. Comprehensive contact-tracing methods in Abu Dhabi, including testing contacts of case-patients regardless of symptoms, as well as whole-genome sequencing, were required to adequately characterize the transmission pathways in this cluster.

Before MERS-CoV was detected and diagnosed, nearly all healthcare-associated transmission incidents occurred. After diagnosis, almost 500 patient-days of hospital care were provided to case-patients in Abu Dhabi; one infection occurred among HCWs providing this care, in an ICU nurse who reported not fully adhering to suggested preventative measures while caring for a case-patient. Although delayed diagnosis played a role in all other transmission episodes, the causes of the delays differed, underscoring issues encountered by the healthcare community: 1 patient was infected early in the outbreak, before MERS-CoV was widely known and prevention policies were implemented; 1 patient sought care in an ED but had no known epidemiologic risk factors for MERS-CoV; 1 hospitalized patient had MERS-CoV symptoms that could be explained by other concurrent conditions; and 1 infected HCW with mild illness did not report symptoms and continued working while ill. Despite strong hospital and public health protocols for triaging and isolating patients with respiratory symptoms as part of the MERS-CoV response, the source case-patient was subjected to

routine precautions rather than contact and airborne precautions in the largest cluster [20,22].

As previously documented, the severity of illness associated with MERS-CoV infection ranged from asymptomatic to severe disease among case-patients in our study. The severity of symptoms varied by case type; mortality occurred in two of three source case-patients, one of three infected hospital patients, and no infected HCWs, all of whom reported mild or no symptoms [20,23].

CONCLUSION:

Hand hygiene is still one of the most effective measures for preventing healthcare-associated illnesses, cross-infection, and the spread of antibiotic resistance. Handwashing is a deceptively complex topic, and compliance is influenced by a variety of elements, including accurate knowledge, proper decontamination techniques, human factors, the environment, and effective leadership. The COVID-19 pandemic has highlighted the significance of good hand hygiene. Nonetheless, it is critical to emphasize that healthcare workers should maintain hand hygiene standards at all times, not just in stressful situations. The majority of healthcare personnel practiced infection prevention. Good infection prevention practices were predicted by having good understanding of infection prevention measures, a favorable attitude toward infection prevention practices, awareness of the availability of standard operating procedures, and the provision of a continuous water supply. Adequate pre-service and in-service training should be in place to equip and update health care employees on infection prevention precautions in order to continue excellent practices. Continuous supervision should be maintained to increase worker commitment to infection prevention methods, as well as a sustainable and stable water supply.

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