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Intervention Strategies In Healthcare Facilities For Infection Control Adherence, Pharmacist, Nursing And Clinical Laboratory: Review

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Abstract

Infection prevention and control (IPC) procedures are readily implementable practices aimed at preventing the transmission of infections to both patients and healthcare workers (HCWs). This review aims to examine the literature on intervention strategies in healthcare institutions to promote adherence to infection control practices among pharmacists, nurses, and clinical laboratory personnel. HCWs' compliance and noncompliance with IPC measures can be influenced by various factors, including their knowledge, education, training, experience, inadequate availability of supplies such as alcohol hand rub, nearby sink, soap, or paper towels, working in ICU or surgical ward, working at a public or secondary or tertiary hospital, and caring for patients with exposure to blood or body fluid. Obstacles to adhere to Infection Prevention and Control (IPC) measures may encompass factors such as heavy workload, limited time availability, professional classification, and a low ratio of patients to nurses. Adopting a diverse strategy to improving infection prevention and control (IPC) techniques has been proven to effectively reduce healthcare-associated infections (HAIs) and enhance compliance among healthcare workers (HCWs) with IPC measures.

Keywords: *Infection Prevention and Control (IPC), healthcare workers (HCWs), healthcare-associated infections (HAIs).*

Introduction

Around the world, infectious diseases are responsible for a large amount of morbidity and mortality. A disproportionate amount of the illness burden that is associated with infectious diseases continues to exist across the globe [1], despite the fact that global prevalence has decreased over the course of the past 20 years. Even though there have been significant reductions in the burden of infectious diseases around the world, communicable diseases,

combined with maternal, neonatal, and nutritional causes, accounted for 61% of the disability-adjusted life year (DALY) burden in the region as of the year 2015 [2]. Emerging and re-emerging infectious diseases are playing an increasingly major part in the burden of illness [3]. This is due to the rapid economic, social, and geographical developments that are occurring in the region. It is possible to notice comparable expenditures for HIV services and care throughout the region: it is anticipated that the financial requirements for HIV therapy up to the year 2050 will be as high as 21% and 80% of the GDPs of South Africa and Malawi, respectively [4].

Healthcare-acquired infections, also known as HAIs, are a significant obstacle that cannot be ignored within the larger category of infectious disorders. When compared to high-income nations, the rates of healthcare-associated infections (HAIs) are often greater in low-income countries [5]. However, there is a significant amount of variance both within and within countries of all economic levels. The cumulative incidence of HAIs in African countries ranges from 5.7 to 48.5%. Conventionally, healthcare-associated infections (HAIs) are illnesses that patients get while they are receiving treatment at a healthcare facility [5]. However, healthcare-associated infections (HAIs) that affect healthcare professionals who provide patient care are of comparable significance, particularly nurses. This review focused on strategies in healthcare facilities for infection control adherence, pharmacist, nursing, and clinical laboratory. Despite the fact that many different types of health care workers, such as laboratory technicians, pharamcists, and healthcare managers with physicians, are at an increased risk of acquiring infectious diseases in the healthcare setting [6], nurses, labaratory staff pharmacists, and healthcare administrators have specific requirements. This is because they spend the most amount of time with patients than any other health worker and work in highly unstandardized and variable circumstances. Despite the fact that their requirements are frequently overlooked or lumped together with those of physicians or other healthcare workers, they have specific requirements.

Review:

Millions of patients and healthcare workers, particularly nurses, pharmacists, and clinical laboratory personnel, are at danger of contracting infectious diseases all over the world, including healthcare-associated infections (HAIs), due to inadequate adherence to infection prevention and control (IPC) standards of care. According to [7], "Infection Prevention and Control" (IPC) is a scientific method and practical ways to reduce harm caused by infections to patients and health professionals. Knowledge and practice of effective infection prevention and control are the cornerstones of a robust healthcare system. Inadequate environmental hygiene, improper disposal of medical waste, inadequate infrastructure, insufficient equipment, and a lack of awareness on infection control methods are all factors that lead to high prevalence of healthcare-associated infections (HAIs) [8].

At both the national and facility levels, the World Health Organization (WHO) has compiled a list of guidelines that are supported by evidence and pertain to the essential elements of an infection prevention and control (IPC) program. These IPC core components include dedicated programs with teams of specialty trained IPC professionals, guidelines, training and education, surveillance, implementation of multi-modal IPC strategies, monitoring/auditing and providing feedback, establishing requirements for workload, staffing, and bed occupancy, and ensuring that the built environment, equipment, and materials are available for IPC practices [9]. IPC precautions can be broken down into two distinct categories: standard precautions and transmission-based precautions. These essential components serve as the structure upon which these two categories are built. The fundamentals of the IPC precautions are referred to as standard precautions. The practices of hand hygiene, the appropriate use of personal protective equipment (PPE), respiratory hygiene, suitable

patient placement, injection safety, disinfection, and the disposal of medical waste are all included in this branch of precautions, which is used for all patients [10]. When these precautions are carried out in the appropriate manner by health professionals, they protect the health worker from infection and prevent infections from spreading from one patient to another. In addition to the conventional precautions, the transmission-based precautions constitute the second branch of the IPC collection of precautions. Contact, droplet, and airborne hazards are the three types of precautions that are based on transmission [11]. The use of contact precautions is implemented in situations where patients have been colonized with an infectious agent and there is a high danger of continued transmission. Administrative precautions are a type of specialized precaution that is used to further prevent the transmission of infection when it comes to certain infectious agents. The goal of administrative precautions is to lessen the likelihood of patients who are sick with particular infectious diseases being exposed to the danger of exposure [12]. The screening, diagnosis, and treatment of infectious agents are all actions that fall under the administrative control category [12].

It is essential for effective IPC to have sufficient knowledge of HCWs. Barriers to IPC compliance include a lack of knowledge of recommendations for infection prevention and control (IPC), as well as an ignorance of preventative indications during everyday patient care and the potential dangers of microorganism transfer to patients [12]. Poor compliance is determined by a lack of understanding regarding the appropriateness, efficacy, and utilization of integrated pest control measures. Education and training are the cornerstones of development in IPC practices, and they are essential resources for overcoming these obstacles. That information is power is something that healthcare workers ought to be aware of. The absence of awareness of IPC measures, on the other hand, has been demonstrated on multiple occasions after education and training [13]. Issues concerning hand hygiene, the use of personal protective equipment (PPE), immunization for the prevention of communicable diseases, modes of infection transmission, the evaluation of patients for infection, medical instrument decontamination, healthcare waste handling, and needle stick and sharp safety policy should be included in the awareness of healthcare workers (HCWs). More importantly, healthcare workers should comply with these IPC precautions, procedures, and tactics in order to guarantee a reduction in the number of healthcare-associated infections (HAIs) in healthcare settings [13].

There is a wide range of compliance with IPC practices among healthcare workers (HCWs), including hand cleanliness and the use of personal protective equipment (PPE). This compliance is likely impacted by an individual's knowledge about infection risk and behaviors [14]. To be sure, having a solid knowledge does not automatically guarantee having a good IPC practice. Even though there are well-established standards for the prevention of healthcare-associated infections (HAIs), it has been discovered that healthcare workers (HCWs) demonstrate low compliance with hand hygiene procedures [14].

The knowledge of infection prevention and control (IPC) among healthcare workers (HCWs) other than physicians and nurses was lower in contrast to that of physicians and nurses, despite the fact that their involvement in combating healthcare-associated infections (HAIs) is crucial. This could be attributed to the fact that healthcare workers (HCWs) other than physicians and nurses have a lower level of academic knowledge and training about IPC. It is common practice to underestimate the role that healthcare workers (HCWs) other than pharmacists, clinical laboratory teams, and nurses play in hospital infection prevention and control [14], despite the fact that they, along with their work, can be a vector for the transmission of infections in hospitals. It is possible for healthcare workers (HCWs) other than physicians and nurses to be in close contact with patients, physicians, and/or nurses; high concentrations of medically vulnerable populations; and physical movement between treatment areas; all of these factors may facilitate the spread of healthcare-associated

infections (HAIs) within health care institutions and the community. As a result, the World Health Organization (WHO) guidelines propose that education and training on infection prevention and control (IPC) should be implemented for all healthcare workers (HCWs) through the utilization of team- and task-based methodologies, which may include bedside and simulation training [15]. For the purpose of ensuring that healthcare workers (HCWs) other than physicians and nurses have a comprehensive understanding of IPC, it is possible to advocate the inclusion of educational curricula and continuous refresher education programs that are related to IPC. Although educational programs have not been consistently related with excellent IPC practices up until this point, tailored materials and training can assist guarantee that healthcare workers and visitors to healthcare facilities have a better awareness of the topic [15]. It is advised that IPC training sessions be personalized to the specific target audience, such as providing training to medical staff as opposed to cleaning services staff. This is due to the fact that different categories of healthcare workers may have varied information requirements. Education is essential in order to address the concerns, anxieties, stigmas, and inaccurate preconceptions that healthcare workers have regarding the spread or prevention of healthcare-associated infections (HAIs).

Despite the fact that the burden of HAIs is already demanding in industrialized nations, the size of the problem is increased in healthcare institutions where basic IPC measures are not available, primarily due to low financial resources. The familiarity with IPC measures is difficult to achieve even in nations with abundant resources, and it may appear to be an unattainable objective in the context of day-to-day care in countries with limited resources and limitations on financial resources [16]. One of the most prominent factors that contributes to bad IPC practices is limited resources. Therefore, preventative interventions that are easy to implement and inexpensive, such as practicing proper hand hygiene, should be implemented in the healthcare settings of nations that have little resources. Hygiene of the hands is the first step toward successful infection prevention and control (IPC), and it continues to be the most fundamental and effective measure to avoid the spread of pathogens and infections. The prevalence of healthcare-associated infections (HAIs) can be significantly reduced by practicing proper hand hygiene [16].

Human health workers have been known to become infected during pandemics and outbreaks of diseases, such as the MERS-CoV epidemic and the COVID-19 pandemic, due to a lack of compliance with the fundamental principles of the International Public Health Code (IPC). Standard precautions, as well as droplet or airborne precautions, should be included in the IPC recommendations that are made in response to Severe Acute Respiratory Syndrome and other corona viruses [17]. These recommendations should be informed by the previous well-established IPC knowledge and experiences, and possibly infection preventive guidelines that have been influenced by them to some degree.

Other than knowledge or experience, there are additional criteria that can play a role in determining excellent IPC practice. HCWs' compliance with IPC practice has been reported to be primarily influenced by a number of issues, the most prominent of which are the lack of resources, the high workload, and the limitations of time [16]. It is possible for healthcare workers, managers, and policymakers to have a clear understanding of the areas in which strategies need to be adopted in order to enable compliance and support healthcare workers since the elements that have an impact on compliance are divided into three major domains: organizational, environmental, and individual aspects. It was expected that the public, secondary, and tertiary hospitals had a higher level of compliance with Infection Prevention and Control (IPC) than the primary or private hospitals. One possible explanation for this is that the conditions for IPC at primary or private hospitals are not as favorable as they may be. It has been found that there is a lack of compliance with IPC practices in both high-income and low-income settings, as well as in medical settings in general [17]. It is possible that the identification of roles and responsibilities of nursing, pharamacist, and

clinical laboratory team members, as well as the prioritization of IPC activities, as well as the influence of peer pressure groups, could have a part in deciding the various reasons that the healthcare workers have for complying with regulations [18].

It would appear that healthcare workers are selective in their adherence to infection prevention and control methods, rather than taking thorough and safe standard procedures when they come into touch with patients, which could lead to an unnecessary danger. Compliance is particularly important when it comes to the performance of procedures that involve a greater exposure to blood products and body fluids, as well as when working with sharp objects. Despite the fact that a large number of researchers have conducted investigations in the field of compliance with IPC guidelines and the reasons for non-adherence, and that staff members frequently identify a lack of knowledge as a factor that affects their compliance, the opinions of healthcare workers regarding what would improve their own practice may need to be questioned further [19].

There is a large amount of variation in IPC behavior among HCWs, which suggests that individual characteristics may play a role in shaping behavior. There is a risk involved in disregarding the all-important concept of "individual differences," and there has been a previous proposition made to restrict the use of this technique within the field of health psychology. IPC should take a lesson from the behavioral sciences in order to improve the compliance of healthcare workers with practices [20]. It is the goal of social psychology to get an understanding of these characteristics, and individual elements, such as social cognitive determinants, may offer additional insight into the behavior of individuals with intellectual disorders. With the implementation of social cognitive models and psychological principles in intervention efforts, there has been a shift toward more positive behavior in individuals with intellectual and developmental disabilities [20]. There are currently available models that can be classified according to whether they are focused at the intrapersonal, interpersonal, or community levels. These models are helpful in explaining human behavior. A person's knowledge, attitudes, beliefs, and personality traits are examples of intrapersonal variables. Intrapersonal factors are identified as individual attributes that influence behavior. Social identity, support, and role description are all provided by primary groups, such as family, friends, and peers, which are examples of interpersonal factors. Interpersonal processes are also included in this category. In the context of individuals, groups, and organizations, community variables are social networks and norms that exist either formally or informally between these entities [21].

Conclusion:

The nurses were the target of bold measures. Studies that reported the utilization of implementation techniques for nurses were required to be included in this review in order to be considered for inclusion. The majority of the studies that were conducted utilized implementation techniques that targeted patients, healthcare staff who were not nurses, or parts of the healthcare system. There were just a few studies that used implementation strategies that were exclusively for clinical laboratory workers, pharmacists, and nurses. Please see below an overview of the implementation tactics that have been utilized for both nurses and non-nurses. Education for nurses was employed in the majority of the studies, which is a striking contrast to the number of studies that used education for individuals who were not nurses. Other techniques that were employed for nurses and those that were used for non-nurses produced results that were not in agreement with one another. These strategies included planning, restructure, and finance. It was more common for non-nurses to employ these tactics than it was for nurses. Planning, reorganization, and financial techniques were utilized in twenty-one, six, and six studies, respectively, for individuals who were not nurses. Within the context of the research, planning, reorganization, and financial resources were utilized, respectively, for the nurses, pharmacists, and laboratory personnel. Medical administration and infection control

teams were responsible for monitoring and providing guidance.

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