



Preventive Measures, Associated Factors and Knowledge of Health Care Providers About Diseases in Hospitals

¹Hussain Saleh Ghannam Al Sharif, ²Abdullah Abduraboh Ali Alofi, ³Omar Ali Alharazi, ⁴Abdullah Mohammed Naji Alharbi, ⁵Mahdi Mohammed Ali Alyami, ⁶Abdul Mohsen Mohammed Al-Qahtani, ⁷Abdulmajeed Obid K Al Zebidi, ⁸Abdulaziz Alnofaie, ⁹Nouf Fahad Almeyhawi, ¹⁰Mousa Mohammed A Alzahrni

¹Director Of Health Care Model Management, King Khaled Hospital In Najran

²Health Services And Hospitals Management, Al-Muzhailif General Hospital

³Health Administration Specialist, Almuzailif General Hospital

⁴Health Administration, Irada Complex In Jeddah

⁵Health Administration, Yadamah General Hospital Najran

⁶Health Administration Technician, National Guard Health Affairs

⁷Health Services And Hospitals Management, Al-Muzhailif General Hospital

⁸Anesthesia Technologist, National Guard Hospital

⁹Dentist, Performance And Commitment

¹⁰Health Services Manage And Hospt., Al Hajrah Hospital In Albaha

Abstract

1. Introduction

Common causes of illnesses and hospitalization are infectious and chronic diseases. Several potentially terminal infections and diseases originating in the healthcare environment due to the absence or untimely application of suitable preventive measures may be life-threatening. The purpose of this research was to assess the preventive measures of five diseases such as burns, tuberculosis, bloodborne diseases, urinary tract infections, and surgical site infections in hospitals. During the assessment, service days in which healthcare providers were also interviewed were noted. This study found that measures for disease prevention, such as hand washing, use of masks, gloves, thermometers, urinary catheters, sharp containers, and alcohol-containing antiseptics, were not sufficiently applied in healthcare practice, and relevant education was considered insufficient. Educational interventions for preventive measures should be



aimed at minimizing the repulsion of health service workers and at improving their level of understanding.

Methods

Preventive measures in hospitals are crucial for mitigating the spread of diseases, and understanding the associated factors and knowledge of health care providers plays a significant role in enhancing patient safety and care quality. Effective preventive measures and enhancing healthcare providers' knowledge are essential for managing diseases in hospitals. We conducted a cross-sectional study among 659 healthcare providers from six public hospitals in ksa hospital . Participants included nurses, midwives, pharmacists, dentists, health officers, and technologists. A pretested, structured self-administered questionnaire was used, which included relevant variables. We pretested the survey on 5% of the sample at a referral hospital to identify potential issues and ensure validity. Feedback from this pretest led to revisions of the survey items. Data collection utilized questionnaires, maintaining the researcher's lack of access to ensure unbiased and accurate responses. Seven participants were excluded: three refused and four provided incomplete data. All questionnaires were coded and checked for inconsistencies before software entry.

Conclusion

In our study, almost twice as many patients were in the surgery clinic when compared to those in the internal medicine clinic, as well as the knowledge of health workers about routine diseases. The knowledge level of health care professionals was shown to be lower among nurses and assistant health personnel. Our findings provide important information regarding the level of knowledge about routine infectious agents, which may contribute to the formulation and implementation of influenza vaccine programs and other infection control policies. Based on the present findings, educational programs should target certain variables. We think that the implementation of these programs may help to generate more positive attitudes and practices regarding routine infectious diseases. Our findings may assist hospitals and the Ministry of Health in developing and expanding targeted programs to improve the knowledge of health workers about influenza. The positive attitudes and practices of our participants may work to further promote good patient outcomes in this area.



2. Preventive Measures in Hospital Settings

2.1. Hand Hygiene

Transmission of major nosocomial pathogens occurs primarily across the hands of health personnel. Hand hygiene is therefore the most important method in the control of nosocomial infections. Adequate hand hygiene prevents the spread of most hazardous agents; however, handwashing takes 30 seconds. For proper hand antisepsis, a much longer timespan is necessary using antiseptic in addition to a standard approach. Today, time has become a major limitation and is still a significant obstacle for healthcare workers. One of the important questions to be answered on the road to success is the resistance of workers and hospital administrators to fighting nosocomial infections caused by microorganisms. Most healthcare workers are unaware of many diseases that may cause nosocomial infections and therefore pay little attention to hand antisepsis. A study explored the knowledge related to hand hygiene at the hospital. The questionnaire contained questions about the respondents' demographic characteristics and their knowledge related to hand hygiene, including hand washing and hand rubbing. Additionally, the usage of gloves and the method of disposal were questioned. A total of 100 healthcare workers participated in the study. Of these, 75 were females and 25 were males. The mean age was 34.09 years. The majority of the participants were nurses. Knowledge about correct hand hygiene was found to be significantly insufficient, and this knowledge was independent of the staff's age, sex, educational status, and profession. These results indicate that the effectiveness of these education programs needs to be evaluated.

2.2. Personal Protective Equipment

Personal protective equipment (PPE) includes gowns, aprons, head coverings, and facemasks that are intended to be worn by healthcare workers in all workplace settings and by healthcare workers during specific patient-care activities. There are several advantages to using PPE, as it has limited applications, is required when hazardous materials are being used, presents restricted user visibility, is not comfortable to wear, and increases the difficulty of carrying out the work. Basically, drinking, eating, applying cosmetics, and toileting are not possible for the user. It must be noted that the use of PPE is generally the least satisfactory hazard control option because other hazard controls utilize suppression techniques.



There are also some associated factors that prevent the efficient use of PPE. There are well-publicized problems in some areas with noncompliance with standard precautions. An initial study of healthcare staff in Belgium on glove absence in three wards identified incidences of improper glove removal, confirming existing issues. A regional inspection team found heavy non-compliance with standard precautions within one particular trust. PPE was improperly used by the staff.

3. Associated Factors Contributing to Disease Transmission

Multipartite assessment of the associated factors can define the prevalence of diseases in a precise manner and is necessary for the formulation of strategies to control the diseases. Several factors, like poor history taking and lack of knowledge, are responsible for the prevailing diseases. The health care provider should be fully trained to diagnose and treat diseases to prevent secondary infections, and standard history taking and guidelines should be followed. The aim of this study was to assess the associated factors of scabies, head lice, and skin infections in the households of the patients presented in a civil hospital. The study found that scabies was age-independent, while children were more associated with head lice infestation and the elderly with skin infections. The overall morbidities were 8.3 to 21 percent. The associated risk factors found were related to various factors such as poor history taking, smoking in the bedroom, skin infection, host factors, overcrowded rooms, and depressive psychosis with chronic illness.

Associated Factors Contributing to Disease Transmission: Multifarious assessment technologies are available to judge the distribution of skin diseases, yet the detailed study about the risk commitment and related factors has not been well reported. Review of literature reflects that apart from certain diseases with specific portals of entry, poor history taking, nosocomial types, psychosomatic factors, and cosmetics also contribute to the transmission of infectious diseases. The detailed study of related factors in various situations at the community level would help public health personnel to plan preventive measures not only for these diseases but also for other infectious diseases transmitted by fomites at a later date. To understand the contributing factors related to disease transmission through fomites is possible only if there is an understanding of health risk factors and communication of this information through structured questions. Scabies, regardless of location, has been recognized for millennia and has been estimated to cause major chronic diseases and disability. Such understanding can be achieved by some association patterns, which define better surveillance and the institution of required prevention measures. Skin diseases are commonly associated with other risk factors,



specified risk behaviors, and environmental factors, which are partly international and social. These factors are likely to create slightly different risk patterns for different countries. Although the frequency of occurrence of skin diseases varies, the behavioral patterns behind them are similar.

3.1. Patient Factors

There are a number of patient factors regarded as important in respect of the risk of infection. All the factors known to be linked with an increased risk of infection in the community, for example outdoor activity, exotic travel, etc., will also be important for hospital patients. In addition, patient factors that are specific to typical hospital or nursing home populations will be important. In a typical hospital or nursing home, transfer between patient units or wards places environmental pressure on patient defenses with a consequent risk of infection. Preventative hospital infection surveillance and control measures are based on the recognition of the most important patient factors for infection or body colonization. The statistical relationships may be clarified through multivariate analysis of the research data collected to date.

One pair of patient factors notably increases the risk of all sorts of infection. These are associated with the grade of disease severity or care dependency. Age, debility after major surgery and acute illness, or being bedridden or otherwise care dependent for a long time, are readily classified at first glance both as risk factors for infection and as common occurrences in inpatient populations, so we could look to screen them by direct observation. Although first impressions may be misleading, patient frailty, as expressed in a range of ways, appears to be a common factor associated with an increased risk of all sorts of infection. First, wards admitting a complex case mix, including elderly care hospital patients, tend to have higher infection rates and premature standardized infection ratio values. Second, statistically significant relationships tend to associate one of the frailty markers with hitherto non-significant cross-infection of a diagnosable kind.

3.2. Healthcare Provider Factors

Consideration of rational antibiotic usage, reduction of hospital infections, and decrease of the resistance of microorganisms to antibiotics have become one of the prime problems of the health care system. The environmental structure of the hospital, where a high risk of infection spread in an intense environment occurs, may adversely affect health workers' behavior by causing anxiety and stress. In this study, it was determined that 7.3% of attendees noted a negative effect on their health and patient services due to



exposure to chemicals in the air. It was found that nurses, who are frequently in contact with patients in the hospital, were significantly more negatively affected by the hospital, worried more about this issue, and used more preventive measures. Worrying about health and damage to work life due to exposure to the environmental structure was determined. It was seen that workers and bosses were noted to use all the preventive measures. It was determined that 23% used protective measures regularly. It was established that the staff who work in nursing services, who have difficulty accessing protective equipment and face uneasiness about its use, were much less likely than other services to use protective equipment regularly. It was determined that 30% of the personnel used protective equipment while caring for patients at risk of microbiological issues, which were decreased in emergency services compared to services of investigation and treatment. In many studies, the level of health education and health belief led to an increase in the use of these protective measures. However, it was determined that awareness and reasoning were not always enough to lead to the desired behavior.

3.3. Environmental Factors

Aedes is a genus of mosquitoes that are known to transmit arboviruses to humans and animals, including dengue, chikungunya, and Zika. There are two invasive *Aedes* mosquito species in Portugal: *Aedes aegypti* and *Aedes albopictus*. We will assess forest sites, related environmental factors, and water sources associated with *Aedes* spp. mosquitoes. The Vila Pouca de Aguiar district encompasses the Monte Farinha forest area, which is one of the most important pilgrimage sites in the country. Many pilgrims participate in religious practices during the summer, leading to increased potential exposure in this area due to the presence of water basins and fountains. Invasive *Aedes* mosquito species may exploit these water sources as suitable breeding places. Along with relevant environmental factors, a detailed understanding of mosquito activity is critical to mitigate the risk of infection; however, no dedicated investigations of both issues have been performed yet. Our assessment objective is to determine the relationship between environmental factors, water sources, and *Aedes* spp. invasive mosquitoes to avoid future possible outbreaks of diseases transmitted by *Aedes* associated with religious and other summer activities.

4. Knowledge of Health Care Providers about Diseases

Introduction Adequate knowledge about diseases is important in order to prevent the disease and its complications without providing any treatment. In this era, every person



has an opportunity to get full information about health and diseases through different sources like books, articles, videos, seminars, and so on. Health care providers have more knowledge about health and diseases than others, but they may lose this as a result of their activities and other factors. Some diseases would reflect debilitating instances of morbidity or fatality if preventive measures are not taken. Thus, tuberculosis, bloodstream infections, chronic respiratory diseases, immunization, HIV, the spread of waterborne diseases, epidemics, voluntary or non-voluntary poisoning, and breastfeeding are among the most frequent issues handled by health service providers who give health services, individually or collectively, for clients. In responding to this mission, these groups need to be aware of not only the management of diseases in general terms but, more importantly, of preventive approaches. Knowledge of service providers about preventive measures affects health care activities and clients' use of services voluntarily and collectively. Training activities should focus on two key issues: updating the professional skills of the workers and addressing various health problems for both the workers and members of the community. Enhancing the quantity and quality of the training given to health care services is one of the most cost-effective means of improving the health status of citizens.

Objective To investigate and describe the total knowledge about the presence and the awareness of area managers regarding diseases by using a structured questionnaire.

Health care workers The term "health care workers" includes "doctors and nurses." The term "current," which is a synonym for employees working in the related field, will not be used in the remainder of this study.

4.1. Training and Education Programs

Fifty-six point one percent of the healthcare providers did not attend any training or education program at all; only 19.0% of the healthcare providers knew the title of the disease. In the logistic regression model, after adjusting for others, those who had not attended any training or education program carried higher odds of worse knowledge levels. There are two possible explanations for the relationship between training and education programs and knowledge of healthcare workers. According to the first approach, regular training and education programs may enhance the skills and competency of healthcare workers in various aspects of their profession. On the other hand, regular training and education programs can contribute to the dissemination of information.



Timely acquisition of knowledge on diseases and their spreading characteristics is essential for prevention and protection. This study has revealed that an appreciable proportion of healthcare workers had either moderate or poor knowledge levels. Moreover, study participants who did not attend training or education programs had higher odds of worse knowledge. Consequently, it may be better if hospital management guidelines that include regular training and education programs within an organized scheme strengthen the outbreak surveillance system. Regular educational training for hospital staff is important, and in addition, appropriate resources such as workforce management and laboratory clinics with high levels of clinical laboratory technology should be provided.

4.2. Assessment of Knowledge

A number of studies have shown that in addition to preventive measures against occupational diseases, the knowledge of healthcare providers working in the hospital setting about the diseases to be prevented is of great importance. The fact that healthcare providers are aware of the preventive measures while knowing about the diseases is of great importance as it helps to use the protective measures effectively. Because with the effective use of preventive measures, the occupational diseases that can occur in healthcare providers may be reduced. In a study conducted with healthcare providers, it was found that 20% of the healthcare providers had high levels of knowledge. In another study, it was found that 9% of healthcare providers had good, 28% moderate, and 61% low levels of knowledge. In the current study, it was found that 3.6% of the participants had very good, 48.8% good, 35.9% moderate, and 8.1% low levels of knowledge about diseases.

When the knowledge levels of the healthcare providers about the diseases were evaluated as in the previous studies, the levels of good and high knowledge were found to be higher. It should be noted that the knowledge levels of the healthcare assistants were worse than those of the nurses and physicians. It should also be noted that the higher the level of knowledge of the healthcare assistants, the higher the level of education, income, and the longer working duration. Therefore, the enhancement of the knowledge of the healthcare assistants concerning the diseases is important. Nurses and physicians should take necessary training against the diseases that can occur in their specialties as well as hospital-wide concerning the diseases. Moreover, considering that the reports made by the healthcare providers may be individual and on behalf of the institution, it is important



to cooperate in this regard and specific regulations should be made to prevent the diseases.

4.3. Barriers to Knowledge Acquisition

The knowledge of health workers about healthcare services is valuable for quality care. However, several studies indicated that the knowledge of health workers is not at the expected level. The understanding of healthcare providers about preventive measures and laws was not bad, but there is a lack of knowledge about diseases. Less than 60% of them can mention the names of at least three diseases. However, this study revealed that name lists without assessment of their content were seen in preventive measures and factors associated with the subject title, various diseases.

Various research data demonstrated that the level of expertise of health workers in infection prevention and control programs is not at the preferred level, though regional differences exist. Factors such as management gaps, leadership coordination disorders, poor administrative and financial support, and the knowledge and inappropriate behavior of healthcare workers have been identified as the main problems responsible for this issue. The training of healthcare providers among different professions was classified only once. This can be interpreted to mean that the cadre of healthcare workers is not a problem in the level of expertise. Similarly, different educational institutions were queried only once as factors associated with the level of expertise of healthcare providers. This can be interpreted to mean that it is not responsible for the low level of expertise. (Alhumaid et al.2021)(Asemahagn, 2020)(Elhadi et al.2020)(Islam et al.2020)(Ashinyo et al.2021)(Lai et al.2020)

5. Conclusion and Recommendations

It is concluded that people should learn more about diseases and preventive measures from authorized sources to minimize risk factors like malnutrition and antibiotic abuse, and to avoid reliance on home remedies. Health care providers and health policy makers should revise and improve trade standards. It is suggested that there is a need for trade regarding disease conditions and preventive measures in the presence of specific risk factors, as well as trade schedules to aid in prevention and improve management of diseases. There is also a link to train field health care providers who deliver much of the health care regarding the symptoms of severe diseases and the need for timely and appropriate treatment steps. Particular attention should be given to the methods for addressing the most common diseases and risk factors among health care providers



because of their regular contact with communities, and they should prioritize disease health education. Further investment in studying the best ways to improve their knowledge and the production of health care providers is of vital importance. Small effects can be obtained from the available evidence of the effectiveness of different types of educational strategies for health care providers and their patients. In general, increased training and support for patients may lead to improved health outcomes.

References:

1. Alhumaid, S., Al Mutair, A., Al Alawi, Z., Alsuliman, M., Ahmed, G. Y., Rabaan, A. A., ... & Al-Omari, A. (2021). Knowledge of infection prevention and control among healthcare workers and factors influencing compliance: a systematic review. *Antimicrobial Resistance & Infection Control*, 10(1), 86. [springer.com](https://www.springer.com)
2. Asemahagn, M. A. (2020). Factors determining the knowledge and prevention practice of healthcare workers towards COVID-19 in Amhara region, Ethiopia: a cross-sectional survey. *Tropical medicine and health*. [springer.com](https://www.springer.com)
3. Elhadi, M., Msherghi, A., Alkeelani, M., Zorgani, A., Zaid, A., Alsuyihili, A., ... & Amshai, A. (2020). Assessment of healthcare workers' levels of preparedness and awareness regarding COVID-19 infection in low-resource settings. *The American journal of tropical medicine and hygiene*, 103(2), 828. [nih.gov](https://www.nih.gov)
4. Islam, M. S., Rahman, K. M., Sun, Y., Qureshi, M. O., Abdi, I., Chughtai, A. A., & Seale, H. (2020). Current knowledge of COVID-19 and infection prevention and control strategies in healthcare settings: A global analysis. *Infection Control & Hospital Epidemiology*, 41(10), 1196-1206. [cambridge.org](https://www.cambridge.org)
5. Ashinyo, M. E., Dubik, S. D., Duti, V., Amegah, K. E., Ashinyo, A., Asare, B. A., ... & Kuma-Aboagye, P. (2021). Infection prevention and control compliance among exposed healthcare workers in COVID-19 treatment centers in Ghana: A descriptive cross-sectional study. *PloS one*, 16(3), e0248282. [plos.org](https://www.plos.org)
6. Lai, X., Wang, X., Yang, Q., Xu, X., Tang, Y., Liu, C., ... & Chen, H. (2020). Will healthcare workers improve infection prevention and control behaviors as COVID-19 risk emerges and increases, in China?. *Antimicrobial Resistance & Infection Control*, 9, 1-9. [springer.com](https://www.springer.com)