

## **Improving Infection Control Procedures in Saudi Arabia Hospital Settings**

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### **ABSTRACT**

Infection control refers to a specific procedure that the hospital follows in order to ensure that the medical staff and the patients are not exposed to any kind of infection. Even though there are different procedures that the hospitals follow, the working staff as well as their patients are still exposed to different diseases. However, hospital settings must have the ideal conditions to prevent infection. Therefore, the purpose of this research is to improve the infection control systems and procedures in Saudi hospitals and to ensure that every person in the hospital is fully safe from any infection that may occur. A questionnaire was created to determine whether the infection control procedures are being used effectively and accurately in Saudi hospitals. Depending on the results of the questionnaire, infection can be reduced if any medical institution followed and improved the infection control procedures.

**KEYWORDS:** infection control, hospital settings, system of infection control.

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### **ARTICLE DETAILS**

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### **1. INTRODUCTION**

Infection control is considered one of the standards of health quality. It is necessary for the well-being and safety of the patients as well as the safety of the medical staff and the visitors of the hospital. Moreover, it has an influential role in most of the hospital departments since it includes everything related to quality issues such as risk management, clinical decision making, healthcare and safety. (International union of infection control, 2005). The prevention and control of infections is critical for a well-functioning health system. However, worldwide an estimated 21 million cases of hepatitis B virus infection and 200 000 cases of human immunodeficiency virus (HIV) infection result from unsafe injection practices each year. For instance, in the United States of America, an estimated 40 000 to 80 000 deaths are due to nosocomial infections annually, which may cost as much as 4.5 billion United States dollars (US\$). Moreover, the rapid spread of multidrug-resistant organisms and outbreaks of Ebola virus disease, yellow fever and Zika virus infections has further increased the human and financial cost. Fortunately, proven and cost-effective, infection prevention and control practices can reduce the risk (Bedoya, G., Dolinger, A., Rogo, K., Mwaura, N.,

Wafula, F., Coarasa, J., ... & Das, J. 2017). In

1980, a study on the Efficacy of Nosocomial Infection Control (SENIC) demonstrated that surveillance for nosocomial infections and infection control practices that included trained professionals could prevent infection. As a result, an important role Developed for hospital epidemiologists and infection control practitioners (Sydnor, E. R., & Perl, T. M. 2011). However, since infection control is considered fundamental in hospital settings, this study seeks to understand the infection control procedures. Moreover, it sheds light on the needed procedures that would improve the infection control systems.

### **2. METHOD**

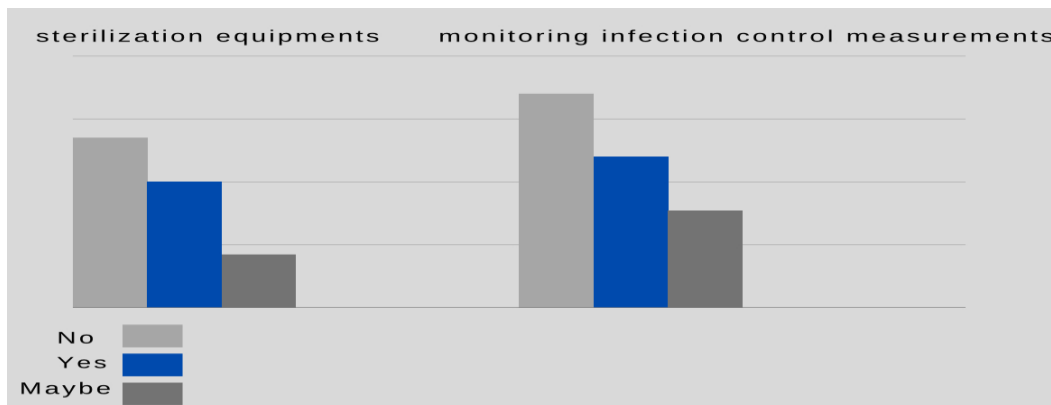
This study used a questionnaire to assess if infection control in Saudi Arabia (Riyadh) should be improved. The purpose the questionnaire was designed to be brief due to the time constraints. As a result, the questionnaire contained eleven multiple-choice questions (appendix 1 “the questionnaire template”) An online survey tool was used to create the questionnaire, and the survey link was then distributed to medical staff and to the infection control team via their official emails. Data was gathered online (90 responses). The collected data was then categorized based on the provided medical equipments to determine differences in supplements of different hospitals. Moreover, the knowledge of trained staff in hospital settings Eventually, data was examined to sufficiently understand and improve current infection control procedures in Saudi hospitals’ settings.

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### 3. RESULTS

The findings of this research are divided into two categories: provided sterilization equipments , monitoring infection control measurements. As

results show, there is a lack of supplying medical equipments as well as a lack of infection control monitoring. (figure 1)



(Figure 1)

### 4. DISCUSSION

Successful infection control has been associated with multi-professional involvement, and while the evidence is tangential, the need for action across a range of professions and practitioners is largely self-evident. However, effective leadership of multi-professional endeavours in complex organisations is particularly challenging, raising issues of authority and accountability, and investigations into infection outbreaks illustrate the difficulties faced by infection control teams working across disciplinary boundaries, operational units and management levels. Organisational mechanisms to support training, staff appraisal and clinical governance are important determinants of effective practice and change. Much evidence supports a relationship between nurse staffing levels and patient outcomes. Infection rates have been studied less and the evidence is more equivocal. However, generally, an inverse relationship with staffing levels has been shown. Fixed nurse-patient ratios have been implemented in a number of health systems, although evidence of direct benefit is largely lacking, and the evidence reviewed here does not indicate optimum staffing levels. It seems clear that increases in workload on a ward potentially reduce care quality and contribute to increased infection; therefore low staffing and high workload should be considered risk factors. Rather than setting a fixed staffing ratio, a better approach is to monitor and match staffing to workload at a unit level. (Griffiths, P., Renz, A., Hughes, J., & Rafferty, A. M. 2009). Thus, the infection control programs' goal is to prevent the spread of infections from patients to healthcare workers. Healthcare personnel, as well as patients, are at risk for acquiring infections that are transmitted by air or by direct or indirect contact with an infected or colonized patient. Many of the functions of infection control focus on strategies for isolation, barrier precautions, case investigation, healthcare worker education, immunization services, and employee health programs that are designed to protect healthcare workers from on-the-job exposures to infections. There are many

examples of infection control programs that have been successful in protecting its healthcare workers. On the other hand, there also are many reports of epidemic infections among healthcare workers in which infection control efforts were absent (Weinstein, R. A. 2001). Even though, we have sophisticated data collection analysis techniques, molecular epidemiology, multiple vaccinations, potent antibiotics, prevention bundles, performance improvement methodologies, advances in sterilization and disinfection, environmental control measures, and widely available hand hygiene agents. The progress in hospital infection control over the last several centuries is remarkable, still, infections continue to pose a substantial risk to hospitalized patients (Smith, P. W., Watkins, K., & Hewlett, A. 2012). However, Implementing and maintaining even the most basic infection control procedures detection and prevention efforts requires a trained and adequately staffed hospital-based infection control program with appropriate expert supervision, capacity that may be unavailable in many smaller community hospitals. In addition, many interventions require access to additional resources, such as information technology support. Reporting systems require infrastructure, including manuals, processes for data collection, entry, and analysis; and appropriate quality checks. Because risk adjustment requires the collection of some information about the entire population being monitored, access to automated information is required to sustain surveillance and reporting efforts in most hospitals. (Van den Broek, P. J., Kluytmans, J. A. J. W., Ummels, L. C., Voss, A., & Vandenbroucke-Grauls, C. M. J. E. 2007).

### 5. LIMITATIONS

Although the research has reached its aims, there were some unavoidable limitations. It should be noted that the infection control systems and procedures varies from one country to another. The systems that each medical institution follow might differ depending on the awareness of each institution

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is providing to their workers. Moreover, respondents might have better answers if they expressed the possible obstacles that they would face in their workplace environment rather than using a questionnaires because they were restricted with specific answers. In addition, it would be helpful to consider that different countries might have divergent results in controlling infection. Thus, it would help the researchers to understand how these countries are responding to infection control issues. However, this study provides an overview of infection control procedures in Saudi Arabia by shedding light general issues.

### 6. CONCLUSION

Infection control procedures are very essential in any hospital setting. Moreover, every infection control facility should have the appropriate protocols and guidelines that they have to provide to the medical staff, and everyone involved in the hospital settings. Controlling infection can be achieved by extensive training of hospital workers and effective monitoring of the facility.

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### Appendix 1

This questionnaire aims to understand and improve infection control procedures in Saudi Arabia hospital settings.

Your answers will help to understand the current situation of infection control in hospital environment. "This questionnaire is reused from *The World Health Organization*."

#### Choose one answer of the following statements:

1) Does your health facility have a preventive medicine and infection control program?

Yes  Maybe  No

2) Does the facility have guidelines for standard preventive measures such as: hand sterilization, outbreak preparedness, injection safety, and medical waste management?

Yes  Maybe  No

3) Does the preventive medicine and infection control program in your facility Include specialized infection control team?

Yes  Maybe  No

4) Does the guidelines at your health facility comply with the national guidelines?.

Yes  Maybe  No

5) Do healthcare workers receive specialized training in infection control principles at the facility?

Yes  Maybe  No

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6) Is the implementation of infection control guidelines regularly monitored at your health facility?

Yes  Maybe  No

7) Is there a monitoring at your health facility on: out-breakable infection, medical devices infection, or surgery infection?

Yes  Maybe  No

8) Is infection control surveillance reported regularly, at least annually?

Yes.  Maybe.  No

9) Is natural or artificial ventilation available in the healthcare areas of your facility?

Yes.  Maybe.  No

10) Are there single rooms to place patients with the same diseases if the number of isolation rooms is insufficient, such as patient who have cholera, measles, and tuberculosis patients?

Yes.  Maybe.  No

11) Does the health care facility provide a special area for disinfection or sections for sterilization supplies?

Yes.  Maybe.  No

12) Is an incinerator or treatment technology provided for infectious waste, whether it is inside or outside the facility site?

Yes.  Maybe.  No

Thank you for participating in our questionnaire.