



Questionnaire-based analysis of infection prevention and control in healthcare facilities in Saudi Arabia in regards to Middle East Respiratory Syndrome



Ali A. Rabaan^{a,*}, Hatem M. Alhani^{b,c}, Ali M. Bazzi^d, Shamsah H. Al-Ahmed^e

^a Molecular Diagnostic Laboratory, Johns Hopkins Aramco Healthcare, Dhahran, Saudi Arabia

^b Specialty Paediatric Medicine, Maternity and Children Hospital, Dammam, Saudi Arabia

^c Directorate of Infection Control at Eastern Province, Ministry of Health, Dammam, Saudi Arabia,

^d Microbiology Laboratory, Johns Hopkins Aramco Healthcare, Dhahran, Saudi Arabia

^e Specialty Paediatric Medicine, Qatif Central Hospital, Ministry of Health, Qatif, Saudi Arabia

ARTICLE INFO

Article history:

Received 2 July 2016

Received in revised form 24 October 2016

Accepted 18 November 2016

Keywords:

Saudi Arabia
Infection prevention
Infection control
Healthcare workers
MERS-CoV

ABSTRACT

Effective implementation of infection prevention and control in healthcare facilities depends on training, awareness and compliance of healthcare workers. In Saudi Arabia recent significant hospital outbreaks, including Middle East Respiratory Syndrome Coronavirus (MERS-CoV), have resulted from lack of, or breakdown in, infection prevention and control procedures. This study was designed to assess attitudes to, and awareness of, infection prevention and control policies and guidelines among healthcare workers of different professions and institution types in Saudi Arabia. A questionnaire was administered to 607 healthcare workers including physicians (n = 133), nurses (n = 162), laboratory staff (n = 233) and other staff (n = 79) in government hospitals, private hospitals and poly clinics. Results were compared using Chi square analysis according to profession type, institution type, age group and nationality (Saudi or non-Saudi) to assess variability. Responses suggested that there are relatively high levels of uncertainty among healthcare workers across a range of infection prevention and control issues, including institution-specific issues, surveillance and reporting standards, and readiness and competence to implement policies and respond to outbreaks. There was evidence to suggest that staff in private hospitals and nurses were more confident than other staff types. Carelessness of healthcare workers was the top-cited factor contributing to causes of outbreaks (65.07% of total group), and hospital infrastructure and design was the top-cited factor contributing to spread of infection in the hospital (54.20%), followed closely by lack and shortage of staff (53.71%) and no infection control training program (51.73%). An electronic surveillance system was considered the most effective by staff (81.22%). We have identified areas of concern among healthcare workers in Saudi Arabia on infection prevention and control which vary between institutions and among different professions. This merits urgent multi-factorial actions to try to ensure outbreaks such as MERS-CoV can be minimized and contained.

© 2017 The Authors. Published by Elsevier Limited. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Effective infection prevention and control in healthcare facilities depends on awareness and compliance of healthcare workers (HCWs) at all levels of the organization. Thus, as for all health pol-

icy, multi-disciplinary teams involving staff from frontline workers to management should be involved in formulation and implementation of infection prevention and control policies and procedures to ensure that they function effectively [1].

In the case of Saudi Arabia, as in any other country, there are specific challenges to infection prevention and control which need to be met by nationally and locally relevant policies and procedures. Various nosocomial and community infectious disease outbreaks have been experienced in Saudi Arabia in recent years. These include pandemic influenza A (H1N1) [2], H5N1 highly pathogenic avian influenza [3], Rift Valley Fever [4] and most significantly Middle East Respiratory Syndrome (MERS), an acute viral respiratory

* Corresponding author at: P.O. Box 76, Room 281-C, Building 62, Johns Hopkins Aramco Healthcare, Saudi Aramco, Dhahran 31311, Saudi Arabia. Fax: +966 13 877 6741.

E-mail addresses: arabaan@gmail.com, ali.rabaan@jhah.com (A.A. Rabaan), hanihm@gmail.com (H.M. Alhani), bazziamh@gmail.com (A.M. Bazzi), drshamsahmed5256@gmail.com (S.H. Al-Ahmed).

illness associated with high mortality, caused by a new betacoronavirus strain, MERS-CoV [5–8].

MERS-CoV was first positively identified in 2012 in the sputum of a 60-year old man, who died after presenting at a private hospital in Jeddah with acute pneumonia and subsequent renal failure [8]. Human MERS-CoV is believed to have originated via cross-over from dromedary camels, but the major outbreaks experienced in the Middle East and Korea have been healthcare facility-associated and linked to a lack of, or breakdown in, infection prevention and control procedures [5,6,9–12]. As a result, the World Health Organization (WHO) have identified issues such as overcrowding in emergency department waiting rooms and insufficient attention to basic infection control procedures, such as hand hygiene and use of personal protective equipment (PPE), in hospitals in Saudi Arabia [11]. New infection prevention and control guidelines for MERS-CoV patients were introduced by the Ministry for Health (MOH) in Saudi Arabia, largely based on WHO and Centers for Disease Control and Prevention (CDC) guidelines, with modifications based on epidemiological evidence, clinical experience and local circumstances [6,13–16].

The effectiveness of promotion and consistent application of both basic infection control procedures such as hand hygiene, and more advanced measures, have been demonstrated in hospital-associated MERS-CoV outbreaks in Saudi Arabia and in Korea [17–20]. However, in order for MOH-prescribed infection prevention and control measures to be effectively implemented in individual healthcare facilities and their constituent departments, clear direction must be given to employees. Expectations of both management and employees should be clearly defined, communicated and understood [1,7]. The objective of this questionnaire-based study was to gauge staff awareness of infection prevention and control policies and procedures in different healthcare facilities in Saudi Arabia, including government hospitals, private hospitals and poly clinics. The questionnaires were completed by a range of HCWs, including nurses, physicians, laboratory staff and others such as physiotherapists. They addressed staff training and access to information, confidence in the ability of HCWs to implement policies and carry out procedures, their assessment of the main threats in terms of possible outbreak causes and factors contributing to infection spread, and preparedness of their institution to deal with an infection outbreak.

Material and methods

Subjects and questionnaires

607 HCWs including physicians (n = 133), nurses (n = 162), laboratory staff (n = 233) and other staff (n = 79), in government hospitals, private hospitals and poly clinics in Saudi Arabia filled in a questionnaire. The questionnaire was administered via SurveyMonkey and distributed to HCWs through emails, Facebook, and other communication tools. Responses were anonymous and the institutions where respondents were working were not identified by name. Hence, it was not considered necessary to seek ethical approval. The questionnaire included a range of thirteen questions on their knowledge and application of, and attitudes to, infection prevention and control measures in their institutions. The questionnaire administered is shown in Appendix A. For aid of interpretation, the questions have been numbered as follows for consideration in the Results and Discussion Sections of this paper.

Question 1:

- Do you have infection control program at your institution?
- Do you have infection control policies and guidelines in your unit?

Question 2: Have you received some form of training or orientation about infection prevention and control?

Question 3: At your institution, do you have active infection control team?

Question 4: Do you have an emerging infectious diseases task force (dealing with outbreaks)?

Question 5: Have you encountered any outbreak?

Question 6: Is your hospital is enrolled in national surveillance system?

Question 7: Do you have a list of reportable infectious agents available in your unit and accessible to all staff?

Question 8: Which infections are reported to MOH?

Question 9: In your institution, is there known turnaround time of laboratory results of the reportable infectious agents?

Question 10: Do you think your hospital is prepared for any infection outbreak?

Question 11: Do you agree that surveillance tool used in your institution is effective to prevent or control infection?

Question 12: Do you think that all staff in your unit are following promptly infection control policies, rules and guidelines?

Question 13: Do you think that all staff can differentiate between different isolation protocol such as droplet or contact?

The group were also asked to choose from a number of options as to what, in their opinion, was the cause(s) of outbreaks and what factors contribute to the spread of infection in the hospital? They were also asked what reporting system they had in their hospitals (Electronic surveillance, paper version or telephone communication) and which of these systems they would consider to be the most effective reporting system for reporting infectious agents.

Statistics

Data were analyzed statistically using Excel (Microsoft Corporation, Redmond, WA, USA) and/or Social Science Statistics (<http://www.socscistatistics.com/Default.aspx>). The chi-square test was used at the 5% level of significance to estimate differences in proportions between different staff types (physicians, nurses, laboratory staff and others), between staff in different institution types (government hospital, private hospital and poly clinic), between staff of different age groups, or between Saudi and non-Saudi staff. Where appropriate, median and interquartile range (IQR) were also calculated (staff type analyses).

Results

Characteristics of study group

A total of 607 HCWs, comprising physicians, nurses, laboratory staff and others (for example physiotherapists, respiratory technicians, X-ray technicians), working between government hospitals, private hospitals and poly clinics, submitted responses to the questions shown in Section “Subjects and questionnaires”. The characteristics of the group in terms of age group, gender, profession, institution and nationality (Saudi or non-Saudi) are shown in Table 1.

Responses by profession

The responses to the questions asked were compared between the different HCW professions across the three institution types. Numbers and percentages of responses in each group and the *p* values obtained from Chi square analyses are shown in Table 2. The Chi square breakdowns are shown in Appendix B.

There was some variation in responses to questions related to institution-specific issues (Questions 1–5, Section “Subjects and questionnaires”). In terms of knowledge of whether or not there

Download English Version:

<https://daneshyari.com/en/article/5672745>

Download Persian Version:

<https://daneshyari.com/article/5672745>

[Daneshyari.com](https://daneshyari.com)