

## Barriers and Strategies to Apply Infection Control Standards as Perceived by Nurses (A qualitative study).

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**Abstract:** This paper reports on a socio-anthropological fieldwork to understand the barriers that have impacts on applying infection control standards at King Fahd Hospital. We conducted qualitative study in various hospital departments on 40 nurses and one person from Continuous Nursing Education center important to infection control. Audio-recorded interviews were transcribed verbatim and transcripts were analyzed using conventional content analysis. Five key themes emerged as perceived barriers to effective infection prevention and control (IPC) practices 1) language 2, knowledge 3, part-time staff-, 4, workload; and 5 accountability).

### BACKGROUND

Health care worker especially, nurses as healthy worker are often exposed to pathological infection, many of which can cause serious infections. <sup>(1)</sup> Standard precautions are defined by Wisconsin Department of Health Services a set of infection control practices used to prevent transmission of diseases that can be acquired by contact with blood, body fluids, non-intact skin (including rashes), and mucous membranes. These measures usually used when providing care to all clinics, whether they appear infectious or symptomatic. <sup>(2)</sup> Standard precautions are meant to reduce the risk of transmission of blood borne and other pathogens from both recognized and unrecognized sources. They are the basic level of infection control precautions which are to be used, as a minimum, in the care of all patients. <sup>(3)</sup>

It has been known, that the healthcare-acquired infection can be prevented, though, surveillance and control measures <sup>(4)</sup> <sup>(5)</sup>. A number of international initiatives undertaken to support developing countries to implement infection control effectively in their health care settings <sup>(6-9)</sup>.

Following standard infection control precautions can minimize the risk of infections caused by person-to-person transmission in any institution or group setting or by an infected food handler. This requires a basic level of hygiene measures that can be implemented in any setting, regardless of whether a person is infectious or not, <sup>(5)</sup>

More than researchers in other studies stressed on the factors that contribute to barriers and strategies of standard precautions. As well as revealed factors were lack of knowledge, lack of time, lack of means, negative influence of the equipment on nursing skills, unavailable equipment, lack of training program, conflict between the need to provide care and health workers self-protection, and distance to necessary equipment or facility. Compliance with infection prevention has been studied by using a variety of methods, including questionnaire distribution.

In many cases, there was no theoretical framework behind these questionnaires and mostly factors that contribute to noncompliance were studied. Only few studies incorporated a theoretical framework, however, most of them studied only one or limited aspects of standard precautions, specially hand washing, <sup>(8)</sup>

This study aims to identify the barriers and strategies as perceived by nursing staff, which provide effective implementation of infection control program in King Fahd Hospital.

### MATERIALS AND METHODS

This study uses a phenomenological-hermeneutic, as well as the study is based on socio-anthropological fieldwork and uses semi-structured interview with nursing staff who working at King Fahd hospital Al Madinah Al Menawarah - KSA. Data were gathered from 41 from nursing personnel from different critical areas in King Fahd hospital (10 nurses from Intensive Care Units, 10 nurses from Emergency department, 10 nurses from Operation Room, 10 nurses from General Surgery and Ward and one person from Centre of Continuous Nursing Education (Director). The study was carried out over four-month period from August to December 2015. The data facilitates interpretation of the experiences of the participants.

**The interviews** were conducted in quiet rooms within the nurses' room. They ranged from 20 to 45 minutes' duration and were audio-taped. The interview questions were kept simple, with use of introductory questions in the form of opening questions.

#### *The Participants In The Interviews:*

The interview guides (available upon request) were informed by Doriabedian's conceptual framework of healthcare quality, that includes structures, processes, and outcomes <sup>(11,12)</sup> and published guidelines for infection

prevention among nursing hospitals were conducted with 41 nurses from two different nationality (Saudi Arabian and Phillipian nationality) ,who working in four departments in King Fahd Hospital. Categorized as the following 10 nurses from ICU, 10 Nurses from General Surgery Department,10 Nurses from Operative Room and 10 nurses from Emergency Department and with a director Continuous Nursing Education. The first and second interview conducted with nurses had more than ten years' experience who working in the hospital units mentioned before and aged 35 and 45 years from both Saudi Arabian and Phillipian nationality. The third and fourth interviewee was an inexperienced nurse of 20 years of age from both Saudi Arabian and Phillipian nationality while the fifth interview conducted with a director of Continuous Nursing Education.

**Interview questions;** Open-ended and specific to infection prevention:

1. What are the barriers to apply effective infection control strategies in your department?
2. What is the challenges related to infection control in your departments,"

**Ethical consideration:**

An agreement for participation of the subjects was taken verbally before inclusion and after the aim of the study explained to them. They were given the free will to refuse to participate and they were notified that they could withdraw at any stage of the research. They also were assured that any information taken from them would be confidential and used for the research.

**RESULTS OF THE INTERVIEW**

In total, 5 interviews were conducted and averaged approximately 45 min in length, Many of the personnel interviewed served as the 1) Director of nursing continuous education, 40 Staff Nurses, Five key themes emerged describing perceived barriers to implementing and maintaining infection control practices for participated nurses language and culture 2) knowledge and training courses 3) part-time staff 4) workload and 5) accountability .Descriptions of each theme with exemplar quotes of the barriers and strategies used to overcome the barriers can be found in Table 1.

**Naive reading:-**

All interviewees, from nurses, undertook the naive reading. While the interviews/texts were read and re-read, the immediate impressions from the texts were transcribe in order to hold on to what it was that moved us in relation to 'what is said' and to the questions that emerge. The informants were talking about the barriers and strategies of standard precaution. This led to initial steps in understanding the significance of how the nurses perceived.

**Structural analysis:**

All interviewees also entered into the structural analysis of what the interview text means. The following themes emerged: (language , knowledge and training courses, part-time staff, workload: and accountability.

Table 1-Overview of results of structural analysis with derived themes from interviews, examples of units of meaning as quotations taken from the text from the naive reading

Units of meaning (what is said)		Theme and units of significance (what is being spoken about)
Units of meaning (what is said) Staff of nursing	Units of meaning (what is said) Director of nursing continuous education	
<p><b>Barriers</b> Related to barriers to apply infection control standards ( As non-native Arabic speakers with diverse cultural backgrounds and this impacted the manner in which infection control barriers information was delivered.( <b>Philippine nurses</b>)</p> <p>I would like to have a [session] for infection control Where [we talk about hand washing and educate on the infectious diseases. So that's something that I am working towards because if you're a new graduated nurse. (<b>staff nurse in Emergency Department</b> )</p> <p>"I haven't been taught and I haven't been educated." Infection precaution strategy (<b>New graduated nurses</b>).</p>	<p><b>Strategies</b> "We use symbols that alert the staff about the infection control standard.  I think that's something we could really improve."  "additional resources/trainings were useful in improving infection control practices</p> <p>Education and training of infection control standard impeded information delivery and the implementation and adherence to nursing continuous education processes.</p> <p>Most nurses with clinical experiences not follow infection control guidelines .</p>	<p>Language.</p> <p>Knowledge and training courses.</p>

Table 2-Overview of results of structural analysis with derived themes from interviews, examples of units of meaning as quotations taken from the text from the naive reading

Units of meaning (what is said)		Theme and units of significance (what is being spoken about)
Units of meaning (what is said) Staff of nursing	Units of meaning (what is said) Director of nursing continuous education	
<p><b>Barrier:</b> “The frequent work schedules of per-diem and part-time staff posed difficulties for Infection control communication and resulted in Infection control breakdown .</p> <p><b>Barrier:</b> I think time constraints and understaffing impeded effective Infection control practices.(nurse staff in Emergency Department).</p> <p>Saudi Arabian nurses in intensive care unit said: “</p> <p>When patient need a help to stay alive, it will not be my main goal to use gloves...” another nurse said: “... we had to resuscitate the patient, we omitted our own safety.” <b>(Female nurse in Emergency Department.)</b></p> <p><b>Barrier:</b> I think lack of ownership of infection control created breakdown in infection control practices and communication “I think when you empower nurses, when you really make nurses realize that it’s so important what they’re doing, when compliance infection control standard and you give praise to them.</p> <p>A nurse working in ICU “... they can protect me. I have read a lot about [protective equipment] and I am confident that I am well protected.” The term protection was not only limited to their own protection but also to their families’ as well.</p>	<p><b>Strategies :</b> “we do brief infection control training, it’s very hard to isolate. and catch everybody</p> <p><b>Barrier:</b> I think a lack of staff and a lack of time .make you cut corners. I’m not saying that the aides don’t want to do it right or don’t know how to do it right. They don’t have the time to do it right.</p> <p><b>Barrier:</b> When we talk about infection control sometimes nurses think [it doesn’t relate to them]. For example wearing gloves when they should not.</p> <p>When we talk about Infection control just in general, I think there is no relevance to them].”</p> <p><b>Strategies</b> Participants from nurses agreed that by implementing the requirements of Standard Precautions in their daily Practice they are highly protected from infection.</p>	<p>Per-diem and part-time staff.</p> <p><b>Workload</b></p> <p><b>Accountability</b></p>

**Critical interpretation:**

The goal of developing new understanding has been created by critical interpretation. This created the possibility of delving deeper into the themes and thus facilitated further refinement of themes.

**Language and culture:**

Language and culture were comprehend as common bathers for implementation of infection control practices, if you come from other culture where you don't really discuss medical issues sometimes that could be a barrier Participants noted that many of the nurses came from diverse cultural backgrounds and were often non-native English speakers. These characteristics were perceived to limit the nurses' ability to understand and, therefore, effectively adhere to routine Infection control practices. Philippians nurses who worked in intensive care units realized that a tool developed to help nursing staff care for the protection from infection and needle stick injuries, really was not effective because some of [nurses] could not read it." In addition to language, the diverse cultures of Saudi Arabia nurses were perceived to present challenges to Infection control \_ An administrator from medical department described this as an issue of particular importance, "if you come from a culture where you don't really discuss medical issues sometimes that could be a barrier.- To address barriers associated with language

and culture. The head nurse of Emergency Department stated that because of "an over whelming number of nursing staff that [are non-native English speakers] .When you do education in both languages, were making sure that everyone is grasping the concept."

**Knowledge and training courses;** Lack of knowledge and training were perceived by participants to impede information delivery and limit the nurses' ability to effectively implement and adhere to infection control processes. Specifically, the lower educational requirements of nursing staff, compared to those of other health professions, were perceived as a barrier when providing instruction on Infection control practices\_ while discussing in-service trainings at the facility, a participant responsible for quality improvement from Continuous Nursing Education noted that, "I'm very aware that new graduate person must sitting with graduated nurses. Both people are going to view it differently, but the outcome must be the same. So I have to hope that the [graduate] person recognizes I'm certainly not talking down, but I'm putting it in language that can be understood.

**part-time staff:**

Participants reported a reliance on per-diem and part-time nursing member to fill the voids created by sick calls, turnover, and staffing shortages. However, they also

reported limited opportunities to educate this group on infection control standard thus creating barriers to effective infection control standard. The director of continuous nursing education explained this barrier as being, ".really tricky. It's not like I can schedule an in-service and gather everybody together because the next day they could have more private duty aides Participants described various approaches to training per-diem and part-time nursing staff on infection control standard. These included utilizing current staff to intervene and educating individuals who were unfamiliar with the facility's protocols. Having more permanent staff, lower turnover, and an infection control coordinator at the hospital as well as facility were described as facilitators to infection control standard compliance.

## WORKLOAD

Many discussed how workload prevented nursing staff from effectively carrying out every day infection control practices. A director of continuous nursing education described that, despite nurses' awareness of infection control practices, adherence was low because of increased workload and being in a hurry to finish one task and move on to another. When asked for reasons why nurses might not follow an infection control policy a nurses from Emergency Department stated, "I would say multitasking" discussed an example of workload resulting in poor hand hygiene. Solutions to overcoming barriers created by increased workload involved hiring more staff. However, respondents noted that this approach would likely not result from a state inspection as a nurse.

## ACCOUNTABILITY

Gaps in nursing staff accountability related to infection control standard were reported by many participants. A director of continuous nursing education indicated that nurses have the ability to effectively implement infection control standard, however, she went on to say: issues related to teamwork and being accountable for communicating about infection control standard, "I think [nurses] have to understand that everybody is here to complement each other, but I don't see them communicating. In order to increase accountability, empowerment and inclusion activities were frequently discussed as key approaches to ensure that nurses felt they were part of infection control standard initiatives. For instance, nurses from ICU described the importance of providing nursing staff with the tools and training to execute infection control standard.

## DISCUSSION

In this study, nursing staff and director of continuous nursing education were described diverse group whose challenges to implementing infection control standard effectively centered on language and culture, lack of knowledge and training courses, reliance on part-time staff., workload, and limited accountability.

The majority of studied used questionnaires for gathering their data; therefore the results must be matched with the findings of this studied which used the qualitative design. While existing studies have described barriers to implementing quality care practices and maintaining

compliance among nursing staff ) none have examined barriers to infection control standard specifically, Our work explored infection control standard barriers qualitatively, allowing participants to give an account of the barriers they encountered and the strategies participants were using.

When described the barriers related to culture and finding indicate that to implement teaching methods that are sensitive to language and culture, yet such methods may still fall short of ensuring that nursing staff understand infection control processes.

As well as the diverse workforce of nursing staff presented challenges to infection control standard and that additional resources in trainings were useful in inlaying infection control practices, This finding in same line with this study that indicate that nursing education provision is somewhat divorced from the structural and cultural differences (real or imagined) associated with the divisions in English Higher Education highlighted above, One of strategy to overcome the barrier of culture <sup>(17)</sup> claimed that culture is also reflected by the kinds of communication that occur thin a team; effective communication is important in order to obtain optimal outcomes).

In the UK nursing education is largely provided through University departments or colleges according to nationally agreed frameworks of standards. But this is a fairly recent development, <sup>(18)</sup> Nurses in ICU have taken to respond to these challenges (i.e., translation of in-services and educational material) align with recommendations by the (AMDA) <sup>(19)</sup>. However, based on what was described by participants in this study, a deficit still remains with regard to language and culture when nursing staff are placed in hospital settings.

A review of current minimum educational requirements may be warranted to ensure that nursing staff are best prepared educationally, linguistically, and culturally to satisfy the requirements of their position. Lack of knowledge and training can also impact infection control standard among all nursing staff <sup>(20/21)</sup> In this study, knowledge was influenced not only by how much experience one had working in a particular facility, but also by the educational requirements of the position. Providing effective education for personnel who have differing educational backgrounds was a challenge. In another study investigating the educational needs of licensed nursing staff that provide end-of-life care, lack of knowledge and skills and communication difficulties were also cited as major needs areas. <sup>(22)</sup>.

Additionally, infection control standard compliance related to training was particularly problematic when nursing staff were newer to the facility <sup>(23)</sup> reported that initial training only provided them with half of what they needed to know and they learned the remainder informally on the job. Therefore, it may be beneficial for nursing staff to develop focused infection control programs that span longer periods of time. However, despite reported infection control standard training that did focus on nurses, compliance was said to have varied in this study, suggesting the need for further research on which mode(s) of teaching and preparation would be most effective for this group.

Regarding the barriers of per-diem and part-time some studied demonstrated that The nurse managers are challenged to find the time and opportunity to meet all the knowledge acquisition, skills, learning, and motivational needs of their employees. (24), and one strategy for connecting with per-diem and part-time nurses includes engaging them immediately when they begin their daynight at the facility. For instance, per-diem and part-time staff may be provided with infection control standard updates, in-services, and trainings <sup>(25)</sup> min prior to the start of their shift. Another important finding in our study was the suggestion to equip other staff with the ability to deliver infection control education.

Moreover, additional attention to meeting the needs of nursing staff and reaching them despite their sporadic schedules is necessary, as is holding per-diem and part-time staff to the same standards of full-time pi. These strategies are important for maintaining consistent

Finally there are many factors can share in the implementation of standard precautions, and are in accordance with previous findings <sup>[26-27]</sup>, it should be onerous however, that studies emphasizing on factors which influencing compliance are restricted. Such factors coincide to the benefits. Continuous education on standard precaution measures for improving compliance.

## LIMITATIONS

The results of qualitative study, cannot be generalised to the population of nursing staff, further studies with massive samples should be conducted.

## CONCLUSION

The nursing staffs appreciate the value of infection control standard as a means for providing protection against infection during their daily duties. They also accepted that many factors may give a share in to their decision about the compliance of standard precautions; there were many factors may be out of the nurses' control. These findings provide necessary information to guide the implementation of successful Infection control policies and programs in King Fahd hospital in Almandine –Saudi Arabia. Nurses are in the frontlines of providing direct care, therefore, they are key to implementing effective Infection control standard activities. Nurses in our study were described as being a highly diverse group. High turnover and understaffing increased the need for per-diem and part-time staff and also increased nurse's workload. Furthermore, holding nurses accountable for infection control standard was deemed important. It is necessary to implement strategies designed for this diverse workforce to improve nurses work performance and overcome infection control barriers. Our findings provide information to guide the implementation of infection control policies and programs. Further research is needed to better understand infection control barriers that nurses face and how these barriers may be effectively overcome. Such studies will enable nurses to achieve reduction in infectious diseases.

## REFERENCES

- [1]. **Aiken LH, Sloane DM, Klocinski JL:** Hospital nurses' occupational exposure to blood: prospective, retrospective, and institutional reports. *Am J Public Health* 2015, 87(1):103-107.
- [2]. **Twitchell KT:** Bloodborne pathogens. What you need to know—Part II. *AAOHN J* 2011, 51(2):89-97, quiz 98-9.
- [3]. **Park S, Jeong I, Huh J, Yoon Y, Lee S, Choi C:** Needlestick and sharps injuries in a tertiary hospital in the Republic of Korea. *Am J Infect Control* 2013, 36(6):439-443.
- [4]. **Siegel Rhinehart JD, Jackson E, Chiarello ML,** the Healthcare Infection Control Practices Advisory Committee: Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings. [[http://www.cdc.gov/hicpac/pdf/isolation/Isolation\\_2015.pdf](http://www.cdc.gov/hicpac/pdf/isolation/Isolation_2015.pdf)].
- [5]. **Wright B, Tuner J, Daffin P:** Effectiveness of computer-assisted instruction in increasing the rate of universal precautions-related behaviors. *American Journal of Infection Control* 2015, 25(5):426-429.
- [6]. **Chan R, Molassiotis A, Chan E, Chan V, Ho B, Lai CY, Lam P, Shit F, Yiu I:** Nurses' knowledge of and compliance with universal precautions in an acute care hospital. *Int J Nurse Stud* 2014, 39(2):157-163.
- [7]. **Hazavehei SM, Taghdisi MH, Saidi M:** Application of the Health Belief Model for osteoporosis prevention among middle school girl students, Garmsar, Iran. *Educ Health (Abingdon)* 2015, 20(1):23.
- [8]. **Daddario DK:** A review of the use of the health belief model for weight management. *Medsurg Nurs* 2014, 16(6):363-366.
- [9]. **Stein AD, Makarawo TP, Ahmad MF:** A survey of doctors' and nurses' knowledge, attitudes and compliance with infection control guidelines in Birmingham teaching hospitals. *J Hosp Infect* 2013, 54(1):68-73.
- [10]. **Pittet D, Allegranzi B, Storr J, Nejad SB, Dziekan G, Leotsakos A, Donaldson L:** Infection control as a major World Health Organization priority for developing countries. *J Hosp Infect* 2008, 68:285–292
- [11]. **Donabedian A.** Evaluating the quality of medical care. *Milbank Mem Fund Q*;1966;166e206.
- [12]. **Crogan NL, Shultz JA.** Nursing assistants' perceptions of barriers to nutrition care for residents in long-term care facilities. *J Nurses Staff Dev.* 2000;16(5): 216e221.
- [13]. **Lekan-Rutledge D, Palmer MH, Belyea M.** In their own words: nursing assistants' perceptions of barriers to implementation of prompted voiding in longterm care. *Gerontologist.* 1998;38(3):370e378. <http://dx.doi.org/10.1093/ger ont/38.3.370>.
- [14]. **Mather KF, Bakas T.** Nursing assistants' perceptions of their ability to provide
- [15]. continence care. *Geriatr Nurs.* 2002;23(2):76e81. <http://dx.doi.org/10.1067/mgn.2002.123788>.
- [16]. **Resnick B, Petzer-Aboff I, Galik E, et al.** Barriers and benefits to implementing arestorative care intervention in

- nursing homes. *J Am Med Dir Assoc*. 2008;9(2): 102e108. <http://dx.doi.org/10.1016/j.jamda.2007.08.011>.
- [17]. **Frank, J.R., Brien, S.** (Editors) on behalf of The Safety Competencies Steering Committee. (2008). *The safety competencies Enhancing patient safety across the health professions*. Ottawa, ON: Canadian Patient Safety Institute.
- [18]. **Brown C., Belfield C., & Field S.** 'Cost effectiveness of continuing professional development in health care: a review of the evidence', *British Medical Journal*, 324, (2002). pp 652-655.
- [19]. **American Medical Directors Association.** *Common Infections in the Long-term Care Setting*. Available at: <http://www.guideline.gov/content.aspx?id=432667;2011>. Cited December 29, 2014.
- [20]. **Stone PW, Herzig CT, Pogorzelska-Maziarz M, et al.** Understanding infection prevention and control in nursing homes: a qualitative study. *Geriatr Nurs*.2015. <http://dx.doi.org/10.1016/j.gerinurse.2015.02.023>
- [21]. **Cohen C, Pogorzelska-Maziarz M, Herzig C.T.A, et al.** Isolation-based infection prevention and control practices in nursing homes: a qualitative study. *BMJ Qual Saf*. Published Online first: 22 May 2015. <http://dx.doi.org/10.1136/bmjqs-2015-003952>.
- [22]. **Ersek M, Kraybill BM, Hansberry J.** Investigating the educational needs of licensed nursing staff and certified nursing assistants in nursing homes regarding end-of-life care. *Am J Hosp Palliat Care*. 1999;16(4):573e582. <http://dx.doi.org/10.1177/104990919901600406>.
- [23]. **Centers for Medicare Medicaid Services. Report to Congress: Appropriateness of Minimum Nurse Staffing Ratios in Nursing Homes: Phase II Final Report.** Available at: <http://phinational.org/sites/phinational.org/files/clearinghouse/PhaseIIVolumeIofIII.pdf>; 2001. Cited December 18, 2014.
- [24]. **Cathcart, D., Jeska, S., Karnas, J., Miller, S., Pechacek, J., & Rheault, L.** (2004). Span of control matters. *Journal of Nursing Administration*, 34, 395–399. Chang, J. T., Hays, R. D., Shekelle, P. G., MacLean, C. H., Solomon, D. H., Rueben
- [25]. **Mather KF, Bakas T.** Nursing assistants' perceptions of their ability to provide continence care. *Geriatr Nurs*. 2002;23(2):76e81. <http://dx.doi.org/10.1067/mgn.2002.123788>.
- [26]. **Osborne S:** Influences on compliance with standard precautions among operating room nurses. *Am J Infect Control* 2003, 31(7):415-423.