

# Assessment of Health Care Workers Compliance to the Guidelines of Disinfection and Sterilization

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## **Abstract:**

*Health care workers' compliance with infection control practices and principles is vital in preventing the spread of disease. Lack of compliance and conform with scientifically recognized guidelines has in regards to infection control led to many outbreaks of infectious diseases. Over visits to primary health cares and collecting responses in regarding of the standards, 67% of them were done in positive manner. Around 90% of responses regarding cleaning the area, dealing with the garbage were appropriate, while less than 15% of the responses indicated that the health care workers (particularly the physicians) were using hand gloves. After providing some recommendations to the health care workers, hand hygiene and wearing gloves had been improved, which will have a positive impact on controlling of infections.*

**Keywords:** *Infection control, Compliance oh Health Care Workers, Disinfection, Sterilization.*

## **Introduction**

Several studies around the world have recognized the lack of compliance with established guidelines for disinfection and sterilization [1]. Failure to conform with scientifically recognized guidelines that target the control of infection has led to many outbreaks of infectious diseases [2,3].

Sterilization is process that aim to eliminate all forms of microorganisms, and is carried out in health facilities by different ways, for example, dry heat, EtO gas, hydrogen peroxide gas plasma, and liquid chemicals. Disinfection describes a process that eliminates many or all pathogenic microorganisms, except bacterial spores. Sterilization by its means, and the role of disinfection are a core for confirming that medical practice for health care workers is in out of contact with infectious pathogens, and furthermore not to infect people in the health facilities [3-5]. Taking into account all the equipment has to be sterilized, the polices has to be identified, is necessary and important on the items, where good handling, disinfection, or sterilization is designated [6].

Several studies have demonstrated that ethanol, isopropyl, or n-propanol ABHRs reduce bacterial counts on the hands of healthcare workers (HCWs) markedly better than washing hands with plain soap and water, and are more effective than handwashing with an antiseptic soap [6]. Lack of readily

available hand hygiene alcohol rub dispensers or hand washing sinks near patient rooms (a latent error) may lead to inadequate hand hygiene by hospital staff (acute errors) [6,7].

Evaluating the sterilization and use of medical instruments is important measures to assess the process of infectious control, some of medical instrument could be used for many patients, which needs proper sterilization and disinfection [6,7].

Health care workers' compliance with infection control practices and principles is vital in preventing the spread of disease. One tool to assess infection control practice in clinical areas is the infection control audit; however, many institutions do not approach this in a systematic fashion [7].

This study was conducted in primary health care center in Aljouf- Saudi Arabia, To ensure that standards of infection control is carefully followed with good compliance to the guidelines by the primary health care under the investigation. This ensure a huge impact on controlling and preventing a wide range of the disease.

## **Method**

A weekly three visits to the primary health care, with standards - obtained from American Journal of Infection

Control made by Vancouver General Hospital – and has been manipulated by the investigators team and revised by the microbiologists (Table.1).

The standards survey is carried out by three investigators in each visit, and it has been followed and applied to the health care workers in the Alsharq- Domat Aljandal Primary Health Care, and follow up for two weeks.

Every section in the primary health care was included and the instruments in used as well, (i.e.: Syringes, Otoscope, Availability of Sterilization and Alcohol swaps. etc). Auditors should move around a unit as required to documents events rather than targeting one specific area.

A recommendation at the end has been discussed, and focused on the Standards selected. A re-audit has been made with the same standards, and results were obtained.

**Table 1. Infection Control Audit Form**

	Item	Positive	Negative
Area Cleaning	Does the area have a clean orderly appearance?		
	Is there evidence of excessive dust or dampness?		
	Is there a schedule for cleaning the place?		
Garbage	Are sharps containers sealed for disposal when approximately 3/4 full?		
	Are garbage containers covered?		
Hygiene	Are health care workers clean their hands regularly for each patient?		
	Is antimicrobial soap available?		
	Are there dedicated handwashing sink?		
	Are gloves worn for each patient contacts?		
	Is personal protective equipment available?		
Instruments	Are oximeters cleaned for each patient?		
	Are otoscopes cleaned for each patient?		

## Results

Over 6 visits, a total of 216 responses received during the first 2 weeks from the three investigators. Regards the overall responses, 67% of them were done in positive manner.

Around 90% of responses regarding cleaning the area, dealing with the garbage were appropriate, while less than 15% of the responses indicated that the health care workers (particularly the physicians) were using hand gloves. On the opposite side, the health care workers were using the antimicrobial soap most of the time (89%). The area was clean all of the time, and there is no evidence of dusts around, however cleaning of garbage container had been covered in 75% of responses, syringe containers had been sealed all the time (Table.2). A recommendation has been made to the workers at the end -6th visit- of 2nd week.

The same investigators had re-auditing in the followed week, and 84 responses were collected in two occasions. Hand hygiene and wearing gloves had been improved, while other parameters had not been changed significantly (Table.2).

## Discussion

Audit in infection control has to be always under the scope, as it has huge impact that influence the health care outcomes. It must be emphasized that the infection control audit presents an opportunity to promote infection prevention.

The audit is implemented to assess the health care compliance to follow the guidelines of infection control, and review workplace infection control practice.

Reviewing the practice in the Primary health care against the modified standards is suitable tool for improvement in the practice. In this report, hand hygiene and wearing of gloves has been improved dramatically after auditing and re-auditing.

Using of sharp instruments is rare in the practice inside the PHCs, so it was difficult to assess this parameter with the exception of using Syringes, which physicians were doing correctly. Moreover, the usage of Oximeter and Otoloscope is regularly done, and the procedure and cleaning of them were done in appropriate way in auditing and re-auditing.

The major improvement in this audit was the practice of hand hygiene during examination of the patients, contacting with the patients or other people in the primary health care. There has an improvement after giving recommendation to the health care workers. This will bring improvement and

decrease the ability of the germs to get infected with the germs during patient contacts.

**Table 2. Audit & Re-audit Responses**

	<b>Audit</b>	<b>Re-Audit</b>
	<i>Percentage responding affirmatively</i>	<i>Percentage responding affirmatively</i>
Clearance of the area, and presence of dusts	92.90%	93.52%
Dealing with the garbage	81.48%	88.89%
Hygiene	68.98%	95.83%
Dealing with instruments	100%	100%
Clearance of the area, and presence of dusts	92.90%	93.52%

A major component of infection control is education on routine hygienic precautions. The intervention of education by the investigators, had led to improvement of the compliance of health care workers to the guidelines (as seen in the result of the re-auditing).

The standards that has been used in the study was important to ensure the basics of infection control that has been followed carefully to decrease the rate of infections, however still many areas of PHC has not been covered due to some restrictions and barriers like female section. Also, the number of visits has to be increased for more accuracy of the result.

## Conclusion

The implementation of central sterilization allows more reliable sterilization monitoring as well as considerable resource savings. Following a guidelines of infection control is necessary to develop the overall health in health care facilities.

Hand hygiene is very important factor need to be improved. It was the major factor that has been addressed during this audit. Develop a mechanism for the occupational health service to report all adverse health events potentially resulting from exposure to disinfectants and sterilants; review such exposures; and implement engineering, work practice, and PPE to prevent future exposures. Monitor possible sterilization failures that resulted in instrument recall. Assess whether additional training of personnel or equipment maintenance is required.

Further studies and reviewing of the guidelines has to be done in the soon future, to ensure the most improvement in controlling the infections.

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