

Infection Control Initiative: Epidemiology & what we can do?

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Abstract

Background and Objective

Hospital acquired infections occur due to cross infection from one patient to another or by doctors, nurses or other hospital staff, and should be addressed in addition to offering optimal healthcare and treatment measures. All hospitals should ensure basic infection control mechanisms which are the key to control infections. A study was conducted in a private tertiary care set up to assess the infection control status and observance of protocols with the aim to conduct critical self appraisal to improve healthcare services.

Material and Methods

A structured questionnaire based on the standards used by Government of Pakistan was adapted and data was collected by the faculty members. Non-probability sampling technique with focus on major departments of the hospital having higher patient loads were used. The data was collected by direct observation, checking of records and interviews as needed from the Emergency Unit, Operation theatre, Wards (Medical, Surgical, and Gynaecology & Obstetrics) and Outdoor Unit, Labour room, ICU (Adult & Paediatrics) and Nursery. Data was compiled and analysed using SPSS version 17. Microsoft Excel was used for graphic presentation. Study was conducted from February 2015 to March 2015.

Results

It was observed that basic infection control measures were available, Anti disinfectants (69%), Sterilized equipment (67%) and clean supplies (94%). Precautionary measures were being ensured in major areas such as, prevention of bloodstream infections (74%), perinatal precautions (78%) and prevention of UTI (55%). Hand hygiene practices were promoted (79%), however the waste disposal (18%) was at sub-par level. Inadequacy of water supply (32%) was also observed. Compliances were based on interviews taken and observations done then recorded in the questionnaire, in all the areas visited by the investigators.

Conclusion

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Our study concluded that the infection control measures are being followed in an adequate manner, with no gross deficiencies; however, it identified some areas for further improvements like waste disposal mechanisms and adequacy of water supply.

Background

In an ideal healthcare setup patients should receive the optimal healthcare which includes measures for preventing infections that may be acquired by the patients during their hospital stay. All hospitals should ensure basic infection control. Worldwide, hospital acquired infections are considered the most debilitating infections effecting developing and underdeveloped countries. Eastern Mediterranean and South East Asian regions having the highest frequencies, 11.8% and 10.0% as compared to 7.7% and 9.0% in the European and Western Pacific regions.¹ In Pakistan, morbidities and premature mortalities can be attributed to infectious diseases. So it is pertinent to control these diseases especially nosocomial infections which are on the rise.^{2, 3, 4} Infection control in hospitals is the key to success in preventing hospital acquired infections especially in countries like Pakistan where, there is lack of proper guidelines for infection control and prevention.^{5, 6} According to the guidelines, hand hygiene, safe injections, hospital waste management, sterilization and disinfection of instruments are important aspects that are included in infection control. Pakistan is facing a dilemma of rise in Hepatitis B, C and HIV/AIDs as a result of poor infection control in the hospitals, so there is a dire need to identify the gaps in infection control protocols.⁷ Although all hospitals emphasize on protocols of proper hand washing but compliance with this most important of precautionary measures is scarce.^{8, 9}

The developing world has a high prevalence of hospital acquired infections and there is a dire need to improve the infection control; systemic reviews illustrate the scarcity of data, also.¹⁰

Objective

This study is an attempt to assess the infection control status and observance of protocols with the aim to conduct self appraisal to improve the healthcare services in a tertiary care setup.

Materials and Methods

A cross sectional survey was conducted in a tertiary care setup in Lahore, Pakistan. A structured questionnaire¹¹ based on the standards used by Government of Pakistan was developed and

adapted. Data was collected by the faculty members by direct observation for the selected variables, checking of records and interview of the employees. Faculty members visited the Emergency Unit, Operation Theatres, Wards (Medical, Surgical, Gynaecology & Obstetrics, Paediatrics) and Outdoor Units, Labour room, ICU (Adult & Paediatrics) and Nursery. Data was compiled and descriptive analysis was done using SPSS version 17. Microsoft Excel was used for graphic presentation. Study was conducted from February 2015 to March 2015.

Results

In the current study, it was observed that an optimal infection control was being maintained by the hospital all basic measures were available, Anti disinfectants (69%), Sterilized equipment (67%) and clean supplies (94%). In the current setup precautionary measures were being ensured. During visit to various sites of the hospital the faculty observed that prevention of bloodstream infections (74%), perinatal precautions (78%) and prevention of UTI's(55%) was optimal. Hand hygiene practices were being promoted (79%) and most of the hospital staff was complying with the hand hygiene protocols. However the waste disposal (18%) was at sub-par level. Inadequacy of

water supply (32%) was also observed. Compliances were based on interviews taken and observations done and recorded in the pre designed questionnaire, in all the areas visited by the investigators.

Discussion

Health care delivery system is facing the dilemma of health care associated infections. Mortality and financial losses in the health care delivery system can be attributed to healthcare associated infections.¹² The current initiative has been taken to assess the infection control status and observance of protocols in a tertiary care setup.

The results of the current study depict that satisfactory infection control was being maintained with the provision of basic measures. Precautionary facilities and infection control protocols were being followed. As documented in other studies too, provision of pharmacological agents and hygienic hospital environment leads to better infection control and reduction of hospital acquired infections.¹³ A study conducted in Africa documents that inadequate infection control is attributed to poor hygiene, in-availability of resources, poor infrastructure, lack of staff awareness and defective infection control.¹⁴ Perhaps

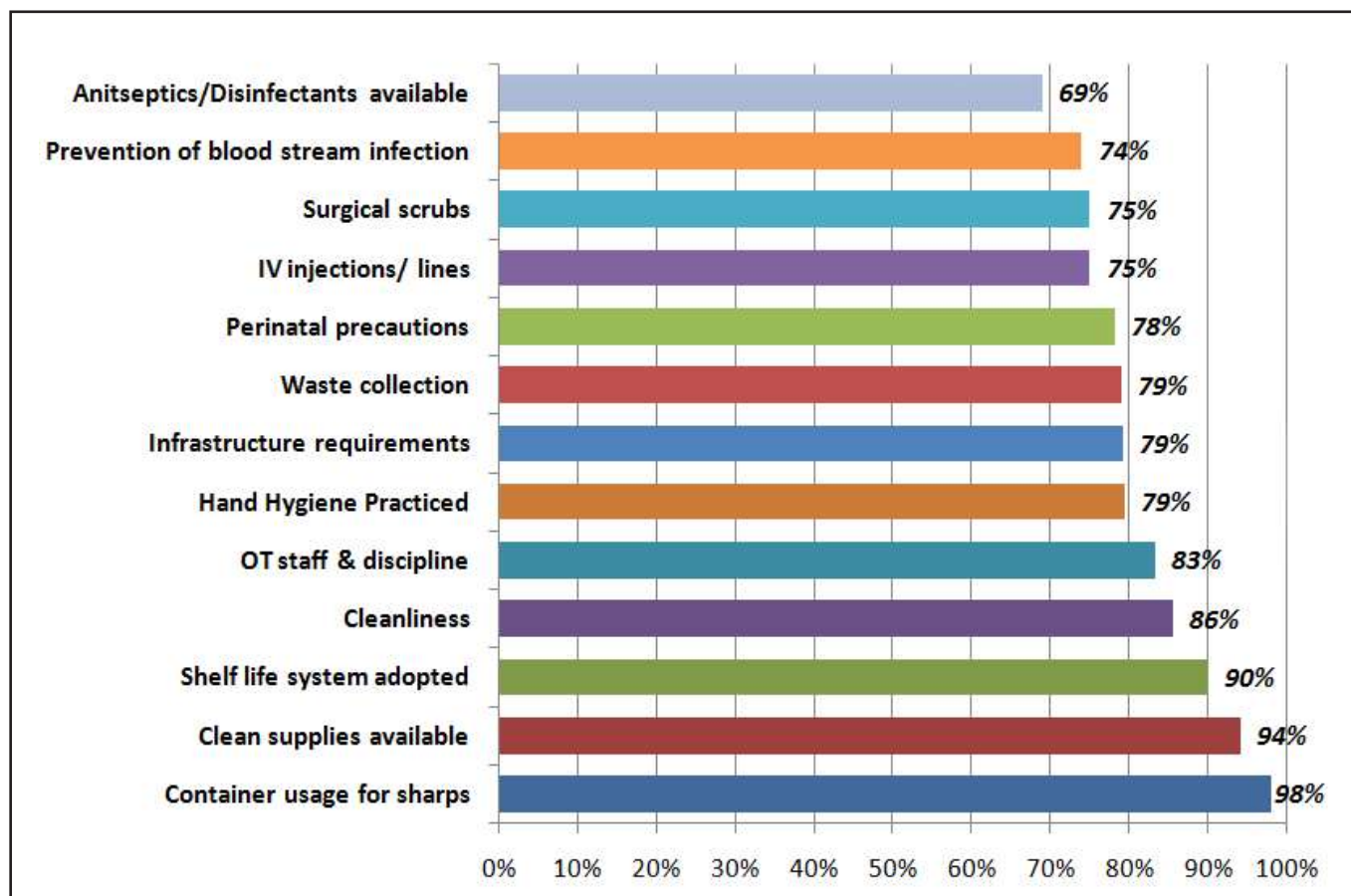


Fig 1. Frequency of achievement of infection control standards

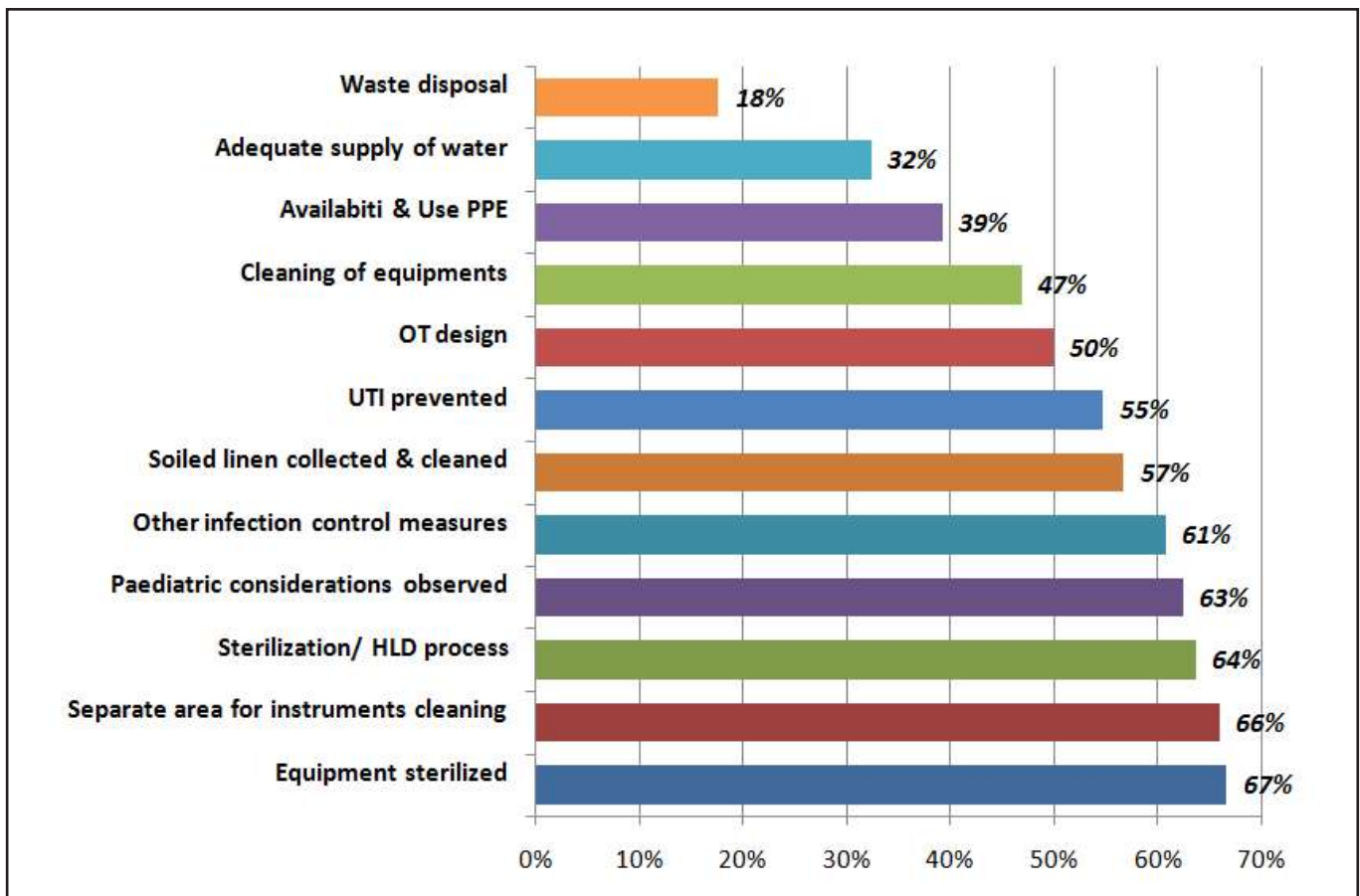


Fig 2. Frequency of achievement of standards, according to various criteria

Table 1: Compliance of various criteria in the Operation Theatre

Availability & use of PPE	Antiseptics/Disinfectants available	Equipment sterilized
77%	72%	66%

PPE: Personal Protective Equipment

a deeper insight into this issue may address such situations in our set up, which could not be established by our study.

In the current study, during visits to various sites of the hospital the faculty observed that prevention of bloodstream infections 74%, perinatal precautions 78% and prevention of UTI's 55% was optimal. These findings are concurrent with the findings of a study conducted in Senegal to evaluate the infection control program of their setup. After implementing the program a significant reduction in the bloodstream infections 8.8% to 2.0% (p value 0.01), was observed.¹⁵ Similar findings are supported by a study conducted by Mulu and Kibru attributing blood stream infections in 2.4% of the patients due to improper

hygienic practices of the healthcare staff and environment.¹⁶ Hand hygiene is of utmost importance in any healthcare setup. WHO has developed guidelines and protocols for hand washing for all healthcare staff to adopt.¹⁷ Compared with a study in Iran which illustrated a low level of hand hygiene in the staff although 67.9% had average and 29.9% had good knowledge regarding infection control practices. Most of them agreed to the importance of following infection control protocols although in spite of good knowledge,¹⁸ this study had showed much better results.

Conclusion

Our study concluded that the infection control measures in the current tertiary setup, are being followed with some room for improvement. The areas identified for further improvement were mainly related to waste disposal mechanisms and protocols and adequacy of water supply; these need to be addressed.. Based on the infection control assessment protocols, it is recommended that all the individual units/departments should consider having their own and self-appraisal on regular basis with an aim to achieve standardization. Vigilant observation for infection control in tertiary hospital will ensure better performance and making national and international certification a requirement will help promote better practices.

Recommendations

All healthcare personnel, and not just doctors, should be educated about the principles of infection control, and individual responsibility should be stressed upon. All departments should work in collaboration with the infection control department and cooperate in monitoring in case of any infectious exposure. If such an exposure occurs, the employee should be provided adequate care. Risk assessment should be done for work related preventive measures. Immunization record of all employees should be maintained confidentially, and immunization programs should be run free of cost for all healthcare employees to protect them from diseases like hepatitis B, and tetanus etc. Tuberculosis screening program should be advised in all healthcare set ups as Pakistan is endemic in this chronic disease. The infection control committee should work in harmony with the administration to develop sustainable transmission control measures.

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