Open Access

Original Article

Janitorial Services of Tertiary Care Hospitals, a Critical Analysis

Nafeesa Khan, Naila Azam*, Asima Shahzad, Mommana Ali Rathore, Syed Fawad Mashhadi, Naseer Alam Tariq

Army Medical College/National University of Medical Sciences (NUMS) Rawalpindi Pakistan, *Foundation University Medical College, Islamabad Pakistan

ABSTRACT

Objective: To identify the existing system of janitorial services in the Tertiary Care Hospitals, and to give recommendations for standardized policy formulation.

Study Design: Cross-sectional study.

Place and Duration of Study: Tertiary Care Hospitals, namely Hospital A, B and C, at Rawalpindi Pakistan, from Oct 2019 Jan 2020.

Methodology: Responses from 401 Healthcare Administrators (HCAs), Nurses and Janitorial staff were collected through a validated questionnaire, and hospitals' documents/ SOPs, cleaning audit reports, feedback process documents, communication mechanisms and training schedules were reviewed.

Results: Out of 401 respondents, the majority were females (54.4%, 5 were HCAs, 143 were Nurses, and 70 were Janitorial staff). The availability of SOPs was associated with cleaning functional areas of hospitals (p=0.001). Awareness of the risk of infection among healthcare workers was associated with Hepatitis B vaccination (p=0.03). Knowledge of hospital areas regarding cleanliness among hospital workers was linked to providing cleanliness training according to job requirements (p=0.001).

Conclusion: Hospital A performed admirably in most areas but was found to need more human resources, with staff shortages, high turnover, and a lack of adherence to SOPs. To achieve optimum performance, existing and emerging technology must be integrated with sanitary worker preparation and career development; costs must be reduced.

Keywords: Hospital environment, Infection control and disinfectants, Janitorial service, Training.

How to Cite This Article: *Khan N, Azam N, Shahzad A, Rathore MA, Mashhadi SF, Tariq NA. Janitorial Services of Pak Army Hospitals, a Critical Analysis. Pak Armed Forces Med J 2023; 73(1): 302-305. DOI: https://doi.org/10.51253/pafmj.v73i1.7510*

INTRODUCTION

Hospitals are visited by the sick, and therefore the cleaning needs of hospitals are different from other institutions as a sterile environment is critical to prevent the spread of infectious agents to ensure patient safety.[1] The cleanliness of healthcare premises is an important component in the provision of clean and safe care.[2,3] Every hospital aspires to achieve high-quality standards, which can only be achieved cost-effectively by providing a hygienic atmosphere, which is essential for patient safety and to prevent HAI,[4,5] as well as an aesthetic appearance to comfort distressed patients and their attendants.[6,7]

Pakistani hospitals are also undergoing organizational changes from horizontal to vertical structures. These hospital towers have complex structures, machinery and equipment that need maintenance and cleanliness. Janitorial services play a key role in providing a safe environment, which is of paramount importance.[8,9] A clean environment has paramount importance for a hospital. The purpose of this study was to identify the shortcomings and gaps in tertiary-care hospital services (if any), to take necessary actions to rectify the faults, create a culture of patient safety through cleanliness and redirect precious resources to increase the efficiency and effectiveness of its healthcare delivery system.

Correspondence: Dr Nafeesa Khan, Army Medical College, Rawalpindi, Pakistan

Received: 11 Oct 2021; revision received: 20 Dec 2021; accepted: 31 Dec 2021

METHODOLOGY

The cross-sectional study was carried out from October 2019 to January 2020 at three Tertiary care hospitals of Rawalpindi, namely Hospital A, Hospital B and Hospital C. A sample size of 401 was calculated using the WHO Sample Calculator.[9]

Inclusion Criteria: The study participants included Nursing Staff, Hospital Administrators (HCA's) and Janitorial Staff.

Exclusion Criteria: Non-consenting individuals were excluded from the study.

Questionnaires were adapted from a study by Abdul Basit Khan Dawar, "Hospital Waste Management Rules 2005 and Current Practices in Selected Hospitals of Peshawar Khyber Pakhtunkhwa, Pakistan", with permission of the author.[10] The questionnaire was divided into two sections. The first section comprised respondents' demographic information and

was common for all. The second section was separately designed according to the job description and responsibilities of healthcare staff in each hospital. Research assistants were employed for all the selected hospitals to collect data guided by the researcher. Hospital's documents/SOPs, cleaning audit reports, feedback process documents, communication mechanisms and training schedules were also reviewed.

Data was analyzed on Statistical Package for Social Sciences (SPSS) version 23. Frequency and percentage were calculated for categorical variables. For association, the Chi-square test was used. The *p*-value of ≤ 0.05 was considered significant.

RESULTS

Out of 401 respondents, the majority were females (54.4%, 5 were HCAs, 143 were Nurses, and 70 were Janitorial staff); the maximum number of respondents (238; 59.4%) were aged between 20-30 years (mostly Nurses & Janitorial Staff). The sociodemographic characteristics of participants are presented in the Table.

Table: Demographic Variables of the Study Participants (n=401)

Variables	Frequency(%)
Gender	
Male	183(45.6%)
Female	218(54.4%)
Age	
20-30	238(59.4%)
31-40	129(32.2%)
41-60	34(8.4%)
Marital Status	
Single	188(46.8%)
Married	213(53.2%)
Educational Level	
Primary	30(7.5%)
Secondary	199(49.6%)
Middle	9(2.2%)
Diploma	72(17.9%)
Graduate	61(15.2%)
Postgraduate	29(7.3%)
Specialty	1(0.3%)
Service	
1-8 Years	355(88.5%)
9-16 Years	18(4.5%)
17-30 Years	28(6.9%)

The chi-square was applied to find associations between different variables. Statistically significant associations were found between safety-related training programs for hospital staff and the implementation of healthcare waste management guidelines (p=0.002). The availability of SOPs was associated with cleaning functional areas of hospitals (p=0.001). The role of nurses in cleanliness and maintenance was linked with a nursing curriculum containing content related to cleanliness, maintenance, and hospital waste management (p=0.001). Nurses' confidence in their job description regarding janitorial services had been associated with High touch surfaces cleaning, floor cleaning and spill cleaning as per SOPs (p=0.05). Awareness of the risk of infection among healthcare workers was associated with Hepatitis B vaccination (p=0.03). Knowledge of hospital areas regarding cleanliness among hospital workers was linked to providing cleanliness training according to job requirements (p=0.001).

DISCUSSION

This study was a snapshot of hospital cleanliness in three tertiary care hospitals located in Rawalpindi Paksitan. All three healthcare setups differed slightly in terms of workforce structure, staff responsibilities, training of cleaning staff, cleaning product usage, cleaning practices and techniques, and clinical audits for evaluating environmental cleanliness and waste management. However, despite a difference in the source of financing and administrative discipline, the three setups fared closer in environmental health management. An avenue for the Hawthorne effect is being well-reputed, located in a major city, having ample resources, and being closely monitored.[11]

Hospital A, Hospital B & Hospital C had designated trained workforce according to risk area/ functional zones but in varying percentages (66.7%, 100%,100%). A shortage of human resources was observed at Hospital A, resulting in fewer staff designated according to functional zones/risk areas. There was one janitor per 50 beds in wards and one janitor per 10 beds in ICU at Hospital A, contrary to some guidelines.[11] In Hospital A, 66.7% of the responsibility for cleanliness was shared by permanently employed sanitary workers of the hospital and 33.3% by outsourcing. Hospital B & Hospital C had outsourced their janitorial services. According to a global study by Kenter *et al.* 57% of the employees were from the healthcare setting, 34% were outsourced, and 9% were a combination of in-house and outsourced staff.[12] Outsourced services were cheaper but of poor quality because contractors bid too low to win the contract and could not deliver the services at the same price. In this study, the findings contradicted the above, and healthcare administrators were satisfied with outsourcing janitorial services.[13]

Education and training aim to have a skilled and knowledgeable workforce, ultimately preventing HAIs and AMR and providing high-quality healthcare service delivery. Hospital-B had monthly and quarterly training sessions, whereas Hospital C had bi-annual training sessions. Knowledge regarding modes of spread of infectious diseases amongst janitorial staff was fair at 82.5% for Hospital C, but none were vaccinated against Hepatitis B. At Hospital A, awareness was 96.4%, and 34.5% of staff were vaccinated, while at Hospital B, awareness was 100%, and all the staff was vaccinated for Hepatitis B. However, local and regional government rules state that all sanitary workers must be vaccinated against Hepatitis B.[14]

Schedules for duties were available in all three hospitals. As a result, PPE was available and used in all three hospitals. The response rate for PPE usage at Hospital B and Hospital C was 100%, while at Hospital A, it was 83.3%. Hospital C also faced challenges in implementing rules, needed more supervisory staff/ sanitary inspectors, and needed more staff motivation and resource constraints. These findings were consistent with another international study.[15]

Both disinfectants and detergents were used for cleaning purposes. However, the type of disinfectants varied in different hospitals. In addition, various categories of staff reported a difference in the responses concerning the availability of cleaning material. This may be due to a gap in implementation and training because the best substance in the world is useless if not applied correctly, and the besttrained personnel are useless if the product they are using is not appropriate and effective against the particular pathogen to be killed or removed.[4]

Both Hospital A & Hospital B had Infection Control Policy and Infection Control team, but Hospital C did not. This was less than the national level, where, per government rules, an infection control committee is necessary for every hospital.[14] For Hospital A, the response of HCAs was 83.3% for quarterly and annual audits. At Hospital B, clinical audits were performed quarterly, whereas, in Hospital C, clinical audits were not held. These findings were consistent with a study conducted by Bryce *et al.* in Canada. A standardized approach to audit allows benchmarking of practices across the institution and enhances the standard of care.[15] A cornerstone of good hospital infection control is good hand hygiene practices in all staff who have contact with patients or the patient environment**.** Hand hygiene facility was available in all three participating hospitals. However, responses varied amongst the respondents in each hospital, which aligns with results from an Australian study.[6]

All three hospitals had Waste Management Plans, and hospital waste was segregated, transported, and safely stored, and PPE was available to the staff. Incinerator facility was available at Hospital B & Hospital C. In contrast, Hospital A did not have an incinerator and had outsourced this service, consistent with a study in Peshawar.[10] Staff at all the three participating hospitals was aware of waste management rules; Similarly, with regards to awareness of staff about the importance of colour-coding of waste bins, janitors at all three hospitals were well cognizant, which is consistent with the frequency of training being conducted, at all the three setups. These findings were better than regional practices, as per a study conducted in Libya.[16]

Safety-related training programs and workshops resulted in better implementation of guidelines. Seminars and training programs reinforced the implementation of guidelines. Healthcare workers responded better to issued guidelines with constant training through refresher courses. Training provided to sanitary workers according to the place of duty was related to knowledge, resulting in environmental safety.[17,18]

LIMITATIONS OF STUDY

This study has a wide scope, and several correlations could have been studied, such as the relationship of janitorial services with infection control, length of patient's stay and bed occupancy state. These could not be covered as access to hospital data in all three settings was limited owing to the COVID pandemic.

RECOMMENDATIONS

Hospitals need to allocate adequate resources for all functions of hospital cleanliness. Diligent training and refresher courses are conducted for the career development of staff. Emphasis should be laid on the strict implementation of SOPs and unbiased audits. In addition, there should be stress on nurses' curriculum for nurses' training and promotion of further research.

CONCLUSION

Hospital environmental hygiene is far more complex than other types of cleaning. Hospital A fared well in most aspects but lagged in Human Resources with shortage, increased staff turnover, and SOPs needing to be more meticulously followed. To reach optimal results, there is a need to integrate current and new technologies with sanitary workers' training and career development; cost-cutting in environmental hygiene be discouraged with the conduct of unbiased audits for better patient care in the long run.

Conflict of Interest: None.

Author's Contribution

Following authors have made substantial contributions to the manuscript as under:

NK & NA: Conception, study design, approval of the final version to be published.

AS & MAR: Data acquisition, data analysis, data interpretation, approval of the final version to be published.

SFM & NAT: Critical review, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

REFERENCES

1. Dancer SJ. Controlling hospital-acquired infection: focus on the role of the environment and new technologies for decontamination. Clin Microbiol Rev 2014; 27(4): 665-690. doi: 10.1128/CMR.00020-14.
2. Santos-Junior AG, Ferreira AM, Frota OP, Rigotti MA, Barcelos LdS, de Sousa AFL, et al. Effectiveness of surface cleaning and disinfection in a brazilian healthcare facility. Open Nurs J 2018; 12(1): 36-44. doi: 10.2174/1874434601812010036.
3. Joshi SC, Diwan V, Joshi R, Sharma M, Pathak A, Shah H, et al. "How Can the Patients Remain Safe, If We Are Not Safe and Protected from the Infections"? A Qualitative Exploration among Health-Care Workers about Challenges of Maintaining Hospital Cleanliness in a Resource Limited Tertiary Setting in Rural India. Int J Environ Res Public Health 2018; 15(9): 1942. doi: 10.3390/ijerph15091942.
4. Peters A, Otter J, Moldovan A. Keeping hospitals clean and safe without breaking the bank; summary of the Healthcare Cleaning Forum 2018. Antimicrob Resist Infect Control 2018; 7(1): 132. doi:10.1186/s13756-018-0420-3.
5. Njuangang S, Liyanage C, Akintoye A. The history of healthcare facilities management services: a UK perspective on infection control. Facilities 2018; 36(1): 369-385.
6. Sendall MC, McCosker LK, Halton K. Cleaning Staff's Attitudes about Hand Hygiene in a Metropolitan Hospital in Australia: A Qualitative Study. Int J Environ Res Public Health 2019; 16(6): 1067. doi: 10.3390/ijerph16061067.
7. Mitchell BG, Hall L, White N, Barnett AG, Halton K, Paterson DL, et al. An environmental cleaning bundle and health-care-associated infections in hospitals (REACH): a multicentre, randomised trial. Lancet Infect Dis 2019; 19(4): 410-418. doi: 10.1016/S1473-3099(18)30714-X.
8. Mitchell BG, Farrington A, Allen M, Gardner A, Hall L, Barnett AG, et al. Variation in hospital cleaning practice and process in Australian hospitals: a structured mapping exercise. Infection Disease Health 2017; 22(4): 195-202. doi:10.1016/j.idh.2017.08.001.
9. Baur D, Gladstone BP, Burkert F, Carrara E, Foschi F, Döbele S, et al. Effect of antibiotic stewardship on the incidence of infection and colonisation with antibiotic-resistant bacteria and Clostridium difficile infection: a systematic review and meta-analysis. Lancet Infect Dis 2017; 17(9): 990-1001. doi: 10.1016/S1473-3099(17)30325-0.
10. Dawar ABK. Hospital waste management rules 2005 and current practices in selected hospitals of Peshawar Khyber Pakhtunkhwa, Pakistan: Master's Thesis Norwegian University of Life Sciences; 2017, [Internet] available at: https://0001nmbu.brage.unit.no/nmbuxmlui/bitstream/handle/11250/2450654/Dawar_2017_Master%20Thesis.pdf?sequence=4&isAllowed=y
11. Siddharth V, Singh AR, Sharma DK, Satpathy S, Kaushal VK, Lathwal A, et al. National guidelines for sanitation services: Addressing the unmet need of standardizing cleaning practices in tertiary care public health facilities of a developing country. J Family Med Prim Care 2021; 10(9): 3475-3480. doi: 10.4103/jfmpc.jfmpc_1614_20.
12. Kenters N, Gottlieb T, Hopman J, Mehtar S, Schweizer M, Tartari E, et al. ISAC working group Infection Prevention and Control; Huijskens EGW, Voss A. An international survey of cleaning and disinfection practices in the healthcare environment. J Hosp Infect 2018; 100(2): 236-241. doi: 10.1016/j.jhin.2018.05.008.
13. Davies S. Fragmented management, hospital contract cleaning and infection control. Policy Politics 2010; 38(3): 445-463. doi: 10.1332/030557310X488493
14. Zeeshan MF, Al Ibad A, Aziz A, Subhani A, Shah A, Khan T, et al. Practice and enforcement of national hospital waste management 2005 rules in Pakistan. East Mediterr Health J 2018; 24(5): 443-450. doi:10.26719/2018.24.5.443.
15. Bryce EA. Infection control - delivering the message in the 21 century. GMS Krankenhhyg Interdiszip 2007; 2(1): Doc22.
16. Esmael ZA, Al-Tawil NG. Appraising Quality of Nursing Practices in the Medical and Surgical Wards of Public Hospitals in Erbil City. Erbil Nurs Midwifery 2020; 3(1): 38-46.
17. Mitchell BG, White N, Farrington A, Allen M, Page K, Gardner A, et al. Changes in knowledge and attitudes of hospital environmental services staff: The Researching Effective Approaches to Cleaning in Hospitals (REACH) study. Am J Infect Control 2018; 46(9): 980-985. doi: 10.1016/j.ajic.2018.02.003.
18. Hall L, White NM, Allen M, Farrington A, Mitchell BG, Page K, et al. Effectiveness of a structured, framework-based approach to implementation: the Researching Effective Approaches to Cleaning in Hospitals (REACH) Trial. Antimicrob Resist Infect Control 2020; 9(1): 35-38. doi: 10.1186/s13756-020-0694-0.