Assessment of Services at Tertiary Care Hospital Located in Central India, using ‘Kayakalp Initiative Tool’

Neelam Vinod Motwani¹, Abhishek Joshi¹*, Sonali G. Choudhari¹ and Abhay M. Gaidhane¹

¹Department of Community Medicine, School of Epidemiology & Public Health, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, India.

Authors’ contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2021/v33i37A31989

Editor(s): (1) Dr. Jongwha Chang, University of Texas, College of Pharmacy, USA.

Reviewers: (1) Shamila Hamid, Sher E Kashmir Institute of Medical Sciences (SKIMS), India. (2) Namir Al-Tawil, Hawler Medical University, Iraq.

Complete Peer review History: https://www.sdiarticle4.com/review-history/71213

Study Protocol

Received 05 May 2021
Accepted 10 July 2021
Published 15 July 2021

ABSTRACT

Background: Kayakalp is an innovative initiatory started by the Health and Family Welfare Ministry through Swachh Bharat Abhiyan campaign on 15th May 2015. These instructions concentrate on advancement of desirable schemes for housekeeping facilities, pest control procedure, water sanitation, appointment & tutoring of manpower, advancement and accomplishment of appropriate cleansing procedure in terms of protocols / Standard Operating Procedures (SOPs), powerful management and inspection by the employees and inherent Machinery in the treaties linked with an organizational framework which places a bonus on excellent cleaning services and sanitary facilities. This study aims to describe the experiences and knowledge based on assessment of Acharya Vinoba Bhave Rural Hospital, Sawangi (Meghe), Wardha District using this tool.

Objectives: To assess and document hospital upkeep, Sanitation, Hygiene Practices, Hygiene Promotion and to study Handling of Biomedical Waste, Infection Control and Hospital Support Services.

Methodology: This cross sectional hospital based study that will be conducted at Acharya Vinoba Bhave Rural Hospital, Sawangi (Meghe), Wardha District.

*Corresponding author: E-mail: abhishekjunjoshi@yahoo.com;
Apart from observation of various practices and Processes, the participants to be interviewed will be Nursing staff in-charge in different wards along with Biomedical engineers, Administrative officers and beneficiary patients. For Quantitative data collection, a kayakalp checklist will be used. Data will be collected through observation, staff interview, record keeping, and patient interview forms as per Kayakalp Initiative Tool.

**Results:** This study would help to understand current hospital sanitation procedures, hospital hygiene, infection prevention, general maintenance, waste management, and support services, etc. and will help to improve services based on findings of the study so as to improve satisfaction of population catered by hospital and provide an ideal working environment for all stakeholders.

**Conclusion:** This work will assist in improving hospital/facility management and will aid in improvement of sanitation and hygiene practices, it will also improve overall satisfaction of all stakeholders after due implementation of changes suggested at the end of study.

**Keywords:** Kayakalp; facilities management; hospital hygiene; swachh bharat abhiyaan.

### 1. INTRODUCTION

#### 1.1 Background

Health care institution is an organization where health services are utilized by people of diverse age, gender, socioeconomic status, and ethnicity. ‘Kayakalp’ initiative, a component of Swachh Bharat Abhiyan movement, was launched by the Ministry of Health and Family Welfare on 15th May 2015. These guidelines are categorised as follows into six separate themes: Healthcare facility maintenance, Sanitizing and cleanliness, Dumping of waste, Disease prevention, Hospital assist facilities, and Sanitary encouragement.

This initiative aims to boost the functioning of public health care facilities [1]. Such regulations concentrate on reinforcing and streamlining certain areas like infrastructure management, improvement of appropriate rules for maintenance department, pest-controlling measurements, waste water purification, workforce distribution & training, improvement and application of proper cleaning process by means of rules / Standard Operating Procedures, appropriate organizational supervision and control and in-built contract processes combined with an organizational framework that places a premium on good housekeeping and sanitation [2].

‘Regulations for the formulation of Kayakalp’ have been introduced as a tool for implementation and as a document for seeking solutions to the problems found. These recommendations are intended to fulfil the Indian Public Health Standards (IPHS) guidelines for secondary health care facilities. However these can be used on the some discretion for primary healthcare centers and tertiary care facilities as well.

This instructions have been established following a thorough documentary research of the ongoing leading exercises into the field of medical centre sanitation, cleaning services, disease control, overall maintenance, management of waste, and supportive services etc.; and related excerpts from the similar was adjusted with appropriate amendments in accordance with the demands of government health facilities. These policy guidelines are universal in character and could be accepted by the medical institution wisely according to their extent of the services [2]. Kayakalp Yojana, if once implemented it causes effective infection control within the facility leading to better health outcome [3]. Medical treatment related diseases, or hospital acquired infections surroundings are the commonest side effect in delivery of health care globally. Several hundred millions of people suffering are impacted by hospital acquired infections globally year after year, resulting to great fatality and economic harm for healthcare system [4]. In the developing nations, the extent of the difficulties remain undervalued or even unidentified mostly due to hospital acquired infection detection is complicated and monitoring activity to lead treatment needs skill and funding [5].

Under the term KAYAKALP, the facilities for safe supply of water, cleanliness, medical care waste handling, sanitary and environment purifying substructure, are ensured in a hospital. ‘Health care facilities’ encompass total officially accredited institutions that delivers medical treatment, comprising primary (dispensaries and health centres), secondary, and tertiary (district or public-sector hospitals), general and independent (comprising faith-run), and provisional infrastructure built for urgent conditions (e.g., cholera treating facilities). They may be situated in metro cities or villages [6].
1.2 Rationale

Assessment using Kayakalp tool is first of its kind holistic assessment of hospital and will provide valuable insights so as to improve the services of hospital in terms of health care management, sanitization and cleanliness, disposal of waste, disease prevention, health care services, and encouragement for cleanliness. As assessment using kayakalp initiative tool has not been conducted in our tertiary care hospital till date.

‘Cleanliness and hygiene’ in health care facilities not only plays an important role for disease prevention but also additionally promotes mouldable behavioural patterns amongst the patients and visitors regarding hygiene and sanitization at their own houses and workstation. Kayakalp is a powerful tool of unbiased evaluating and assisting the transition of entry/procedure with the anticipated results and effects with excellence finally verified by the patient experiences. Considering this, the proposed study is planned to assess services at tertiary care hospital, in central India.

1.3 Aim

To assess various services provided by tertiary care hospital using Kayakalp initiative tool.

1.4 Objectives

1. To assess and document hospital upkeep & sanitation, hygiene practices and hygiene promotion.
2. To assess handling of biomedical waste & infection control and hospital support services.
3. To suggest the measures for improvement of services based on the study findings.

2. METHODOLOGY

2.1 Study Design

This study will be a hospital based cross sectional study.

2.2 Study Setting

The study will be conducted in Acharya Vinoba Bhave Rural Hospital (AVBRH), at Wardha district of Maharashtra state. The hospital is a 1525 bedded completely equipped tertiary health care hospital attached to a medical teaching institute and located in central India. It is supported by the advanced diagnostic, imaging and therapeutic, facilities such as Colour Doppler, Computerised Tomography scan, MRI, Central Clinical Laboratory, super specialty services like Knee Transplantation, Angioplasty, Test tube baby centre, etc. Moreover the hospital is resourced with a state-of-art operation theatre connected Intensive Care Unit, Intensive Critical Care Unit, Paediatrics Intensive Care Unit. The hospital has a hospital infection control committee and biomedical waste management board.

2.3 Study Participants

The study participants will be key administrative staff of hospital, in-charges of various facilities and other stakeholders as per Kayakalp initiative tool like staff nurse in charge of different wards along with biomedical engineers, administrative officers and patients in AVBRH, Sawangi (Meghe), Wardha District.

2.4 Study Size

The study that will be conducted among sister in-charge in 49 different wards, 15 OPDs along with 2 biomedical engineers, 6 administrative officers, 1 sanitary inspector and patients. A total of around 140 stakeholders will be interviewed.

2.5 Variables

1. Knowledge and attitude of infection control, hygiene promotion, support Services
2. Practice and compliance of hospital upkeep, waste management, hygiene Promotion

Study Duration: One year.

2.6 Selection Criteria for Subjects under Study

2.6.1 Inclusion criteria

- All concerned stakeholders like Chief Medical Superintendent, Nursing Incharges of respective wards, Biomedical Engineers, Sanitary Inspectors, Civil Engineers, Administrative incharge of the respective departments and patients randomly chosen from each wards will be included.
- Study participants who gave consent for participation in study will be included in this study.
2.6.2 Data collection tools and procedure

For quantitative data collection, a pre-designed and pre-structured questionnaire of Kayakalp initiative tool will be used. This data collection tool will be translated into vernacular language (Marathi) and after retranslation it will be validated with the help of language experts. Data collection tool consists of the various heads like Healthcare facility maintenance, Sanitization and cleanliness, Dumping of waste, Disease prevention, Hospital assist facilities, Sanitary Encouragement

2.6.3 Data sources/ measurement

Later the respective heads/incharges of hospital, wards, ICUs, biomedical waste management unit, etc will be approached for assessment based on Kayakalp tool. Four assessment modalities will be used as follows:

1. Direct Observation (DB): – This information is gathered through observation. Various parameters that will be assessed by the principal investigator through observation are level of cleanliness, display of protocols, landscaping, signage etc.

2. Staff Interview (Si): - Information will be obtained by interaction with concerned staff to assess their knowledge and current practices being followed by them, their competencies regarding various essential skills (like wearing gloves, hand-washing, following aseptic precautions,..etc) by direct interview method. In addition, self-administered Kayakalp assessment tool will also be provided to them.

3. Review of records and documentation (RRD): - Where information can be obtained from the records available at the facility. Ex: Availability of housekeeping checklist, BMW management registers, culture report for microbial surveillance, and meetings of Infection Control Committee (ICC) will be ascertained from appropriate authorities.

4. Patient Interview (PI): - Interaction / discussion / interview with either patients or their attendees will be carried out to determine their satisfaction on quality of health care services rendered and overall hygiene at hospital.

2.6.4 Analysis plan

An assessment protocol and scoring system for kayakalp includes 3 categories i.e. thematic area, Criteria and Checkpoint.

The thematic area includes broader aspect of Swachhata, called as pillars of Kayakalp namely,

A- Healthcare facility maintenance 
B- Sanitizing and cleanliness 
C- Dumping of waste 
D- Disease prevention 
E- Hospital assist facilities 
F- Sanitary encouragement

2.6.5 Criteria

There are fixed number of criteria that have specific attributes in respect to individual themes.

2.6.6 Checkpoint

It is the lowest and most tangible unit of assessment. A score is awarded by assessors on checkpoints into specific requirements in the facility. Each checkpoint has a unique criteria. After check list tool is completed it will be assessed by using following parameters.

Complete adherence = 2 points, 
Incomplete adherence = 1 point; 
No adherence = 0 point

2.7 Bias

1. Kayakalp assessment tool will be a self-administered questionnaire to be provided to concerned stakeholders working in hospital. For many questions/parameters the respondent might need to recall leading to a chance of recall bias.

2. In an interview based data collection amongst the hospital staff and patients, there may be a chance of Interviewer/variance bias which results from holding preconceived judgement about interviewee, consciously or unconsciously.

2.8 Statistical Methods

The quantitative data will be entered in spreadsheet. Frequency distribution, percentage, total score will be calculated and inference will be derived as per Kayakalp checklist tool. The
qualitative data will be transcribed, coded, categorised into themes and analysed.

3. RESULTS

This study will help to get an insight about existing practices in the field of hospital sanitation, hospital upkeep, infection control, general maintenance, waste management, and support services etc. It will also help to improve services based on findings of the study, increase satisfaction of population catered by hospital and provide an ideal working environment for all stakeholders.

4. DISCUSSION

A number of research studies related to health centre or hospital assessment were reviewed. Mahendra Chouksey et al (2019) in its study assessed the sanitation & hygiene on the basis of Kayakalp tools in tertiary care hospital of G. R. Medical College, Gwalior, MP and found that the sanitation and hygiene Practices in the hospital were not satisfactory. As the first health care idea is 'to do no harm'; it is crucial that our health-care institutions are safe for the hospital staff and patients and it guarantee compliance with infection prevention standards [3]. Study conducted by Omair Anwar et al. (2013), assessed of Control of Patients Waste in Hospitals for the public and private sector of Faisalabad City, Pakistan (Allied hospital, DHQ hospital, National security hospital, Aziz Fatima hospital, Main trust hospital, Gulam- Abad hospital, Cardiology centres, Faisal hospital.) found that 71.5% of the Participants had no experience of garbage recycle. In Pakistan, Environmental Protection Agency (EPA) developed their own laws for the correct biomedical waste management. EPA Sent their regulations and noted their laws and regulations to every hospital. But the data above showed that Respondents were unaware of the environmental protection act, it demonstrates that such a condition may be detrimental to the environment [7]. An Observational Study conducted on 2016 by Parvathy T Somaiah, Shivaraj B Mallappa on A Report on needs assessment of Procedures to manage infections at a district hospital in southern India, using Kayakalp tool (Approaches in the District Hospital using the Kayakalp Tool for Evaluation.) Found that Workers in the hospitals were not sufficiently aware of the management and control of spills. Separation and barrier nursing were well established in the atmosphere of the facility. The infection control program was implemented in the facility, but the same surveillance was not appropriate. There were no Hospital Acquired monitoring works or programs in the hospital [8,9]. Few of the related studies addressed the burden [10-12] and the needs of appropriate management tools [13-15] in healthcare sector [16-19].

5. CONCLUSION

This work will assist in improving hospital/facility management and will aid in improvement of sanitation and hygiene practices, it will also improve overall satisfaction of all stakeholders after due implementation of changes suggested at the end of study.

6. LIMITATIONS

Since the study is planned to be conducted only at one tertiary care hospital findings shall be applicable to this institute only with limited external validity/ generalizability for findings.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

As per international standard or university standard, patient’s written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

The approval has been obtained from the Institutional Ethical Committee, followed by the permission of Chief Medical Superintendent.

COMPETING INTERESTS

Authors have declared that no competing interests exist.
REFERENCES

1. Chaudhary A, Mahajan A, Barwal V, Gautam P, Rattan S, Chamotra S. Kayakalp – Utility of a novel indian tool for the assessment of biomedical waste management in a district hospital of Northern India. Chrimed J Health Res [Internet]. 2019;6(2):93. Available: http://www.cjhr.org/text.asp?2019/6/2/93/258970

2. Implementation Guidebook for Kayakalp. pdf [Internet]; 2020. Available: https://nhm.gov.in/images/pdf/in-focus/Implementation_Guidebook_for_Kayakalp.pdf

3. Jr BFP, Federico R Tewes. What attorneys should understand about Medicare set-aside allocations: How Medicare Set-Aside Allocation is Going to Be Used to Accelerate Settlement Claims in Catastrophic Personal Injury Cases. Clinical Medicine and Medical Research. 2021;2(1):61-64. Available: https://doi.org/10.52845/CMMR/2021v1i1a1

4. Arya V, Kumar A. Associate Professor, Department of Community Medicine, Gajra Raja Medical College, Gwalior (MP). 9(3):2.

5. gpsc_ccisc_fact_sheet_en.pdf [Internet]; 2020. Available: https://www.who.int/gpsc/country_work/gpsc_ccisc_fact_sheet_en.pdf?ua=1

6. Bagheri Nejad S, Allegranzi B, Syed SB, Ellis B, Pittet D. Health-care-associated infection in Africa: a systematic review. Bull World Health Organ [Internet]. 2011; 89(10):757–65. [Cited 2020 Jun 21]. Available: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3209981/

7. Daniel V, Daniel K. Diabetic neuropathy: new perspectives on early diagnosis and treatments. Journal of Current Diabetes Reports. 2020;1(1):12–14. Available: https://doi.org/10.52845/JCDR/2020v1i1a3

8. Sanitation in Hospitals - WASH in Health Care Facilities for better health care services (WHO report) [Internet]; 2015. [Cited 2020 Jun 21]. Available: https://forum.susana.org/230-other-non-household-settings-e-g-hospitals-health-centres-prisons-train-stations-offices-work-places/12537-
sanitation-in-hospitals-wash-in-health-care-facilities-for-better-health-care-services-who-report

9. Anwar O, Malik N, Asim M. Evaluation of Hospital Waste Management in Public and Private Sector Hospitals of Faisalabad City, Pakistan. Acad J Interdiscip Stud [Internet]; 2013;2(2):161. [Cited 2020 Jun 21]. Available: https://www.mcserv.org/journal/index.php/ajis/article/view/375

10. Somaiah PT, Mallappa SB. A Study on Needs Assessment of Infection Control Practices at a District Hospital in Southern India, Using KAYAKALP Tool -. Nati J Community Med [Internet]. 2016;7(10):816–9. [Cited 2020 Jun 20]. Available: https://www.bibliomed.org/?mno=245683

11. Daniel V, Daniel K. Perception of Nurses’ Work in Psychiatric Clinic. Clinical Medicine Insights. 2020;1(1):27-33. Available: https://doi.org/10.52845/CMMR/2021v1i1a5

12. Palsodkar P, Palsodkar P, Dakhole P, Patil M. Smart Waste Management (SWM) Systems for Offices and Educational Institutes. Journal of Advanced Research in Dynamical and Control Systems. 2020;12(6):58–63. Available: https://doi.org/10.5373/JARDCS/V12SP6/SP20201007.

13. Khatib NQS, Zahiruddin AM, Gaidhane L, Waghmare T, Srivatsava RC, Goyal SP, et al. Predictors for antenatal services and pregnancy outcome in a Rural Area: A Prospective Study in Wardha District, India. Indian Journal of Medical Sciences. 2009;63(10):436–44. Available: https://doi.org/10.4103/0019-5359.57643

14. Lozano R, Fullman N, Mumford JE, Knight M, Barthelemy CM, Abbafati C, Abbastabar H, et al. Measuring universal health coverage based on an index of effective coverage of health services in 204 Countries and Territories, 1990–2019: A Systematic Analysis for the Global Burden of Disease Study 2019. The Lancet. 2020;396(10258):1250–84. Available: https://doi.org/10.1016/S0140-6736(20)30750-9

15. Dakhode S, Gaidhane A, Choudhari S, Muntode P, Wagh V, Zahiruddin QS. Determinants for accessing emergency obstetric care services at peripheral health
facilities in a block of Wardha District, Maharashtra: A Qualitative Study. Journal of Datta Meghe Institute of Medical Sciences University. 2020;15(1):1–6. Available: https://doi.org/10.4103/jdmimsu.jdmimsu_209_19

16. Daniel V, Daniel K. Exercises training program: It's Effect on Muscle strength and Activity of daily living among elderly people. Nursing and Midwifery. 2020;1(01):19-23. Available: https://doi.org/10.52845/NM/2020v1i1a5

17. Sharma K, Zodpey S, Gaidhane A, Syed ZQ, Kumar R, Morgan A. Designing the framework for competency-based master of public health programs in India. Journal of Public Health Management and Practice. 2013;19(1):30–39. Available: https://doi.org/10.1097/PHH.0b013e318241da5d.

18. Sharma K, Zodpey S, Zahiruddin QS, Gaidhane A. Accreditation of public health education in India: Enhancing Quality, Competence and Trust. National Medical Journal of India. 2013;26(6):344–47.

19. Simkhada P, Poudel AN, Simkhada B, Sumnall H, Jones L, Bista S, et al. Need and scope of global partnership on public health research. Journal of Datta Meghe Institute of Medical Sciences University. 2016;11(2):202–4.

© 2021 Author name. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle4.com/review-history/71213