RESEARCH ARTICLE

Streamlining the Process of Communicating and Reporting of Hospital Operations by Using Checklists as a Quality Improvement Tool: An Experience of Designing and Implementation at a Large Multispeciality Tertiary Care Teaching Hospital

Sathish Raju Nilakantam[1], Melanahalli Dayananda[2], Jayati Bahuguna[3]

Abstract

Introduction: Checklists used in hospitals and healthcare organizations can promote process improvements and increase hospital, employee, and patient safety and can be implemented anywhere in the hospital, whether it is to show adherence to a protocol or to ensure that a certain set of duties are being completed daily. Even with the apparently quick acceptance and dissemination of the checklists, there are limited researches depicting the definite methods of creating and implementing such tools in health care.

Aim: The aim of this study is to explore the experiences from checklist development and implementation in a group of three vital departments of hospital—Medical Records Department, Central Sterile Supplies Department, and Department of Nursing Services.

Materials and methods: Execution of customized version of checklists in three following departments was planned, i.e., Medical Records Department, Central Sterile Supplies Department, and Department of Nursing Services, and after ensuring the changes made after pilot testing were valid, training programs for all the staffs of those three departments was planned, and the checklists was implemented using PDSA cycle.

Conclusion: Checklists development involves a comprehensive, efficient and systematic approach, especially when implemented in high intensity fields for example the medical field. The checklists will help hospitals and health care systems in their endeavors to prevent and lessen preventable errors, which are the ultimate objectives of any healthcare organization.

Keywords: Checklists, Healthcare, Implementation, Quality improvement.

International Journal of Research Foundation of Hospital and Health Care Administration (2020): 10.5005/jp-journals-10035-1119

Introduction

Quality improvement (QI) consists of systematic and continuous actions that lead to measurable improvement in healthcare services. To make improvements, an organization needs to understand its own delivery system and key processes. The key concept behind the QI approach is that both resources (inputs) and activities carried out (processes) are addressed together to ensure or improve quality of care (outputs/outcomes).[1]

Identifying the problem is the first step to any QI step taken organization wide. Since the need for improvement will be justified by the identification, specific projects can be undertaken to improve the identified gaps in the services for both internal and external customers. The objective of these projects is to discover the causes for these gaps and establish why they have occurred.[2]

Background and Purpose

It is identified in the administrative meetings that there was only reporting of the issues identified from the departments out of which few of them were underreported, and there was no clear-cut reporting format of the departmental activities and functioning which leads to inadequate performance, insecure work environments, and miscommunications among various departments leading to delay in addressing concerns. So, it is decided to overcome this by designing and implementing checklist-based reporting formats. Hence, initially three departments were selected for this purpose, i.e., Medical Records Department, Central Sterile Supplies Department, and Nursing Services. This article tries to streamline the process of communicating and reporting of hospital operations using checklists as a QI tool in three important departments of hospital, namely, Medical Records Department, Central Sterile Supplies Department, and Department of Nursing Services. Also, this article highlighted about the role of checklists in monitoring daily based activities in healthcare settings.

[1–3]Department of Hospital Administration, JSS Medical College and Hospital, JSS Academy of Higher Education and Research, Mysuru, Karnataka, India

Corresponding Author: Sathish Raju Nilakantam, Department of Hospital Administration, JSS Medical College and Hospital, JSS Academy of Higher Education and Research, Mysuru, Karnataka, India, e-mail: sathishrajunilakantam@jssuni.edu.in

How to cite this article: Nilakantam SR, Dayananda M, Bahuguna J. Streamlining the Process of Communicating and Reporting of Hospital Operations by Using Checklists as a Quality Improvement Tool: An Experience of Designing and Implementation at a Large Multispeciality Tertiary Care Teaching Hospital. Int J Res Foundation Hosp Healthc Adm 2020;XX(X):1–8.

Source of support: Nil

Conflict of interest: None

"A checklist is a list of actionable items, tasks, or behaviors arranged in a consistent manner, which allows the evaluator to record the presence or absence of the individual items listed."[3] A checklist will assist a person or a team to verify that a key action has been taken and will remove the risk of missing a step in the process, which can be a result of complexity of work, too many things to be done, or a simple memory error.[4] Checklists are designed to include all the things that need to be followed or are done stringently with a small checkbox at the left hand side to be filled once the task is complete.[5] Checklists used in hospitals and healthcare organizations can promote process improvements and increase hospital, employee, and patient safety and can be implemented anywhere in the hospital, whether it is to show adherence to a protocol or to ensure that a certain set of duties are being completed daily. Implementing formalized processes can reduce errors caused by lack of information and inconsistent procedures, as a checklist serves as a reminder to ensure that safety steps are being followed. Checklists will create a greater sense of confidence that the process is completed accurately and thoroughly. Although the importance of hospital-wide implementation of checklists and inspection sheets cannot be stressed enough, they serve as a mechanism for the strict adherence to protocol in any high-strung and dynamic environment. It is aptly said that checklists provide a thorough mechanism for evaluation of compliance with the standards of evidence-based care and helps to promote good communication among caregivers.[2] Checklists promote not only accountability but also teamwork among the employees of any organization. Establishing a widely recognized standard for developing evaluation checklists will likely support the design of appropriate measurement tools and move the field of performance assessment in health care forward.[6]

Aim

The aim of this study is to explore the experiences from checklist development to its implementation in a group of three vital departments of hospital—Medical Records Department, Central Sterile Supplies Department, and Department of Nursing Services.

Materials and Methods

Study Setting

The study was carried out in a large Multispeciality Tertiary Care Teaching Hospital, Mysuru, Karnataka.

For successful implementation, the checklist needs to be adapted based on the requirements of the hospital. To develop the checklist's structure and content, the initial step is to identify its purpose or goal and then to appraise the performance of a department for guaranteeing their quality. After numerous meetings with the hospital administrators and stakeholders, it was finalized that the checklists should be implemented. After approval, the checklists were piloted and rolled out into chosen areas; compliance with the checklists was routinely measured. Thus, a combination of approaches was chosen. Right off the bat, so as to pick up inside and out and social understanding, a subjective methodology with key witness meetings and field visits were utilized. The results from the interviews were further analyzed, using a Delphi process. The authors additionally applied an integrative approach for structuring checklists that would evaluate their performance. Plan-Do-Study-Act (PDSA) strategy was utilized for the final rollout of the Checklists.

The approach consisted of following predefined steps:-

- Study of currently available national and international literature on the subject.

Plan

Execution of customized version of checklists in three following departments was planned i.e., medical records department, central sterile supplies department, nursing services. This stage also included policy formulation, Circulation and approval of policy by stakeholders and training of various teams involved.

Formats

Based on the relevant literature and their experience, along with small group sessions with the staff of user departments, the authors drafted a preliminary checklist. During the meetings, the group set forward their proposals, moreover, the practicability or non-practicability of the recommendations was talked about.

Do (Pilot Study)

Draft checklists were sent to user departments by the authors for pilot testing, to test its reliability and make any changes if necessary and finally the modifications in the checklists cum reporting formats were confirmed by team.

Study

Deficiencies were identified and corrected. After ensuring the alterations made and after pilot testing were substantial, retraining of staff was done and department-specific induction was updated for the Checklists cum reporting formats.

Act (Implementation)

The checklists Annexures (1A, 1B, II, III) finalized was executed and rate of observing of compliance was established to make sure adequate process flow. A designated checklist coordinator is appointed from the existing staff on rotation and he/she is made accountable for execution of the checks on the list. Because having a solitary individual leading the checklist may prompt an opposing relationship with the other working colleagues.

Results and Discussion

Checklists are used in both medical and non-medical industries as cognitive aids to guide users through accurate task completion. Levels of cognitive function are often compromised with increasing levels of stress and fatigue as is often the norm in certain complex and high-intensity fields of work. Aviation, aeronautics, and product manufacturing are relying completely on checklists to aid in reducing human errors. The checklist is an important tool in error management across all these fields, contributing significantly to reductions in the risk of costly mistakes and improving overall outcomes. Such benefits also translate to improving the delivery of quality care in healthcare organizations. Despite demonstrated benefits of checklists in medicine and critical care, the integration of checklists into practice has not been as rapid and widespread as with other fields.[7]

The checklist divides the processes into various phases/steps, corresponding to the daily based activities of individual departments in the normal flow of a procedure or workflow. In each phase, the checklist coordinator must confirm that team has completed its tasks before it proceeds forward.

Medical Records Department

The Medical Records Department is responsible for collecting and protecting patient information and for disseminating it to the right people or an organization in order to promote the quality of patient care. Record management is an area of management that is responsible for the efficient and systematic control of the formulation and disposition of records, including processes for creating and maintaining evidence and information about a patient's transaction in the form of records. Each Medical Records Department in the hospitals includes the following four units, each of which undertakes special functions: Admission (registration of inpatients and outpatients who are admitted to hospital wards and the accident and emergency department), Archive (checking to ensure that a complete discharge summary and all other necessary notes and reports are present in the medical records; assembling and internally organizing the medical record and filing them in an orderly and timely manner; retrieving these records for various users, for treatment and the provision of other services), Statistics (preparing statistics for administration, hospital wards, and external agencies such as the Ministry of Health and Family Welfare, providing health information for physicians, nurses and students for medical research purposes), and Coding (analyzing the medical records of all inpatient's following discharge and assigning a set of numeric codes to the diagnostic data based on the International Classification of Diseases-10 and the International Classification of Procedures in Medicine).[8] So the checklist cum reporting format (Annexure IA) which is drafted for medical records department will give a broad picture of daily activities, and any protocol violation/deviations can be immediately addressed and also it will evaluate the performance of the department as well as hospital to the higher ups. The hospital utilization statistics are also known as "patient movement statistics".[9] Hospital utilization indices like average length of stay (ALOS) and bed occupancy rate (BOR) are sensitive indicators to find pressure areas and thus help in proper allocation of hospital resources and forming better healthcare policies for hospitals. Hospital utilization indices will provide trends and pattern of hospital utilization. A reporting format (Annexure IIB) has been created which gives clear information about hospital statistics and hospital utilization indices. Also, by these indicators, i.e., average length of stay (ALOS) and bed occupancy rate (BOR), we can suggest necessary measures to improve the quality of services and prepare our self to meet the requirement of the community.

Central Sterile Supplies Department

One of the most important and critical departments in the hospital is CSSD, as it plays a major role in infection control. It is a department within a hospital in which medical or surgical supplies and equipments are cleaned, prepared, processed, stored, and issued for patient's use.[10] The main objective of CSSD is to keep sufficient inventory for supply of items after sterilization for use in the hospital. Supply of sterile items include OT packs and linen, dressing materials, instruments, therapeutic and diagnostic trays like lumbar puncture, and veniesection sets, etc. The CSSD in charge of the hospital is responsible to oversee the use of different methods (physical, chemical, and bacteriological) to monitor the sterilization process, storage of sterile supplies, supply sterile material timely to user departments, and ensure quality assurance of sterilization by autoclave tape (on a daily basis) and by biological indicators and bowie-dick test pack (on weekly basis), reports any defect (supply, repair and maintenance, raw material, manpower and infection control, maintain complete records of each autoclave and sterilizer run, communicate with various stakeholders such as infection control committee, the nursing service, the operating suite, maintenance, and other appropriate services on the matters of sterilization in CSSD. A daily based checklist has been created and implemented to monitor the above-discussed CSSD activities, and the CSSD supervisor has been instructed to report to the top management on a daily basis. The checklist (Annexure II) captures the total number of staff present or absent, machine wise activities and items sterilized in it, maintenance of machines/breakdown of equipments, total number of sets prepared and issued, and monitoring of quality of sterilization by the use of various methods like glutaraldehyde strips, etc.

Department of Nursing Services

The objectives of nursing management focus on three basic elements: (i) high quality of nursing care services rendered to patients by trained nurses and technical assistants, (ii) a structured yet flexible and stimulating environment in which all the personnel may gain job satisfaction from their work and have opportunities to develop their own knowledge and skill potentials, and (iii) a management process that results in an efficient and effective pattern of nursing care and nursing services in the most economical manner.[11] The nursing department as a whole is responsible for proper use and care of all equipments, especially costly and hi-tech equipments, kept at their disposal for the treatment of sick patients. This department is also held indirectly responsible for proper housekeeping and clean laundry, as any deficiencies in these services will affect patient satisfaction. This department will also coordinate with other departments to provide best care to the patient and take hospital forward as a whole. So a checklist cum reporting format (Annexure III) has been created and implemented to monitor the entire ward activities. Nursing supervisors/ward in charges will capture the ward activities on daily basis and is submitted to their nursing superintendent, and the nursing superintendent will make a compiled weekly report out of it and will present the same in the administrative meetings.

Monitoring and evaluation of outcomes is an essential component of services delivered. In hospitals where performance of the departments are not routinely tracked and complaints/ issues were not recorded/underreported, or where mechanisms are not sufficient to identify poor practices, these checklists cum reporting formats will become the essential quality improvement tool. If the use of a checklist is subsequently proven to be useful in decreasing errors, and improving process outcomes, it can be used to standardize the procedures across the hospital.

Post Implementation Impact

After the implementation of these checklists, a post intervention study was carried out, which showed that there was teamwork and better communication among departments, smoother and quicker processes, skill enhancement among the staffs, improved staff morale, secure work environment, and decreased turnaround time for support with each other whenever required. This positive result was possible through a small quality initiative implemented through a team approach.

They also play an important role in conducting research work at healthcare organization, as one can easily retrieve data pertaining to departmental activities. Through the study of these checklists

cum reporting formats, preventive measures can be timely adopted in order to overcome hassles which will in turn benefit the departments, staffs as well as hospital on the whole. It also helps in imparting training and education.

The above mentioned layout can be adapted by other hospitals/ healthcare organizations (only after suitable modifications as per their organizational needs) to assess their departmental performances as well as their quality standards. Commitment of the top leadership at the level of department as well as hospital is essential for survival of such QI tools.

Our checklist documentation procedures and outcomes are being evaluated. Medical audits are ongoing, the findings of which will be shared in other publications separately. Feedbacks are also ongoing.

Our study has several strengths, like we had developed the checklists cum reporting formats in a systematic way and is validated by the experienced experts in the field. The checklist cum reporting format formulation included individuals who are directly or indirectly related to functioning of those departments.

Our study has few limitations as well such as, this was a study conducted in a tertiary care teaching hospital, and hence the results of post-implementation cannot be generalized to secondary and primary care hospitals. Documentation completion does not necessarily equate to effective use of the checklist cum reporting formats. The checklist could still be a vague exercise for some users, and measured compliance may not reflect its effective use by team. This limitation can be addressed by a prospective observational study in real time of checklist cum reporting formats use by teams. Constant reinforcement, retraining, and leadership involvement are vital till these checklists cum reporting formats are adopted and accepted.

Conclusion

Checklists are powerful tools to standardize work processes and create independent checks for key processes. Their development requires a systematic and comprehensive approach, particularly when implemented in high-intensity fields such as medical field. The checklists will assist hospitals and healthcare systems in their efforts to prevent and reduce preventable errors, which are the end goals of any healthcare organization. Although they can have wide application in medicine, they are relatively underused. To conclude, checklists serve as a mechanism for the strict adherence to protocol in any high-strung and dynamic environments, especially in complex organizations like hospitals.

It can also be demonstrated that continuous QI in healthcare organizations can be brought about by need-based, focused intervention and that analysis and measurement of errors were pivotal in reducing the errors.

Acknowledgments

A preliminary version of this paper was presented as a Case Study at the 4th Annual Conclave of Hospital Administrators (HACON – 2019), Mysuru on March 16th, 2019.

Ethical Approval

The study was approved by the institutional Ethical committee.

References

1. HRSA, Quality Improvement. In: US Department of Health and Human Services Health Resources and Services Administration [Internet]. p. 19. [Internet]. 2011. Available from: http://www.hrsa.gov/quality/toolbox/508pdfs/qualityimprovement.pdf.
2. Neha P, Nishant P, Julka S, et al. Quality management - I. Hospital Administration - A Problem Solving Approach. New Delhi: Reed Elsevier India Private Limited; 2014. pp. 255–256.
3. Hales B, Terblanche M, Fowler R, et al. Development of medical checklists for improved quality of patient care. Oxf Univ Press Assoc Int Soc Qual Health Care 2008;20(1):22–30.
4. Verma A, Gyani JG, Thomas A. Patient safety measures. Handbook of Healthcare Quality and Patient Safety. 2nd ed., New Delhi: Jaypee Brothers Medical Publishers LTD; 2017. p. 125.
5. Robbins J. Hospital checklists: transforming evidence - based care and patient safety protocols into routine practice. Crit Care Nurs Quater 2011;34(2):142–149.
6. Schmutz J, Eppich WJ, Hoffmann F, et al. Five steps to develop checklists for evaluating clinical performance: an integrative approach. Acad Med 2014;89(7):996–1005.
7. Hales BM, Pronovost PJ. The checklist–a tool for error management and performance improvement. J Crit Care 2006;21(3):231–235.
8. Ajami S, Ketabi S. Performance evaluation of medical records departments by analytical hierarchy process (AHP) approach in the selected hospitals in Isfahan: medical records dep. and AHP. J Med Syst 2012;36:1165–1171.
9. Ravi KE, Vijaya K. Utilization of beds in a tertiary hospital. J Associat Hospital Administrat 2004;15(2):13–17.
10. Chandorkar AG. Central sterile and suply department. Hospital Administration and Planning. 2nd ed., Hyderabad: Paras Medical Publisher; 2009. pp. 153–166.
11. Lucita M. Nursing; Practices and Public Health Administration: Current Cocepts and trends. Reed Elsevier India Priv Ltd.; 2005. p. 10.

Date :-……/……/……

ANNEXURE - IA

MEDICAL RECORDS DEPARTMENT - DAILY REPORT

STAFFING & MAN POWER	**Total staff**	**Absent / CL**	**Long leaves**	**Remarks**

	DAILY MRD ACTIVITIES	**YES / NO**	**REMARKS**
1.	Receiving of daily ward census		
2.	Receiving of inpatient files from the wards		
3.	Deficiency check among case records and reporting the same		
4.	Assembling and sorting of the case records according to the numerical order (IP Number wise)		
5.	Coding of all IP Files according to ICD -10		
6.	Indexing of all IP coded files as per ICD -10		
7.	Follow up of court summons		
8.	Applications for MLC / LIC and other requests		**requests –** **Issued -**
9.	Total No. of Wound certificates issued		
10.	Disposal of Birth / Death reports to the local authority and online entries of the same		
11.	Issue of old records to the consultants / wards / corporate departments when required		
12.	Issue of old records to PG'S and other students when required.		
13.	Incomplete record control (follow up of the same)		
14.	Reporting of Notifiable diseases to concerned authorities		
15.	Support from other departments when required		
16.	Status of medical records department maintenance (civil / electrical / central stores / IT / housekeeping etc.)		
17.	Corrections of demographic details of the patients		**Total no. of corrections-**
18.	Status of update of MRD registers and other documents		
19.	Over all supervision of medical records section		
20.	Training activities within the department		
21.	Decision and schedule for disposing old patient case records		
Comments / complaints / suggestions :-		**Name & Signature Medical Records Officer :-**	

Date: - ……../……../……..

ANNEXURE - IB

MEDICAL RECORDS DEPARTMENT - MONTHLY REPORT

Hospital utilization statistics / indices for the month of _____

Sl. no.	Parameters		Current Month census	Census of the same month last year	Remarks
1.	OPD attendance	New cases			
		Old cases			
2.	Special Clinics	Total cases			
3.	Bed Strength	Total beds			
		Active beds			
4.	Admissions	From OPD			
		From emergency			
5.	Discharges	Total			
		Planned			
		DAMA's			
		On request			
6.	Surgeries	Major			
		Minor			
7.	Deaths	Under 48hrs			
		After 48hrs			
8.	Death Rates	Gross			
		Net			
		Maternal			
		Infant			
		Neonatal			
9.	No. of births	Total			
		Healthy			
		Still born / IUD			
10.	No. of deliveries	Normal			
		Caesarean sections			
10.	Bed Occupancy Rate				
11.	Average length of stay				
12.	Total Transplants	Kidney			
		Cornea			
13.	Medico Legal Cases	Total cases			
14.	Notifiable infectious diseases	Total cases			
15.	Diagnostics	Radiology			X- Rays :- ( ), USG:- ( ) MRI :- ( ), CT:- ( ) Mammography :- ( ) Others:- ( )
		Pathology			FNAC's:- ( ),
		Biochemistry			
		Microbiology			
Comments/complaints / suggestions:-					Name & signature of MRO

DATE:- ……../……../……..

ANNEXURE - II

CENTRAL STERILE SUPPLIES DEPARTMENT - DAILY REPORT

I.MAN POWER	Total staff	Present	Absent / CL	Remarks

II.STERILIZERS ACTIVITIES:-						
Sl.No.	**Machine name**	**Cycles / day**	**No. of packs sterilized**	**Machine status (working / not working)**	**Maintenance check by BME (Yes / No)**	**Remarks**
1.	Plasma sterilizer					
2.	ETO sterilizer – 1					
3.	ETO sterilizer - 2					
4.	Steam sterilizer - 1					
5.	Steam sterilizer - 2					
6.	Steam sterilizer - 4					
	Total no. of sets received for sterilization from various user departments:- ( )					

III. MATERIALS PREPARED / PRODUCTION:-		IV. SETS ISSUED	
Name of the dressing materials prepared	**Quantity / day**	**NAME OF THE SET**	**QUANTITY ISSUED from CSSD**
Gauze packs (5 no.) / Gauze pieces		Procedure set	
Gauze packs (10 no.) / Gauze Pieces		Dressing set	
Dressing pads		Cut down set	
Bandage rolls		Central line set	
T Bandage		ICD set	
Roller bandage		Suturing set	
Tampons		Bone marrow set	
Ortho pad		RO Water	
Plastic surgery pad		Drape	
Cotton swabs		Gowns	

V. Quality control methods	Strips availability (Yes / No)	Each cycle	Daily	Weekly
Autoclave tape (class – 1)				
Bowie dick test (Steam sterilizer)				
Batch monitoring strips				
Biological indicator				
Comments / complaints / suggestions :-		**Name & Signature of CSSD Supervisor**		

11

DATE:- ……../……../…….

ANNEXURE - III

Department Of Nursing Services- Weekly Checklist For Nursing Supervisors

	Total staff	Absent	Long leaves / maternity leaves	Remarks
STAFFING & MAN POWER				

1. VITAL SERVICES				
Sl.no.	**Activities**	**Adequate**	**Not Adequate**	**REMARKS**
1.1.	Status of Crash carts and its Maintenance			
1.2.	Store supplies to the patient care areas			
1.3.	Status of CSSD and Laundry supplies & services			
1.4	Status of ward registers & other records			
1.5.	Support from other departments when required			
1.6.	Pharmacy services			
2.TRAINING & EDUCATION				
2.1.	Attendance to Ongoing Continuous nursing education programmes			
3.WARD ENVIRONMENT				
3.1.	Medication management & administration			
3.2.	Status of daily Environmental rounds			
3.3.	Status of ward Maintenance activities (Civil / electrical / biomedical)			
3.4.	Status of Biomedical waste management practices			
3.5.	Status of Sample collection and sending practices			
3.6.	Proper reporting of Patient related incidents			
3.7.	Status of Cleaning activities (daily)			
4.CENSUS & STATISTICS				
4.1.	No. of Surgeries - OT			
4.2.	No. of chemotherapies			
4.3.	All the census updated regularly in the admission and discharge registers in the patient care areas? (Yes / No)			
5.CAPTURING KEY PERFORMANCE INDICATORS				
5.1.	Is capturing Key Performance indicators and reporting a continuous process? (Yes / No)			

Comments / complaints / suggestions :-	**Name & Signature Nursing Supervisor :-**
	Name & Signature of CNS:-