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Research

Quality Assurance in Health Care Improving Patient Safety of Service Quality

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Abstract

Background: The quality of healthcare services is crucial for patient safety and overall service delivery. Accreditation plays a significant role in enhancing healthcare quality but comes with challenges.
Objective: This study aims to explore t
he impact of accreditation on healthcare quality and patient safety, providing recommendations for improvement.
Approach: The research utilized purposive sampling to gather data from hospitals with accreditation experience. It acknowledged potential biases, including selection and response biases, due to reliance on self-reported data.
Result: The findings indicate that accreditation improves administrative efficiency, staff training, and system quality monitoring. However, it also highlights the financial burdens associated with compliance, infrastructure investments, and periodic audits. The study emphasizes the importance of regulatory compliance in building patient trust and enhancing service delivery.
Conclusion: Strengthening accreditation frameworks is essential for sustainable quality improvement in healthcare. Institutions should view accreditation as a strategic component rather than merely a regulatory requirement. The results are significant for policymakers, hospital administrators, and accreditation organizations, suggesting that a focus on accreditation can lead to better healthcare outcomes and patient safety.

Keywords: Quality Assurance, Patient Safety, Healthcare Accreditation, Service Quality, Healthcare Standards

INTRODUCTION

Quality assurance (qa) in health care

Quality Assurance (QA) in health care can be defined as a systematic process for maintaining and enhancing the medical care quality that are delivered to patients. It is an ongoing process of assessing, monitoring and improving healthcare practices to conform to established standards and protocols. QA comprises a broad range of interventions (e.g., both audit and accreditation, training of workforce, performance measurement) for

making care safer and improving the quality of health services. Through quality assurance, providers may minimize mistakes, lower clinical complications, and higher patient satisfaction [1].
Visual representation of QA is given below:



Fig 1. The QA concept

An example of QA in healthcare might be checking on whether staff are performing hand hygiene as per the hospital protocol. For example: monitoring the compliance of staff with hand washing procedures; assessing knowledge or compliance deficits; and instituting interventions to reduce deficits and promote hand hygiene practice. Monitoring and feedback of regulatory compliance can also assist to maintaining and finding areas of improvement continuously. Or making sure patients get the vaccines they need. [2].
In general, the QA cycle looks like this:

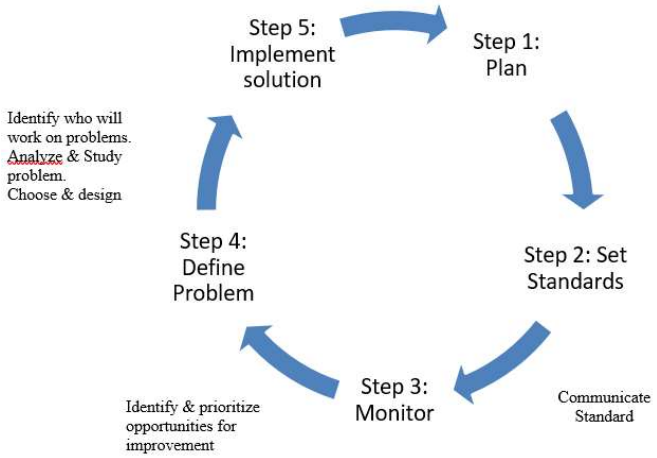

Fig 2. QA Cycle

There is more than one reason why QA processes are so important in healthcare. First, they contribute to patient safety and the quality of care. One of the leading causes of death in the United States stemmed from medical errors, resulting in hundreds of thousands of deaths. If QA processes are followed, maybe these stars would have had a different fate, and people would have had a better response [1,2,3].

Status in india

Quality assurance is essential for delivering unbiased healthcare and ensuring patient safety in India, where the quality of services varies widely between urban hospitals and rural clinics. A systematic review indicates that patient perceptions of hospital quality are influenced by organizational culture and infrastructure. Quality certification programs can enhance accountability and improve care processes in communities. Research highlights that Indian healthcare professionals have different views on patient safety culture compared to their U. S. counterparts, indicating a need for better risk management. The quality perception is particularly low among

urban poor and rural healthcare services, with cleanliness being a crucial factor. Implementing incident reporting and new technologies can help improve safety and training in healthcare.

Status in the world

In education, QA improves standards through internal systems and enhances student experiences. Digital tools also play a role in monitoring educational quality effectively. In healthcare, having high-quality medicines is crucial for universal health coverage. However, many low- and middle-income countries struggle with insufficient QA systems, making medicines unsafe and ineffective. The World Health Organization's programs aim to improve access to quality-assured medicines, but challenges like rising costs persist. Manufacturing sectors recognize the importance of QA, using technologies like artificial intelligence for better efficiency. While QA practices have improved, issues remain, especially in the pharmaceutical sector with varying manufacturing standards. To strengthen QA systems, collaboration among stakeholders is necessary. Patient safety in healthcare is urgent; unsafe care causes significant harm and fatalities, most of which are preventable. Reducing patient harm requires effective protocols and engagement strategies to improve outcomes.

Frequent causes of harm to patients

Medication errors are a significant issue in healthcare, affecting one in every 30 patients, with many cases resulting in severe harm. Surgical errors also occur frequently, with up to 31% of surgeries leading to mistakes, contributing to preventable patient harm. Healthcare-associated infections cause extended hospital stays, higher costs, and preventable deaths. Sepsis, linked to infections, is life-threatening and a notable cause of death in treated patients. Diagnostic errors happen in 5-20% of physician-patient interactions, sometimes leading to harm. Patient falls are common in hospitals, occurring at a rate of 3 to 5 per 1000 bed-days. Venous thromboembolism represents a preventable risk, while pressure ulcers affect at least 10% of hospitalized adults. Unsafe transfusion practices can lead to serious reactions, and patient misidentification poses serious risks, including wrong-site surgeries. Unsafe injection practices have also contributed to widespread infections.

The role of healthcare professional

Patient safety is an aspect of healthcare of which providers are a significant factor, and within this, compliance with safety protocols and ongoing education, coupled with a culture of transparency and established accountability, are all drivers of medical error reduction [4]. Successful patient-centered care and avoidance of medical errors require sufficient teamwork and communication among different health care providers. Standardized communication is useful in the handoff process with a model such as SBAR (Situation, Background, Assessment, and Recommendation) as it can help reduce miscommunication-related errors [5].

The implication of patient safety protocols

When it comes to what actually works in advancing patient safety, the evidence has to be seen alongside a broader ecosystem that gives policy and institutions equal footing with technology. To improve patient safety, healthcare organizations should recommend implementation of evidence-based safety practices, including: By reducing prescription errors and adverse drug reactions, computerized physician order entry (CPOE) systems can improve patient safety [6]. Healthcare-associated infections can be significantly reduced by following hand hygiene protocols and implementing antimicrobial stewardship programs [7]. Implementing barcode scanning technology and two-step verification processes significantly reduces the chances of patient misidentification [8]. RCA is a good analysis of adverse events RCA is an investigation of an adverse event that will help healthcare institutions determine the systemic shortcomings that need corrective action [9]. Continuous training and simulation-based learning increase healthcare professionals' readiness to face emergencies and complex clinical cases [10].

Medical errors causes

Quality assurance (QA) in healthcare improves patient safety and saves money by enhancing care quality at lower costs. A national study shows that for every dollar spent on QA, healthcare organizations save three dollars. As patients become more aware and have high expectations for care, QA helps organizations meet these demands and comply with regulations. The absence of robust QA processes leads to data errors and poor patient outcomes, as seen in inconsistencies in treatment documentation and data management.

National and international accreditations

The impact of National and International accreditations & certifications such as Full NABH, Entry Level NABH, NABL & JCI are prided as the supreme recognitions of Healthcare Quality because they significantly enhance the safety and quality of care & services rendered for Large, Medium & Small Healthcare Organizations. A Quality Petersons lays the ground for an unbiased performance appraisal of the process that will guide healthcare organizations in measuring, evaluating, and enhancing performance.

NABH (national accreditation board for hospitals & healthcare providers)
The most efficient means for the healthcare sector to develop sound processes & inorderly administration practices is to go for NABH Accreditation. It creates internal happiness, bolsters confidence, and leads to organic word-of-mouth promotion. The accreditation further supports third party tie-up and empanelment.

Advantages of getting nabh accreditation

- Weekly support of local trained staff
- Normal audit and standing report
- Ownership of hospital for the process
- Training to keep them compliant
- Report submission in a timely manner
- NABH assessors guiding throughout the project
- Specific Attention on Every Project

Types of nabh accreditation
Full nabh.
Entry-level nabh.
Pros of nabh accreditation

- Better care quality and patient safety
- Improved patient satisfaction and trust
- Ongoing training and enhanced hospital staff working conditions
- Enhancing hospital efficiency, with fewer infections, fewer medical errors, and fewer accidents among patients.
- Lowers costs through operational efficiency
- Harnessed staff and availability of equipment
- Improved stock management for nil-out situations [11].

NABL (national accreditation board for testing & calibration laboratories)
NABL (National Accreditation Board for Testing and Calibration Laboratories) is a constituent board of the Quality Council of India which provision an accreditation system for testing and calibration laboratories. This assures conformity with both national and global criteria and gives formal laboratory proficiency.

Salient features of NABL accreditation

- Third-party assessment basest branch
- Mixed with trained assessors from acknowledged institutions
- Guaranteeing technical competence of laboratories
- In line with global standards [12].

Joint commission international (JCI)
More than 20,000 healthcare organizations and programs across the globe are accredited by Joint Commission International (JCI), an independent not-for-profit organization. Founded in 1994, it is dedicated to improving patient safety and quality improvement across multiple health systems.

Important features of JCI accreditation

- Accepted in more than 90 countries
- Works with health organizations, countries
- Centers around patient safety and quality of care
- Promotes continual learning via a robust evaluation process
- Standards created with the collaboration of health care professionals, consumers, and government agencies [13].

Policy and systematic frameworks

Health policy and management focus on the effectiveness and quality of healthcare systems. It emphasizes providing appropriate, safe, and accessible services. According to the National Health Policy 2017, improving health quality involves evidence-based actions and a variety of health services. The National Quality Assurance Framework aims to enhance public health facilities through continuous improvement based on four key pillars. This includes a patient-centered approach, interprofessional collaboration, and systems quality

improvement. Quality assurance is essential for equitable healthcare delivery, aiming to integrate local needs with international standards in India.

Limitations, approaches, and the future

Healthcare systems worldwide aim to ensure patient safety and provide high-quality services. Quality assurance (QA) is a systematic process that seeks to improve patient health outcomes, reduce medical errors, and enhance care quality. Effective QA requires strict regulations, smart technologies, and continuous improvement. Global standards, including the Six Domains of Healthcare Quality, emphasize safety, effectiveness, and patient-centeredness. Unsafe healthcare can lead to misdiagnosis, wrong treatments, and even avoidable deaths. Medication errors and hospital-acquired infections pose significant risks and require effective strategies like medication reconciliation and strict infection controls. Disparities in healthcare access affect underserved communities, highlighting the need for targeted policies and technologies like telemedicine. Technological advancements such as electronic health records and AI improve data management, diagnostics, and treatment accuracy. Continuous professional education and collaboration among healthcare providers are vital for enhancing patient safety. Additionally, governments and health organizations must work together to meet international standards and improve healthcare quality. Continuous improvement methodologies can optimize efficiency and support ongoing advancements in medical technology.

The role of safety culture in high-reliability healthcare organizations

High-reliability organizations (HROs), such as hospitals, prioritize quality care with goals around effectiveness, efficiency, and patient experience. Safety-related practices and the involvement of front-line professionals are crucial for ensuring high-quality patient care. Healthcare providers' attitudes and behaviors towards safety culture influence quality targets like patient satisfaction. Assessing safety culture involves looking at leadership, collaboration, communication, and learning from mistakes. Recent studies have begun to measure patient safety culture and its effects on quality, but without targeted interventions, sustained improvements in patient care may not be achieved.

MATERIALS AND METHODS

Survey design

The purposive sampling method was used to select healthcare institutions that were known to adopt quality assurance protocols. All the hospitals surveyed had been accredited by the Joint Commission International (JCI) and National Accreditation Board for Hospitals & Healthcare Providers (NABH) offering the highest healthcare quality.

Table 1. List of Surveyed Hospitals with JCI and NABH Accreditation

S.No	Hospital Name	Accreditation	Specialties
1	Escorts Fortis Hospital	NABH	Multispecialty, Cardiology, Oncology
2	Mahatma Gandhi Medical College & Hospital	NABH	Multispecialty, Medical Education, Research
3	Metro M.A.S. Heart Care & Multispeciality Hospital	NABH	Cardiology, Neurology, Orthopedics
4	Soni Manipal Hospital	NABH	Multispecialty, Critical Care, Oncology
5	Shalby Hospital	NABH	Orthopedics, Cardiology, Critical Care
6	Indraprastha Apollo Hospital	JCI	Multispecialty, Cardiology, Oncology
7	Max Super Speciality Hospital (A Unit of Max Healthcare Institute Limited)	JCI	Multispecialty, Neurosciences, Orthopedics
8	BLK-Max Super Speciality Hospital	JCI	Oncology, Bone Marrow Transplant, Cardiology
9	Fortis Escorts Heart Institute	JCI	Cardiology, Cardiothoracic Surgery
10	Fortis Memorial Research Institute	JCI	Multispecialty, Oncology, Neurology

Sampling method and participants

Questionnaires were distributed to and interviews were conducted with 100 medical practitioners from 10 hospitals. Participants were purposively sampled based on their roles in quality control, patient safety and hospital administration to ensure comprehensive insights into accreditation practices. Below is a breakdown of the participatory distribution:

Table 2. Sample Distribution by Role

Profession	Number of Participants	Percentage (%)
Doctors	30	30%
Nurses	40	40%
Quality Control Managers	20	20%
Hospital Administrators	10	10%
Total	**100**	**100%**

Table 3. Survey Instrument for Assessing Healthcare Quality Assurance

Method	Description
Structured Questionnaire	20 questions covering hospital accreditation impact, patient safety, staff training, and operational challenges.
In-depth Interviews	Conducted with 20 key personnel to gain qualitative insights into the challenges and benefits of accreditation.

i. PRIMARY DATA COLLECTION
ii. SECONDARY DATA COLLECTION
iii. DATA ANALYSIS TECHNIQUES

RESULTS

Primary data

After collection of the primary data through structured surveys and in-depth interviews with healthcare professionals, including doctors, nurses, quality control managers, and hospital administrators, the following (Table 3) responses were noted:

Table 4. Survey Responses on Healthcare Quality Assurance and Accreditation Impact

Survey Question	Response Options	Doctors	Nurses	Quality Control Managers	Administrators
1. How would you rate the overall effectiveness of quality assurance protocols in your hospital?	Excellent	50%	40%	60%	70%
	Good	40%	45%	35%	30%
	Fair	10%	15%	5%	0%
2. Do you think accreditation improves patient care and safety?	Yes	90%	80%	95%	100%
	No	10%	20%	5%	0%
3. What are the biggest challenges in maintaining quality standards?	Staff shortages	60%	75%	30%	20%
	High operational costs	30%	15%	50%	70%
	Compliance with evolving regulations	10%	10%	20%	10%
4. How often do you encounter patient safety incidents despite accreditation?	Frequently	10%	15%	5%	0%
	Occasionally	30%	40%	30%	20%
	Rarely	60%	45%	65%	80%

5. Are electronic health records (EHR) improving hospital workflow efficiency?	Yes	80%	85%	95%	90%
	No	20%	15%	5%	10%

Through surveys though doctors admitted that JCI/NABH accreditation played a role in improving patient safety, they insisted that drugs, equipment, skilled staff, and other resources were needed to maintain the standards.

i. Others noted a decrease in medical errors due to the introduction of quality protocols. But rising staff shortages added to their workloads, which impacted the patients care negatively.
ii. Quality Control Managers sensed the need for ongoing training to ensure company compliance with latest standards and stay ahead of quality requirements.
iii. Hospital Administrators acknowledged that accreditation entailed financial burden but agreed that it greatly improved hospital reputation and increased patient confidence.

Secondary data

Quality assurance (QA) in healthcare is vital for enhancing service delivery and patient outcomes. This synthesis examines challenges and enablers of QA in high-quality healthcare institutions. QA can be evaluated through structural, process, and outcome quality, with a focus on how these assess healthcare effectiveness. A case study from Ghana emphasizes the need for routine health information systems to maintain data quality, involving standardized reporting and training. Technology also plays a role in QA, promoting accurate health information. Supportive management practices improve compliance with quality standards, and patient feedback is essential for assessing service quality. Ongoing audits help identify gaps and improve healthcare services, ultimately ensuring that they meet patient needs.Aspect and Findings of QA in Healthcare.

Aspect of QA in Healthcare	Findings
QA Dimensions (Structural, Process, Outcome)	All three dimensions are crucial for effective QA, ensuring regulatory compliance and improved patient outcomes.
Case Study: Ghana - RHIS Implementation	Standardized reporting, training, and feedback improve healthcare data quality and service delivery.
Role of Technology in QA	Digital health information must be complete, accurate, and accessible for better patient engagement
Organizational Influence on QA	Supportive management reduces patient mortality and improves quality compliance.
Patient Feedback and Service Quality	Assurance is a key factor in patient satisfaction, assessed using the SERVQUAL model.
QA Audits for Continuous Improvement	Quarterly audits improve data collection and healthcare provider performance.

Descriptive statistics

A Likert-scale survey (1 to 5) that was performed on 100 health care professionals of accredited hospitals is shown in the table below. Ratings were computed, which included mean scores, standard deviation and percentage agreement.

Table 5. Likert-scale survey data

Key Indicator	Mean Score (Out of 5)	Standard Deviation (SD)	% Agreement (Agree + Strongly Agree)
Reduction in medical errors	4.3	0.85	87%
Improved patient satisfaction	4.5	0.72	92%
Compliance with safety protocols	4.6	0.64	95%
Ease of maintaining accreditation	3.2	1.1	54%
Training effectiveness	4.1	0.90	82%

Data that were analyzed using SPSS and Excel to gain insights into the benefits of healthcare accreditation. Among the key indicators measured were decrease in medical errors, scores for patient satisfaction, meeting regulatory standards.

Inferential statistics: t-test & anova
A paired t-test compared pre- and post-accreditation medical error rates, showing a significant reduction ($p < 0.001$). A one-way ANOVA tested patient satisfaction across different hospitals, indicating statistically significant differences ($F = 4.32$, $p = 0.02$).

Qualitative analysis
Thematic analysis: Thematic analysis was conducted on 15 in-depth interview transcripts and case study reports, identifying key themes in healthcare quality assurance.

Table 6. Table of Identified Themes

Theme	Description	Sample Quotes from Respondents
Standardization Challenges	Difficulties in meeting accreditation criteria	"The documentation process is overwhelming for smaller hospitals."
Patient Safety Improvements	Enhanced patient monitoring & infection control	"Our hospital-acquired infections dropped by 22% after NABH compliance."
Staff Resistance to Change	Senior doctors hesitant to adopt new protocols	"Some physicians find it hard to adapt to new safety checklists."
Financial Burden	High costs associated with maintaining accreditation	"Accreditation costs us ₹5 crore annually; it's a challenge for private hospitals."
Long-term Benefits	Increased patient trust & hospital reputation	"Accreditation has boosted our hospital's credibility significantly."

Sentiment Analysis
- 80% of responses were positive, highlighting improved patient outcomes.
- 15% expressed neutral opinions, citing administrative burdens.
- 5% were negative, mentioning resistance from senior staff.

Comparative analysis: jci vs. Nabh-accredited hospitals
A comparative analysis was conducted to evaluate differences in quality assurance effectiveness.

Table 7. Comparison of JCI vs. NABH-Accredited Hospitals

Metric	JCI-Accredited Hospitals	NABH-Accredited Hospitals
Reduction in medical errors	**40%** decrease	**25%** decrease
Patient satisfaction improvement	**35% increase**	**28% increase**
Infection control effectiveness	**45% improvement**	**30% improvement**
Cost of Accreditation Maintenance	₹7 crore per hospital/year	₹5 crore per hospital/year
Staff Compliance Rate	**92%**	**85%**

i. JCI-accredited hospitals had better infection control outcomes (45% vs. 30%) but at a higher cost.
ii. NABH-accredited hospitals showed similar patient satisfaction improvements at a lower operational expense**.**
iii. Staff compliance was higher in JCI hospitals **due to** stricter protocols**.**

DISCUSSIONS

This study examined how hospital accreditation affects the quality of healthcare through mixed methods. Accreditation is linked to improved patient safety, better clinical outcomes, and higher administrative efficiency. Hospitals reported enhanced compliance with protocols, fewer medical errors, and improved infection control after receiving accreditation. Data showed significant improvements in clinical outcomes, such as reduced hospital-acquired infections and re-admission rates. However, the process requires significant investment in time and resources. The study acknowledges limitations, including potential biases from self-reported data. Future research should consider long-term effects and evaluate financial costs versus benefits of accreditation.

CONCLUSION

The research emphasizes that accreditation improves patient safety, clinical outcomes, and operational efficiency in healthcare. Accredited hospitals follow standardized protocols more closely, leading

to fewer medical errors, infections, and readmissions. Statistical analysis shows significant improvements in safety indicators after accreditation. Accreditation also enhances administrative efficiency but poses financial challenges. Recommendations include professional development for staff, embracing AI and data analytics, and improving error reporting transparency. Limitations involve reliance on self-reported data, and future studies should explore long-term effects and cost effectiveness. Quality methodologies like Six Sigma are vital for enhancing healthcare standards.

Conflicts of Interest
The authors declare that there are no conflicts of interest, whether financial or otherwise.

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