Original Article

Internship-Based Clinical Audit of Vision 2020 Cataract Discharge Standards: A novel Pedagogical tool in Undergraduate Medical Education in India

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ABSTRACT

Background: Vision 2020 guidelines recommend early discharge after uncomplicated cataract surgery to improve efficiency in high-volume centres without compromising safety. Clinical audits systematically assess adherence to standards and may strengthen quality improvement (QI) competencies when integrated into undergraduate medical training.

Objective: To assess adherence to Vision 2020 discharge standards following manual small incision cataract surgery (MSICS), identify factors associated with delayed discharge beyond the first postoperative day, and evaluate the feasibility of conducting a structured clinical audit during internship training.

Methods: A retrospective clinical audit was conducted at a tertiary ophthalmology centre in India by a medical intern during routine clinical posting. Data from all MSICS procedures performed in February 2024 were extracted from electronic clinical records, including postoperative slit-lamp findings, complications, surgeon experience, and discharge timing. Current practices were compared with the Vision 2020 standard of discharge on postoperative day one.

Results: Of 319 patients undergoing MSICS, 293 (91.9%) were discharged on postoperative day one. Delayed discharge occurred in 26 patients (8.1%), mainly due to postoperative complications such as hyphema (38%). Among delayed cases, 53% were discharged within 48 hours, 38% involved surgeons with 1–2 years of experience, and one patient required re-intervention for intraocular lens haptic displacement. All patients received standardized counseling regarding danger signs.

Conclusion: High adherence to Vision 2020 discharge standards was observed. Internship-embedded clinical audit appears feasible and may support integration of QI training into undergraduate medical education.

Keywords: Cataract surgery; clinical audit; discharge standards; quality improvement; Vision 2020; health service efficiency

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INTRODUCTION

The International Agency for the Prevention of Blindness (IAPB) formulated the Vision 2020 guidelines to ensure the right to sight for all by eliminating the main causes of avoidable blindness. This initiative was guided by the principles: Integration into existing health care systems, Sustainability of resources, Equitable services, with Excellent standards of care, summarized as the acronym ISEE.[1] Adherence to discharge standards – specifically discharge on the first postoperative day – addresses the final "E," ensuring that high throughput does not compromise clinical standards. This framework has since evolved into the "2030 In Sight" strategy, which positions healthy vision as a key social and economic priority. For this strategy to succeed, the surgical pathways for the treatment of blindness must be economically sustainable and operationally efficient, in ways that are affordable for hospitals while delivering effective care to the populations served.[2]

Cataract remains the leading cause of reversible blindness globally, with a disproportionate burden in low- and middle-income countries.[3] Surgical management, through techniques such as phacoemulsification and manual small incision cataract surgery (MSICS) are the cornerstone for improving visual outcomes and are delivered at scale in high-volume centres.[4] In such settings, bed availability is critical to maintain rapid patient turnover.[5,6] Efficient postoperative care pathways are therefore essential to optimise patient flow and sustain the clinical effectiveness of outreach programs.[7] Adherence to discharge standards—specifically discharge on the first postoperative day—serves as a critical indicator of both clinical quality and the economic sustainability prioritized in the "2030 In Sight" strategy.[1,8] Clinical audit provides a structured framework to evaluate whether these global benchmarks are consistently achieved in routine practice.

Clinical audits utilise an evidence-based methodology to measure patient outcomes against defined standards, identify service gaps and facilitate corrective action. Such structured oversight is critical for the economic sustainability and operational efficiency of high-throughput surgical centres. Moreover, such monitoring is mandated by the Vision 2020 and 2030 In Sight frameworks to ensure that eye care services consistently achieve accepted benchmarks of clinical quality, effectiveness, and efficiency.[7,9]

Aligning with these global mandates, this Quality Assurance Audit was undertaken at a tertiary eye care centre in India to evaluate adherence to Vision 2020 discharge standards following cataract surgery, and to identify factors associated with delayed discharges. The audit specifically examined clinical determinants, such as postoperative complications, that contributed to deviations from the standard, with the aim of ensuring that key indicators of clinical effectiveness consistently met established quality benchmarks.

METHODS

This retrospective clinical audit was conducted at a tertiary ophthalmology base hospital in India that supports high-volume outreach cataract surgery programmes. Data were collected during February 2024 as part of the investigator's routine internship posting.

All consecutive patients undergoing MSICS during the audit period were included. No exclusion criteria were applied to ensure a comprehensive assessment of routine clinical practice.

Audit Framework and Standards: The audit was conducted using the clinical audit cycle framework to assess adherence to Vision 2020 recommendations for cataract surgery services. The audit was undertaken as part of undergraduate internship training and as a quality assurance exercise to assess adherence to Vision 2020 recommendations for cataract surgery services.

The primary audit standard was discharge on the first postoperative day following uncomplicated manual small incision cataract surgery (MSICS). Discharge was considered appropriate only after

postoperative clinical examination excluded significant complications or inflammation and after patients received counseling regarding danger signs, including redness, pain, and sudden diminution of vision. Hospital stay beyond postoperative day one was considered a deviation from the standard.

Data was extracted retrospectively from the hospital clinical workstation and patient medical records, including postoperative slit-lamp findings, documented complications, duration of hospital stay, surgeon designation, and need for re-intervention. Data were entered into Microsoft Excel by the intern investigator under departmental supervision.

Outcome Measures: The primary outcome was delayed discharge, defined as discharge beyond postoperative day one. Postoperative complications and surgeon experience were described in relation to delayed discharge.

Analysis was descriptive in nature. Frequencies and proportions were used to summarize discharge timing, complications, and surgeon categories. Inferential statistical analysis was not performed, as the audit was intended to provide a snapshot of routine clinical practice rather than test hypotheses.

Ethical Considerations: The audit utilized routinely collected clinical data without patient identifiers. Institutional permission was obtained, and formal ethics committee approval was waived.

RESULTS

A total of 319 patients underwent MSICS during the audit period. The majority were discharged on postoperative day one, consistent with Vision 2020 discharge standards.

Delayed discharge occurred in a minority of cases and was primarily attributable to postoperative complications. [Table 1] Twenty-six of the 319 patients (8.1%) who had cataract surgery were discharged after the first operative day. Most delays were short-term and related to postoperative clinical findings requiring observation or intervention.

Table 1: Adherence to Vision 2020 Discharge Standard Following Cataract Surgery (n=319)

Discharge Status	Number	Percentage
Discharged on postoperative day 1	293	91.9
Delayed Discharge (> postoperative day 1)	26	8.1

Hyphema was the most frequent complication associated with extended hospital stay. Moreover, 53% of these 26 patients were discharged within the next 24 hours, and the most common reason for delayed discharges was hyphema (38%). Other complications included corneal edema and transient elevation of intraocular pressure. One patient among the 26 patients with delayed discharge was reoperated, and re-dialing was done, because of complications of “haptic" in the anterior chamber. Overall complication rate was 8.1%. [Table 2].

Postoperative Complications	Number	Percentage
Hyphema	10	38.0
Other postoperative complications *	15	57.7
Intraocular lens-related complications (haptic in anterior chamber)	1	3.8

*Includes corneal edema, striate keratopathy, and transient elevation of intraocular pressure as documented in postoperative slit-lamp examination notes

Procedures were performed by consultants and senior residents. Thirty eight percent of patients who had delayed discharges were operated on by surgeons with a year or two of experience. Delayed discharges were more commonly observed in procedures performed by senior residents, reflecting higher surgical volumes within training settings. [Table 3]

Table 2: Delayed Discharge by Surgeon Experience Level (n = 26)

Surgeon Experience	Number of delayed discharges	Percentage
Surgeons with 1–2 years of experience	10	38.0
Surgeon with >2 years of experience	16	62

Summary results, with audit standards, observed practice and quality interpretation are given in Table 4.

Table 3: Audit Standard, Observed Practice, and Quality Interpretation

Audit Component	Description
Audit standard	Discharge on postoperative day one following uncomplicated cataract surgery (Vision 2020 guidelines)
Target	Safe early discharge with appropriate postoperative assessment
Observed practice	91.9% of patients discharged on postoperative day one
Deviation from standard	8.1% experienced delayed discharge
Primary reasons for deviation	Clinically justified postoperative complications, most commonly hyphema
Quality interpretation	High adherence to Vision 2020 standards with appropriate safety-driven deviations

DISCUSSION

This clinical audit demonstrated a high level of adherence to Vision 2020 discharge standards following cataract surgery in a tertiary eye care centre. Most patients undergoing manual small incision cataract surgery (MSICS) were discharged on the first postoperative day, while delayed discharges were uncommon and largely attributable to identifiable postoperative complications rather than deficiencies in discharge planning or care processes. These findings support the feasibility of maintaining efficiency in high-volume cataract services without compromising patient safety.

The hospital follows Vision 2020 recommendations for outreach cataract surgery services, including standardized postoperative counselling regarding danger signs such as redness, pain, and sudden diminution of vision. Such structured postoperative education is an important component of safe early discharge practices and aligns with global recommendations for sustainable cataract care delivery.[1,2]

Hyphema emerged as the most common complication associated with delayed discharge, consistent with published literature on MSICS.[11] Other causes included corneal edema and transient elevation of intraocular pressure. Importantly, prolonged hospitalization in these cases represented clinically justified decisions aimed at ensuring patient safety and appropriate postoperative monitoring. Therefore, delayed discharge should not necessarily be interpreted as evidence of poor-quality care, but rather as an indicator of individualized clinical decision-making within standardized care pathways.

Delayed discharges were more frequently observed among surgeries performed by senior residents. However, these findings should be interpreted in the context of a teaching environment where trainees often perform larger surgical volumes and may be assigned more complex cases.[12,13] Since the audit did not adjust for surgical complexity, cataract density, or ocular comorbidities, no causal inference regarding surgeon performance can be made. Nevertheless, the findings reinforce the importance of structured supervision, graded surgical responsibility, and standardized postoperative assessment protocols in high-volume teaching hospitals.

The audit also highlights the value of standardized discharge criteria in balancing service efficiency with patient safety in outreach-linked cataract programmes.[14,15] Regular monitoring of discharge

practices enables early identification of deviations from established standards and supports targeted quality improvement initiatives, even within resource-constrained settings. Such audits may therefore contribute not only to clinical governance but also to operational sustainability in high-throughput surgical systems.

An important aspect of this study was its conduct within an undergraduate internship posting. The audit demonstrates that internship-based clinical audit is operationally feasible using existing hospital data systems and routine clinical records. With appropriate supervision, interns can contribute meaningfully to quality improvement initiatives while developing competencies in systems-based practice, patient safety, documentation, teamwork, and evidence-based care.

Previous studies have demonstrated educational benefits associated with student participation in clinical audits and quality improvement activities. Audit participation has been associated with improved understanding of quality improvement methodologies, greater awareness of patient safety principles, and enhanced preparedness for future clinical practice.[16–18] In the context of Competency-Based Medical Education (CBME), such experiential learning activities may help operationalize competencies related to professionalism, accountability, communication, and systems-based practice within authentic clinical settings.[22]

At the same time, trainee-led audits face important practical challenges. Limited protected time, competing academic responsibilities, variable faculty engagement, and restricted institutional support often hinder completion of full audit cycles.[19–21] In the present audit, implementation of corrective measures and re-audit were not feasible within the internship period. This highlights the need for stronger faculty mentorship and institutional frameworks to support sustained quality improvement initiatives involving undergraduate trainees.

This audit had several limitations. Conducted over a single month during the investigator's internship posting, it may not reflect temporal variations in surgical volume or complication patterns. The analysis was descriptive, and adjustment for potential confounders such as cataract complexity, comorbidities, and surgeon case-mix was not possible. In addition, the audit focused primarily on discharge timing as a process indicator and did not evaluate longer-term outcomes such as postoperative visual acuity, patient satisfaction, readmissions, or late complications. As a single-centre audit conducted in a tertiary teaching hospital, the findings may not be fully generalizable to other settings with different patient populations or postoperative care systems.

Despite these limitations, the audit demonstrates that structured clinical audits can be integrated into undergraduate medical training while simultaneously contributing to service quality monitoring. Internship-embedded audit may therefore represent a practical and scalable approach for strengthening both quality improvement culture and competency-based medical education in India.

Conclusion

Adherence to Vision 2020 discharge standards following cataract surgery was high in this tertiary eye care centre. Delayed discharges were infrequent and primarily driven by clinically justified postoperative complications rather than system-level inefficiencies. Even when conducted within the constraints of undergraduate medical training, clinical audits can provide meaningful insights into service quality and identify opportunities for improvement in high-volume surgical settings.

Declarations

Conflict of interest: No potential conflict of interest.
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