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ORIGINAL ARTICLE

A Comprehensive Medical Audit of Clinical, Academic, and Research Activities in the Department of Cardiology at Bangladesh

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Abstract

Background: *Medical audit ensures quality improvement in patient care, education, and research. A structured evaluation was conducted in the Cardiology Department at Bangladesh Medical University (BMU) to assess performance and compliance over 12 months.*

Objectives: *To evaluate clinical service delivery, academic activities, and research output, and to identify areas for quality enhancement.*

Methods: *A retrospective audit was performed using departmental records from July 2023 to June 2024. A Likert scale (0–5) assessed performance in clinical care, documentation, education, and research. Scores of 4–5 indicated high achievement.*

Results: *The department managed 33,540 outpatients and 5,040 inpatients, with 2,620 angiograms and 1,579 angioplasties performed; inpatient mortality was 3.2%. Clinical guideline and documentation adherence scored 4–5. Academically, 600 lecture and 600 clinical training hours were completed, with 68–91% student participation; teaching metrics scored 4–5. Research included 10 resident theses, 4 funded faculty projects, and 15 publications across two issues of the* **University Heart Journal***. Research ethics and GCP compliance scored 4–5.*

Conclusion: *The department achieved strong clinical, academic, and research outcomes despite infrastructural gaps. Sustaining quality requires digital health integration, technical upgrades, and faculty*

Keywords: *Medical audit, Cardiology, Quality improvement, Academic performance, Research evaluation*

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Introduction:

A medical audit is a systematic, critical evaluation of the quality of healthcare delivery, encompassing clinical practices, resource utilization, adherence to evidence-based guidelines, and patient outcomes (Scally and Donaldson, 1996). It plays a vital role in quality assurance and continuous improvement, enabling healthcare institutions to identify gaps in care, ensure accountability, and implement evidence-based changes that enhance patient safety and service efficiency (Health Quality Improvement Partnership, 2010). In cardiology, where interventions are often complex and time-sensitive, adherence to established guidelines from bodies such as the American Heart Association (AHA) and the European Society of Cardiology (ESC) is crucial for optimal patient management (American Heart Association, 2023; European Society of Cardiology, 2023). Audits in this specialty frequently focus on conditions including acute coronary syndromes, heart failure, and arrhythmias, using guideline compliance as a benchmark for clinical performance (Fihn et al., 2012).

At academic medical institutions such as Bangladesh Medical University (BMU), medical audits also assess educational quality and research productivity alongside

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clinical care. These evaluations support accreditation, faculty development, and institutional self-assessment, aligning clinical, academic, and research activities with national and international standards (Sandars and Gibbs, 2009). The Department of Cardiology at BMU provides tertiary-level cardiovascular care while fulfilling teaching and research responsibilities for undergraduate and postgraduate programs. To ensure comprehensive quality improvement, a structured medical audit was conducted for the period July 2023 to June 2024. This audit aimed to evaluate clinical outcomes, academic engagement, and research output, with findings intended to guide strategic enhancements in patient care, operational efficiency, and professional development.

The general objective of this audit was to evaluate and enhance the quality, integrity, and outcomes of cardiology services and activities. Specific objectives included improving patient care and safety, ensuring compliance with national and international standards, optimizing resource and revenue management, promoting faculty and staff development, and preventing documentation errors, fraud, and procedural discrepancies. These objectives were designed to support a culture of continuous quality improvement and institutional excellence across clinical, academic, and administrative domains

Methods

This audit was conducted through a retrospective document review of departmental records from July 2023 to June 2024, organized into three domains: Clinical Services, which included inpatient, outpatient, emergency, and procedural data, evaluating patient outcomes, guideline adherence, and resource use; Academic Activities, covering lectures, clinical training sessions, rotations, and evaluations of faculty and students to assess educational quality; and Research Activities, which reviewed faculty and resident research, publications, and research compliance. Each domain was rated using a Likert scale (0–5), where 0 represented no achievement or compliance, and 5 represented the highest level of performance or adherence to standards. The findings from these ratings were used to identify areas for improvement and guide future strategies.

Results:

The audit revealed 33,540 outpatient visits and 5,040 inpatient admissions, with 162 deaths. Procedures included 40,062 ECGs and 11,589 echocardiograms. Compliance with clinical guidelines was rated 4–5, indicating strong adherence. In academics, 600 hours of lectures and clinical training were provided, with 68–91% student participation. Curriculum planning and faculty development scored 4–5. Research activities included 10 resident theses and 4 faculty-funded projects, with publications in the University Heart Journal and international journals. Research integrity also scored 4–5. Key recommendations include automating record-keeping, enhancing faculty development, and establishing a biostatistics support unit.

Domain	Details	Scores (0–5)	Recommendations
1. Clinical Services	Outpatients: 33,540 visits Inpatients: 5,040 admissions, 4,878 discharges, 162 deaths Procedures: ECG: 40,062 Echocardiography (2D + Doppler): 11,589 Coronary angiogram: 2,620 Angioplasty: 1,579 Temporary pacemaker: 169 Permanent pacemaker: 78	4–5	- Full automation of record-keeping systems - Regular equipment maintenance and technical surveillance - Develop Standard Operating Protocols (SOPs) for all procedures
2. Academic Activities	Teaching Hours: 600 lecture hours and 600 clinical hours Student Participation: 68–91% attendance Training Rotations: CCU, Echocardiography, ETT, and Cath Lab Evaluation: Regular formative assessment and outcome-based curriculum	4–5	- Conduct regular faculty development and pedagogical training - Establish a central surveillance team to monitor academic activities
3. Research Activities	Resident Research: 10 theses completed Faculty Research: 4 university-funded projects Publications: 2 issues of University Heart Journal (15 articles) 1 article in BMU Journal 3 papers in international indexed journals	4–5	- IRB approval for theses within 6 months of enrollment - Regular monitoring of research progress and fund utilization - Establish a biostatistics support unit

Discussion

This audit of the Cardiology Department at Bangladesh Medical University (BMU) highlights key strengths in clinical services, academic activities, and research, while also identifying areas for improvement. The department's high volume of clinical procedures, including over 40,000 ECGs and 11,500 echocardiograms, demonstrates a significant contribution to patient care. Adherence to clinical guidelines and patient safety protocols was strong, with scores ranging from 4 to 5, consistent with findings from other international institutions that emphasize guideline adherence for improving patient outcomes (Fihn et al., 2012; American Heart Association, 2023). The recommendation to automate record-keeping and establish regular equipment maintenance is in line with international best practices to enhance efficiency and minimize operational risks (Health Quality Improvement Partnership, 2010).

In academic activities, the department's 600 lecture hours and 600 clinical hours reflect a robust teaching program. However, the 68–91% student attendance indicates a need for greater engagement and could be addressed by improving learning environments, as suggested by Sandars and Gibbs (2009). Faculty development programs, while rated 4, should be expanded to further enhance teaching quality, aligning with global trends that emphasize continuous professional development (Boud et al., 2014).

Research outputs were substantial, with 10 completed theses and multiple publications in indexed journals. The adherence to research ethics and Good Clinical Practice (GCP) was high, confirming the department's commitment to quality research. However, improving the IRB approval process and establishing a biostatistics support unit would streamline research efforts and ensure more efficient data management (Foster, 2011; Sandars and Gibbs, 2009).

While the department performs well across clinical, academic, and research domains, there are opportunities for improvement in administrative processes, teaching infrastructure, and research support that can further elevate the overall quality of services provided.

Conclusion:

The audit of the Cardiology Department at BMU shows strong performance in clinical services, academics, and research. While adherence to guidelines and teaching effectiveness were commendable, areas like administrative processes and research support require improvement. Key recommendations include automating record-keeping, expanding faculty development, and enhancing research infrastructure. Addressing these will improve service quality and align BMU with international standards.

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Conflict of Interest

None declared.

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