

Momentum in Transforming Dental Education in Bangladesh: Review of the BDS Curriculum

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Abstract

Background: Dental education must evolve dynamically to equip graduates with both technical proficiencies and essential competencies like critical thinking, medical humanities, and communication. This study analyzes the comprehensive, stakeholder-driven evaluation and update process of the 2016 Bachelor of Dental Surgery (BDS) curriculum in Bangladesh, following the graduation of its inaugural cohort in November 2022.

Methods: Operating as a descriptive cross-sectional study using a purposive sampling technique, a nationwide needs assessment was executed by the Centre for Medical Education (CME) with World Health Organization (WHO) support. Data were systematically collected from the academic councils of 32 government and non-government dental institutions via Focus Group Discussions (FGDs) and structured questionnaires administered to phase-wise educators, interns, and clinical students.

Results: Major curricular enhancements identified and integrated include the concrete expansion of the course to a 5-year framework, structured objective assessment tools (OSCE, OSPE, SOE), and the explicit integration of Medical Humanities and Community-Based Medical Education (CBME). However, significant implementation barriers were identified, including institutional resistance to change, infrastructure limitations, resource constraints, and faculty development hurdles.

Conclusion: The systematic review and update of the BDS curriculum represent a major milestone in aligning Bangladesh's dental education with global standards. Mitigating ongoing structural hurdles through systematic faculty training, infrastructure development, and robust regulatory updates remains vital to ensuring the long-term success of the reforms and positioning the nation's dental professionals competitively within the global healthcare landscape.

Keywords: Bachelor of Dental Surgery (BDS), Curriculum Review, Dental Education.

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Introduction:

The Bachelor of Dental Surgery (BDS) program serves as the foundational structural pillar of the dental healthcare delivery and education framework in Bangladesh¹. As contemporary global healthcare needs evolve alongside rapid scientific and technological transformations, undergraduate dental curricula must remain deeply

dynamic, flexible, and adaptive to its target populations². Modern dental production demands that graduating clinicians possess not merely isolated technical and psychomotor skills, but also refined critical thinking capacities, professional communication mastery, and systemic practice-management fluencies required to navigate a shifting healthcare environment¹.

Historically, dental education in Bangladesh has transitioned through key evolutionary baseline steps managed by the Bangladesh Medical and Dental Council (BM&DC) alongside the Centre for Medical Education (CME)³. Two primary BM&DC-recognized national undergraduate BDS curricula were developed and deployed: the first major paradigm iteration in 2007, followed by a thoroughly revised, modernized design launched in 2016². The 2016 curriculum framework was instituted as a highly synchronized five-year course which was deployed across all public government dental colleges, regional dental units of public medical colleges, and non-government private dental colleges in close corporate affiliation with their respective parent universities⁴.

The landmark 2016 curricular reform altered structural dental training by formally extending the course duration to five years and embedding competency-based learning outcomes alongside objective modern evaluation modalities¹. These innovations introduced systematic formative assessment tools, Structured Oral Examinations (SOE), Objective Structured Clinical Examinations (OSCE), Objective Structured Practical Examinations (OSPE), Multiple Choice Questions (MCQ), and Short Answer Questions (SAQ)³. Furthermore, strict calendar optimization ensured that all rigid professional examinations and mandatory preparatory leaves were distributed balance-wise within the fixed phases of the academic course duration.

In November 2022, the historic first cohort trained natively under the 2016 curriculum model completed their undergraduate sequence and graduated into the professional workforce. According to the foundational Basic Medical Education World Federation for Medical Education (WFME) Global Standards for Quality Improvement (The 2020 Revision), curriculum organization and structure must dictate how knowledge, practical skills, separate disciplines, and clinical experiences are contextually organized. Diverse design strategies exist globally—spanning traditional isolated pre-clinical and clinical boundaries to highly integrated systems—and are chosen based on institutional vision, core missions, available resources, and regional healthcare realities¹. Following the full cycle completion of the 2016 curriculum's first batch, an empirical evaluation became necessary to review implementation mechanics, identify operational bottlenecks, and document direct stakeholder perspectives. This research article maps the comprehensive review, needs assessment, and curriculum update initiative in Bangladesh, focusing directly on the underlying drivers of reform, structural changes, institutional hurdles, and future strategic trajectories.

Methodology:

Study Design and Setting: This study utilized a descriptive, cross-sectional research design adopting a purposive sampling strategy across the entirety of dental education institutions in Bangladesh. The comprehensive evaluation initiative was systematically organized by the Centre for Medical Education (CME), with strategic funding and technical assistance provided by the World Health Organization (WHO).

Participants and Population:

The operational target population for the nationwide evaluation encompassed key institutional and human stakeholders directly engaged in delivering or undergoing the BDS program:

- **Institutional Academic Bodies:** The formal Academic Councils of 32 functioning dental institutions across Bangladesh were sampled, comprising 1 Government Dental College, 8 Government Dental Units within public medical colleges, and 23 Non-Government (private) Dental Colleges.
- **Educators:** Phase-wise dental faculty members spanning all four instructional phases of the BDS curriculum.
- **Learners:** Active clinical dental students and newly transitioned hospital interns who completed their instruction under the 2016 curricular paradigm.

Data Collection Modalities and Data Sources:

Needs Assessment following Graduation of first Batch of Curriculum:

Targeted evaluations were launched immediately after the graduation of the first batch in November 2022.

To construct a holistic, highly triangulated overview of curricular implementation and deficiencies, data collection was segmented across multiple distinct tracks:

- **Document Review:** (Comparative analysis against global frameworks)
 - **Quantitative Track:** (Structured Questionnaires to Faculty, Interns, & Students)
 - **Qualitative Track:** (Phase-wise & Multi-stakeholder Focus Group Discussions) Discussions)
- Focus Group Discussions (FGDs) & Structured Questionnaires: Separate phase-specific FGDs and validated survey instruments were deployed among educators from all four distinct phases to map discipline-specific pedagogical gaps. Concurrently, FGDs and tracking questionnaires were completed with interns and senior dental students to extract real-world learning insights.

Institutional Feedback: Formal institutional resolutions and academic reports from the Academic Councils of the 32 participating dental colleges and units were gathered and assessed.

Document Review: An in-depth secondary review of the 2016 curricular documents was coupled with a comparative benchmarking analysis against peer international undergraduate dental curricula to pinpoint structural lapses

and educational gaps.

Multi-Stakeholder Synthesis Infrastructure

The feedback obtained from the needs assessment was synthesized through a structured series of consensus-building consultative assemblies:

- **Technical Working Group (TWG) Meetings:** Tasked with initial processing of empirical needs-assessment data and establishing basic revision priorities.
- **Stakeholder Consultation Meetings:** Broad-based assemblies uniting dental practitioners, student-teachers, public health managers, and policy-makers.
- **Phase/Subject-Wise Drafting Seminars:** Four individual targeted workshops dedicated exclusively to mapping hour allocations, objectives, and structures across the four core phases of the curriculum.
- **Combined Expert Review:** A final harmonization conference consisting of Departmental Heads and subject matter experts to lock down the newly revised structural elements.
- **BDS Curriculum Update Expert Sub-Committee:** The final technical executive body responsible for proofing, verifying, and publishing the comprehensive curricular updates.

Results:

The systematic evaluation of the 2016 curriculum revealed substantial structural progress alongside specific gaps in behavioral competencies, community orientation, and global integration.

Curricular Structuring and Phase Distribution:

The five-year undergraduate structural lifespan was verified as superior to the historical pre-2016 four-year framework, as it allowed for appropriate clinical exposure. The academic program remains neatly structured across four sequential developmental phases, each terminating in a central professional university examination. This rigid timeline integration effectively eliminated historical overruns, guaranteeing that student assessment and preparatory leaves occurred within the boundaries of the designated calendar periods.

Assessment Modalities Alignment:

The introduction of contemporary assessment mechanics significantly enhanced objectivity and standardized testing across diverse public and private institutions. The data confirmed the uniform deployment of a mixed evaluation matrix:

Assessment Classification	Tool Modality	Curricular Focus Area
Cognitive Evaluation	Multiple Choice Questions (MCQ) & Short Answer Questions (SAQ)	Factual recall, clinical reasoning, and core biomedical knowledge bases.
Psychomotor & Practical Skills	Objective Structured Practical Examinations (OSPE)	Pre-clinical laboratory proficiencies, dental materials handling, and slide metrics.
Clinical Competency	Objective Structured Clinical Examinations (OSCE)	Live patient diagnosis, communication proficiency, and clinical safety.
Affective & Oral Proficiency	Structured Oral Examinations (SOE)	Standardized, rubrics-driven verbal examination of synthesis and theory.
Formative Progression	Continuous Formative Assessments	Iterative logbooks and continuous feedback tracking student milestones.

Curricular Integration and Content Upgrades:

The expert consensus panels successfully introduced critical updates intended to transition the program from an isolated, discipline-heavy model to an integrated, competency-driven model. The finalized modifications to the national BDS curriculum update framework include:

- **Integrated Teaching Sessions:** Systematic integration breaking down rigid walls between pre-clinical biomedical subjects and final-phase clinical specialties.
- **Medical Humanities Incorporation:** Inclusion of generic core topics in medical humanities, empathy, professional ethics, and patient safety protocols.
- **Community-Based Medical Education (CBME):** Expansion of field-driven educational mandates to align graduates with the unique primary oral healthcare demands of rural and urban populations in Bangladesh.
- **Competency and Outcome Mapping:** Explicit re-definition of expected clinical and cognitive outcomes at every educational tier, shifting the focus from rote academic survival to measurable professional competence.
- **Instructional Realignment:** Full reconfiguration of course content, instructional hours, specific laboratory objectives, teaching aids, and multi-tier evaluation criteria.

Discussion:

The evolution of the undergraduate Bachelor of Dental Surgery (BDS) curriculum represents an intentional step towards global standards, mirroring the competency-focused transformations seen worldwide¹. Extending the curriculum to a strict 5-year timeline successfully addressed long-standing student and faculty concerns regarding content saturation and inadequate clinical preparation². By structuring the course similarly to the revised national MBBS curriculum, the system established an educational standard that elevates dental surgery to equal footing with sibling medical specialties.

The formal transition toward objective assessment formats (OSCE, OSPE, SOE) reduces examiner bias, a common critique of traditional dental examinations³. Introducing clinical simulations and standardized clinical stations ensures that graduation honors actual clinical competence rather than simple memorization^[1]. Moreover, the inclusion of Community-Based Medical Education (CBME) directly satisfies a critical social contract, ensuring that dental surgeons are exposed to epidemiology and community

dentistry early in their development. This structural orientation prepares graduates to manage dental health issues within the rural infrastructure of Bangladesh, where specialized oral healthcare is historically scarce.

However, the empirical insights gathered from the needs assessment highlight five critical institutional and systemic challenges that threaten the long-term execution of these reforms:

Broad Institutional Resistance to Change:

A significant number of senior educators and traditional clinical practitioners demonstrate notable resistance when shifting from legacy teaching models to modern competency-focused paradigms. This friction is pronounced regarding the adoption of digital education aids, objective rubrics, and interactive technology-driven tools.

Disparities in Institutional Infrastructure:

A definite divide exists between established public dental institutions and newly formed non-government private dental colleges. Many institutions suffer from severe limitations in modern physical dental equipment, advanced laboratory tools, clinical patient volume, and dedicated instructional media facilities.

Persistent Resource Constraints:

Updating a nationwide dental program requires substantial financial investment. Upgrading pre-clinical phantom-head laboratories, securing modern biomaterials, expanding dental chairs, and printing new manuals strain institutional and public budgetary allocations.

Gaps in Systematic Faculty Development:

A primary systemic bottleneck is the lack of institutional capacity to rapidly train and upskill dental educators. While the CME provides foundational pedagogical instruction, many faculty members remain unaccustomed to facilitating modern integrated teaching, constructing reliable OSCE/OSPE stations, or deploying structured clinical feedback⁴.

Regulatory Asymmetry:

The statutory regulatory mechanisms governed by the BM&DC have historically lagged behind the rapid changes made to the operational dental curriculum. Harmonizing the updated BDS framework with international accreditation requirements while maintaining compliance with domestic laws remains a challenging, ongoing process.

Conclusion and Recommendations:

The comprehensive review and strategic update of the

Bachelor of Dental Surgery (BDS) curriculum marks a turning point for oral health education in Bangladesh. By redesigning curricular architecture to match global standards, shifting to a 5-year format, implementing objective assessment matrices, and embedding medical humanities and community dentistry, the new framework provides a pathway for cultivating skilled, patient-centered dental practitioners.

However, curriculum documentation alone cannot guarantee professional excellence. The ultimate utility of these updates rests entirely on overcoming ongoing structural barriers. Addressing institutional resistance, securing sustainable funding, improving clinical infrastructure, and committing to continuous faculty development are vital tasks. The updated BDS curriculum remains a vital instrument for shaping a modern dental workforce capable of elevating oral healthcare across Bangladesh.

Author's statements:

Ethical Approval:

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References:

1. Gareeballa A. Evaluating the implementation and effectiveness of competency-based education in Sudanese dental curricula: A comparative analysis of curriculum models. MDPI. 2025;13(4):139.
2. Parveen M, Arif MH, Arifina R, Islam SA, Akhtaruzzaman AKM. Pain education in undergraduate medical curricula: In depth situation analysis. Bangladesh Journal of Pain. 2024;1(1):4-10. Available from: <https://doi.org/10.62848/bjpain.v1i1.4651>
3. Haque M1 , Yousuf R 2 , Abu Bakar SM3 , Salam A 4Assessment in Undergraduate Medical Education: Bangladesh Perspectives Bangladesh Journal of Medical Science Vol. 12 No. 04 Ocotber'13. <https://doi.org/10.3329/bjms.v12i4.16658>
4. Ahmad MR et al. Opinion of Bangladeshi teachers and undergraduate clinical students regarding the course duration of BDS curriculum. Bangladesh Journal of Medical Education. 2017;8(1):18–21.