



# Planning and implementation of learning experiences in elective modules in Biochemistry in the MBBS Medical curriculum in India: Our experience



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## Objectives & context:

Integration of elective modules in Biochemistry in MBBS curriculum:

- To provide a deeper understanding of biochemical principles & clinical applications
- Planning & implementation of elective modules in biochemistry

## Student Participation: 32

- Students enrolled:
- Batch 2019: 6.4% in 2023:16
- Batch 2020: 6.4% in 2024:16
- Four groups of two students each EM in 2 batches/ year
- Attendance: 75%

## Methodology: Planning:

- **Curriculum Development:**
- **Interactive meeting** in the **Medical Education Unit**
- **Identification of elective modules**
- **Development** of learning objectives
- **Four electives selected:**
  - **Diagnostic Lab for Liver Diseases**
  - **Role of Lipid profile in Lab diagnostics**
  - **Clinical Biochemistry Lab For Kidney Diseases**
  - **Applied biochemistry in Thyroid lab**

## In Biochemistry department: Development of:

- Learning objectives for EM
- Teaching module
- Skill assessment module
- Feedback

## Resource Allocation:

- **Allocation of internal preceptors:** Faculty, PGs
- **Prerequisite:** immunization (hepatitis B and covid-19)
- **Provision of** lab facilities, & educational resources to students

## List of activities:

### Pre-elective Feedback

**Lab management:** Lab safety, GCP, BMW management, ethical issues

**Laboratory activities:** Sampling, testing, QC

**Daily working of lab**

**Reporting, interpretations** of lab results

**Educational activities**

**Recent trends** in research in lab diagnostics

**Presentation:** 4 case reports

**Presentation:** Role of lab tests in diagnosis

**Post-elective feedback**

## Evaluation: • Assessment:

### • Formative Assessment:

Classroom discussions, case studies: discussion & presentation, feedback

### • Summative Assessment Lab

performance, ability to analyze & interpret lab reports, case presentations, e-portfolio, and logbook.

### • Feedback: Pre-elective and post-elective

### • Presentation of case reports: 4

### • Objectives and logbook entry:

#### • Portfolio entries:

- Class Notes
- Presentation on topic

#### • Logbook entry:

- Stepwise assigned activities
- Meets **expectation “M” grade**

## Student perceptions & feedback:

- **50%** knew about EM
- **75%** agreed that EM has relevance in medical practice & 25% disagreed
- **87.5%** agreed EM should be mandatory
- **94%** agreed that EM addressed practical aspects of conducting research in biochemistry and medical research.
- **Did elective module experience meet expectations:**
  - **12.5%:** exceeds expectations
  - **68.8%:** met expectations.
  - **18.8%:** had no specific expectations.

## Potential challenges: Challenges and Solutions:

### Limited Resources:

- **55.6%:** Limited opportunities for research involvement
- **27.8%:** Lack of interest among students
- **11.1%:** Decreased faculty engagement
- **Logistic constraints**

## Conclusion:

Our experience in designing and implementing educational programs for elective modules in biochemistry as part of the MBBS medical curriculum in India highlights the importance of adopting a student-centric approach, utilizing innovative teaching methodologies, and continually developing faculty.

## Future Directions:

Introducing new EM based on emerging trends Interdisciplinary collaboration.

Assessment criteria	Evaluation 2023 2024	
<b>Attempt at activity: (F/R/Re)</b> First/ Reminder/ Repeat	<b>F:</b> 100%	<b>F:</b> 100%
<b>Rating: (B/M/E)</b> Below/ Meet Expectation/ Exceed Expectation	<b>M:</b> 100%	<b>M:</b> 25% <b>E:</b> 75%
<b>Decision of faculty: (C/R/Re)</b> Complete/ Repeat/ Remedial	<b>C:</b> 100%	<b>C:</b> 100%

