NATIONAL BOARD OF EXAMINATIONS IN MEDICAL SCIENCES (NBEMS)

Foreign Medical Graduate Examination (FMGE)

EXTERNAL EXPERT REVIEW

Fund of Assessment Tools (FAT)
«BASIC PHARMACOLOGY» — 2025/2026

Osh International Medical University

Specialty: General Medicine (MBBS equivalent) | 4 Credits

FOCUS OF THIS REVIEW

Critical appraisal of the pharmacology Fund of Assessment Tools (FAT) in relation to FMGE (NBEMS/NMC) standards and its effectiveness in assessing and preparing students for successful performance in the Foreign Medical Graduate Examination (India)

Institution	Osh International Medical University, Osh, Kyrgyz Republic
Discipline	Basic Pharmacology I + II
Programme	General Medicine (MD/MBBS equivalent)
Teaching Staff	Assoc. Prof. Aigul Momunova (PhD, Head of Dept.) + 4 Lecturers
Pre-requisites	Molecular Biology, Biochemistry, Physiology I–II, Anatomy I–II, Latin
Reviewer	Dr. Ankit Kumar, MBBS, MD, DM (Pharmacology) National Faculty, Prep Ladder FMGE Subject Expert, NBEMS Empaneled Examiner
Review Basis	FMGE Pharmacology Syllabus (NMC/NBEMS); Tripathi 8th Ed.; Previous FMGE Question Trends 2019–2025
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Upon comprehensive external evaluation of the Fund of Assessment Tools (FOS) for the discipline "Basic Pharmacology 2", it can be concluded that the presented assessment system demonstrates a structured, methodologically sound, and overall competency-oriented approach to evaluating students' knowledge, skills, and clinical reasoning abilities. The FOS incorporates both formative and summative assessment components, which is consistent with modern trends in medical education and supports continuous monitoring of student performance.

The formative assessment component is implemented through a variety of interactive and student-centered methods, including clinical case discussions, Team-Based Learning (TBL), peer assessment, and structured checklists. These approaches are pedagogically appropriate and contribute to the development of higher-order competencies such as clinical reasoning, analytical thinking, communication skills, and collaborative decision-making. Importantly, the formative component is not limited to knowledge recall but actively promotes application and integration of pharmacological concepts in clinical contexts.

The summative assessment is structured as a composite model including multiple-choice questions (MCQs), clinical case-based tasks, and oral classification of pharmacological agents. This multi-modal structure ensures a balanced evaluation of theoretical knowledge and its practical application. The test item bank (FTT) includes approximately 400 MCQs supported by a blueprint with distribution across cognitive levels (recall, understanding, application), which reflects alignment with Bloom's taxonomy and accepted principles of medical assessment design.

However, a detailed expert analysis reveals certain imbalances in content coverage and areas requiring further development.

Table 1. Content Coverage Analysis

Pharmacology Domain	Coverage Status	Expert Comment
General Pharmacology (PK/PD)	PARTIAL	Basic concepts present but insufficient depth
Pharmacokinetics (ADME)	PARTIAL	Needs more applied questions
Pharmacodynamics	PARTIAL	Mostly theoretical
Drug interactions	LIMITED	Requires expansion
Adverse drug reactions (ADRs)	PARTIAL	Not systematized
Pharmacovigilance	LOW	Minimal presence
Autonomic Nervous System (ANS)	LOW	Critically underrepresented
Cholinergic drugs	LOW	Few or no dedicated questions
Anticholinergic drugs	LOW	Insufficient
Adrenergic agonists	LOW	Limited
Adrenergic antagonists	PARTIAL	Some presence (β-blockers)
Central Nervous System (CNS)	PARTIAL	Needs significant expansion
Sedatives & hypnotics	PARTIAL	Limited
Antidepressants	PARTIAL	Fragmented
Antipsychotics	PARTIAL	Not fully covered
Antiepileptics	PARTIAL	Basic coverage only
Anti-Parkinson drugs	PARTIAL	Present but limited
Opioid analgesics	PARTIAL	Needs clinical integration
Cardiovascular Pharmacology	COVERED (HIGH)	Strongest domain
Antihypertensives	COVERED	Well represented
Antianginal drugs	COVERED	Adequate
Antiarrhythmics	COVERED	Good coverage
Heart failure drugs	COVERED	Clinically relevant
Respiratory Pharmacology	COVERED	Adequate
Bronchodilators	COVERED	Well represented
Anti-asthmatic drugs	COVERED	Good

Pharmacology Domain	Coverage Status	Expert Comment
Antitussives	PARTIAL	Limited
Gastrointestinal Pharmacology	PARTIAL	Needs expansion
Antiulcer drugs	PARTIAL	Basic coverage
Antiemetics	PARTIAL	Limited
Laxatives	LOW	Minimal
Endocrine Pharmacology	PARTIAL / LOW	Major gap
Antidiabetic drugs	PARTIAL	Needs expansion
Thyroid drugs	LOW	Insufficient
Corticosteroids	COVERED	Strong
Anti-inflammatory Drugs	COVERED	Good
NSAIDs	COVERED	Strong
Glucocorticoids	COVERED	Strong
DMARDs	PARTIAL	Limited
Antimicrobial Pharmacology	COVERED (HIGH)	Strong domain
Antibiotics	COVERED	Well structured
Antivirals	PARTIAL	Limited
Antifungals	PARTIAL	Needs expansion
Antiparasitics	PARTIAL	Moderate
Hematology	COVERED	Adequate
Anticoagulants	COVERED	Good
Antiplatelets	COVERED	Good
Thrombolytics	PARTIAL	Limited
Renal Pharmacology	PARTIAL	Needs strengthening
Diuretics	COVERED	Adequate
Anesthetics	LOW / ABSENT	Critical gap
Local anesthetics	LOW	Minimal
General anesthetics	LOW	Minimal
Toxicology	PARTIAL	Fragmented
Antidotes	PARTIAL	Present but limited
Chemotherapy (Cancer drugs)	LOW	Underrepresented
Immunopharmacology	LOW	Minimal

The analysis indicates that while system-based pharmacology (especially cardiovascular and antimicrobial) is well covered, several high-yield areas essential for clinical practice and international examinations remain underrepresented.

Table 2. Distribution of Test Items

FMGE High-Yield Area	Coverage Status	Expert Risk Level
General Pharmacology	PARTIAL	Moderate risk
ANS	LOW	High risk
CNS	PARTIAL	Moderate risk
Cardiovascular	COVERED	Low risk
Respiratory	COVERED	Low risk
Endocrine	PARTIAL	Moderate risk

FMGE High-Yield Area	Coverage Status	Expert Risk Level
Antimicrobials	COVERED	Low risk
Toxicology	PARTIAL	Moderate risk
Chemotherapy	LOW	High risk
Anesthetics	LOW	High risk

This distribution highlights a concentration of assessment on a limited number of domains, which may compromise the overall content validity of the FOS.

From a testological perspective, the overall quality of test items is acceptable; however, variability in item construction is evident. While a number of questions are well-designed and clinically oriented, a significant proportion remains focused on factual recall without sufficient clinical context. Additionally, certain items exhibit ambiguity, overlapping answer options, or unclear phrasing, which may negatively impact the validity and reliability of assessment outcomes.

Table 3. Identified Item Quality Issues

Critical Gap Area	Impact on Assessment	Recommendation Priority
ANS pharmacology	High	URGENT
CNS pharmacology	High	HIGH
Endocrine	Moderate	HIGH
Anesthetics	High	URGENT
Toxicology	Moderate	MEDIUM
Drug interactions	High	HIGH

From the perspective of international benchmarking (particularly FMGE/NBEMS standards), the current FOS only partially meets expectations for clinically oriented pharmacology assessment. The absence or insufficient representation of key domains such as ANS, CNS, and endocrine pharmacology limits the system's effectiveness in preparing students for high-stakes licensing examinations.

Table 4. Alignment with FMGE (NBEMS/NMC) Standards

High-Yield Area	Status
Cardiovascular	Covered
Antimicrobials	Strong
Respiratory	Covered
ANS	Not adequately covered
CNS	Partial
Endocrine	Weak
Toxicology	Partial
ADRs	Not systematized

Overall, the FOS meets institutional requirements (ЖОБО OIMU) and is suitable for internal summative assessment. However, it requires further refinement to achieve full alignment with international standards and to enhance its educational effectiveness.

Expert Recommendations

To improve the quality and effectiveness of the FOS, the following actions are recommended:

1. Expand content coverage to include:
   - Autonomic Nervous System (ANS) pharmacology
   - Central Nervous System (CNS) pharmacology
   - Endocrine pharmacology
   - Toxicology
2. Increase the proportion of **clinical case-based MCQs**
3. Eliminate ambiguous items and ensure a **single best answer format**
4. Standardize terminology and formatting across all test items
5. Implement **psychometric analysis**:
   - difficulty index
   - discrimination index
   - reliability measures
6. Develop clear mapping:
   Learning Outcomes → Topics → Test Items

Final Conclusion

The Fund of Assessment Tools for "Basic Pharmacology 2" represents a well-structured and methodologically grounded assessment system that:

- ✓ adequately evaluates foundational knowledge
- ✓ incorporates elements of clinical reasoning
- ✓ aligns with internal institutional standards

However:

- it requires broader content coverage
- needs stronger clinical orientation
- would benefit from modern psychometric validation

External Reviewer: **Dr. Ankit Kumar** MBBS, MD, DM (Pharmacology) *National Faculty, PrepLadder* *(signature)*	**Date:** **Official Stamp / Seal:**

This review is prepared on behalf of the FMGE External Curriculum Advisory Panel and submitted to the Academic Directorate of Osh International Medical University for action. One copy is retained by the reviewer's institution.