Organized by: Department of Pharmacology & Therapeutics KGMU, Lucknow

Preforming Practical MD Pharmacology examination as per recent NMC guidelines

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The 2nd National Conference of National Association of Pharmacology and Therapeutics)
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This presentation

- Historical aspect in assessment of Post Graduate MD Pharmacology
- Basic principles of assessments for Post Graduate MD Pharmacology
- What to assess for Post Graduate MD Pharmacology?
- How to assess Post Graduate MD Pharmacology based on current NMC recommendations?

Through NPT we convey sincere gratitude to all Pharmacologists who has worked hard and helped shifting pharmacology curriculum towards more meaningful role….

RELEVANCE OF CURRENT NMC GUIDELINES

“Are our MD training programs adequate for the students, satisfying their future career?”

Features of Competency Based Assessment (CBA)

- CBA operates within the framework of competencies. Assessment tools should align with competencies/objectives.
- CBA should help to acquire competencies/objectives (*assessment for learning*) and their certification (assessment *of learning*)
- CBA is continuous and ongoing process with opportunities for providing developmental feedback
- Direct observation of students improves utility of CBA and feedback
- Multiple assessors, multiple tools and multiple assessments improve the validity and reliability of CBA

Why do we need assessment?

- Evidence that learning was carried out
- Evidence that the learning objectives were achieved
- Student assessment leads to student motivation
- Certification and competency judgment
- Teaching program development and implementation
- Accountability
- Helps in understanding the learning process

Assessment MD Pharmacology postgraduates

History

Assessment MD Pharmacology postgraduates

History

Animal Experiments

Current status in MD Pharmacology training

- Animal experimentation is desirable not mandatory by now
- Animal Experiments: All animal experiments must be compliant with the Regulations of Government of India, notified from time to time. Amphibian/Dog/Cat experiments should be conducted by computer assisted simulation models/facilities.
- Other experiments can be performed, but as permissible by existing 'Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA)' guidelines and other Government regulations.

As per recent NMC guidelines for MD Pharma

Current status of bioassay for Postgraduate MD Pharmacology

Original Article

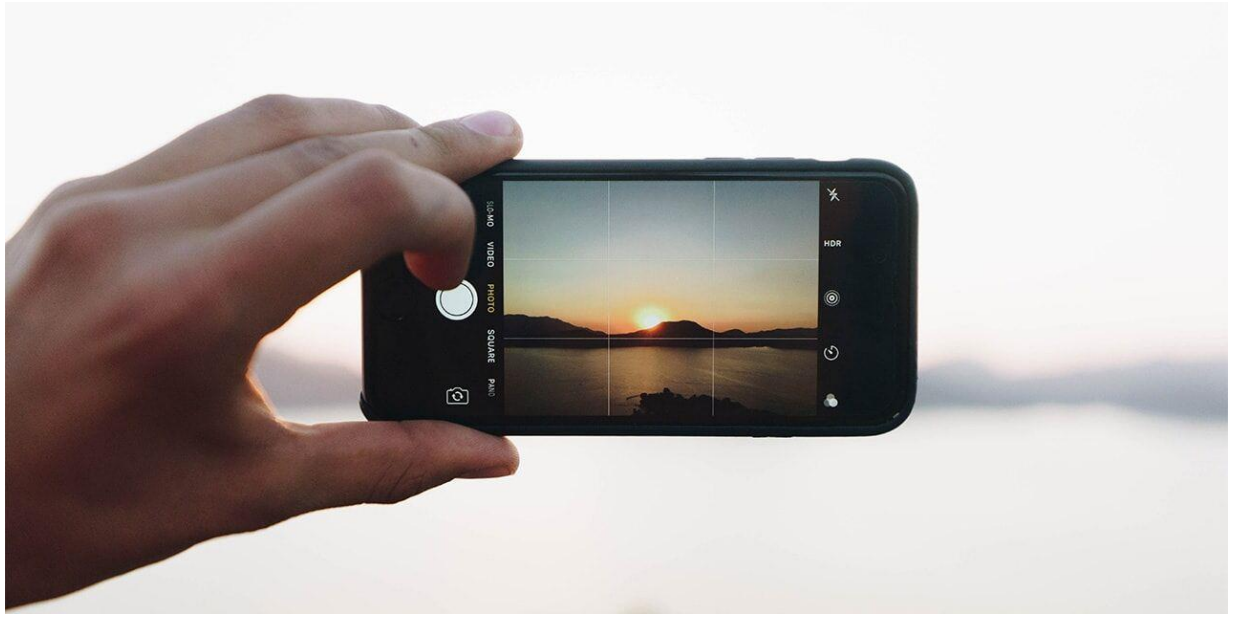
Restructuring the syllabus for MD Pharmacology: Retrospection of bioassay

Sarita Mulkalwar, Bhalchandra Rane, Lopamudra Behera

Department of Pharmacology, Padmashree Dr. D.Y. Patil Medical College, Hospital and Research Centre, Dr. D.Y. Patil Vidyapeeth, Pimpri, Pune, India

Medical Journal of Dr. D.Y. Patil University
July-August 2014 | Vol 7 | Issue 4

96.6% did not use their knowledge of Bioassay during their 10 years of post MD career, whether in pharmaceutical industry or in academics.



- Medical science is changing on weekly basis
- Time to change the assessment in line with demand?

PRINCIPLES OF ASSESSMENTS

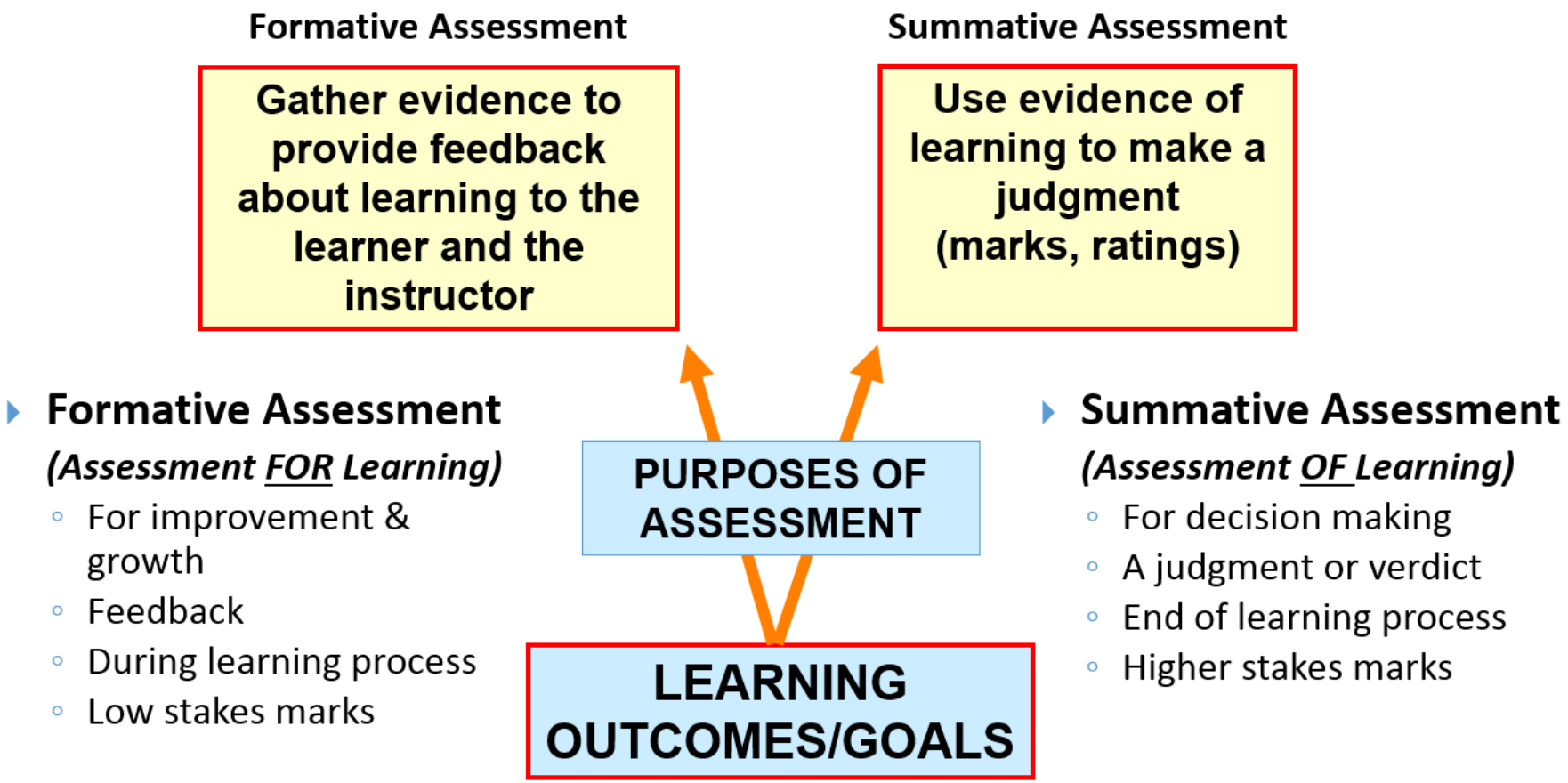
PRINCIPLES OF ASSESSMENTS

Back to basics: Miller model.

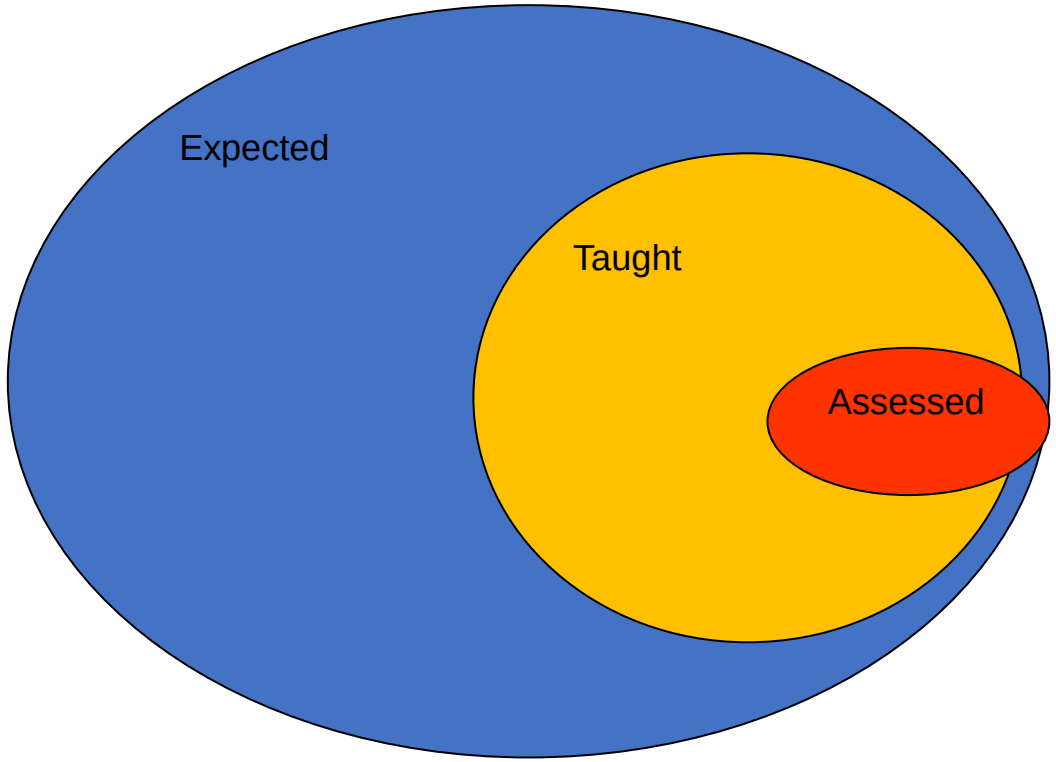
- Miller proposed a hierarchical model for the assessment of clinical competence.
- Model starts with the assessment of cognition and ends with the assessment of behavior in practice.
- Professional authenticity increases as we move up the hierarchy and as assessment tasks resemble real practice.

FORMATIVE ASSESSMENT **SUMMATIVE ASSESSMENT**

PRINCIPLES OF ASSESSMENTS



What to assess?



What to assess?

Careers after MD Pharmacology

- Teaching faculties in medical institutions
- Pharmaceutical industry
- Clinical research organizations (CRO, ICMR)
- Regulatory bodies
- Pharmacovigilance
- Family physician/Specialist (Eg. Diabetologist)

What to assess?

Basic Principle

What has been covered in curriculum?

MD Pharmacology

Subject based learning objectives ★

Divided in three parts

Cognitive domain

- General Pharmacology
- Systemic Pharmacology
- Research

Affective domain

- Adverse drug reactions
- Rational use of medicine
- Medication adherence
- Drug interactions
- Awareness about generic drugs
- Interactions with patients, health care professionals

Psychomotor domain

Independent or Part of team or Interpretation of results

- ❑ **Mandatory**
- ❑ **Desirable**
- Writing rational prescription
- Prescription analysis/audit
- Use of equipments (e.g. Analgesiometer, Physiograph, ECG)
- Preparing drug solutions
- Presentation in classroom/clinical meetings
- Determine EC_{50}, ED_{50}, pA_2,

★ **As per recent NMC guidelines for MD Pharma**

SUMMATIVE ASSESSMENT

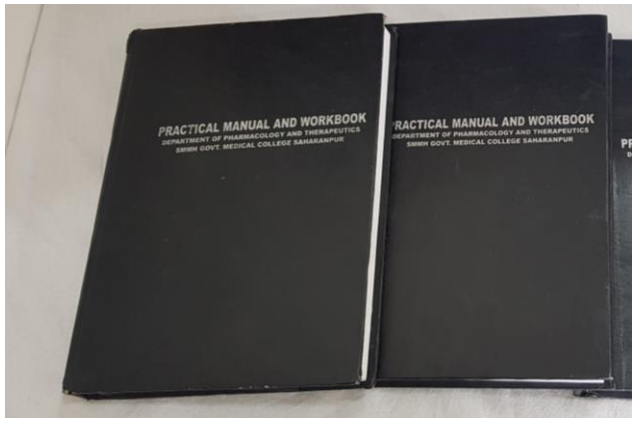
Postgraduate MD Pharmacology

Assessment at the end of training.

SUMMATIVE ASSESSMENT

Postgraduate MD Pharmacology

Essential pre-requisites for appearing in examination



Log Book of work done during the training period including rotation postings, departmental presentations, and internal assessment reports should be submitted.

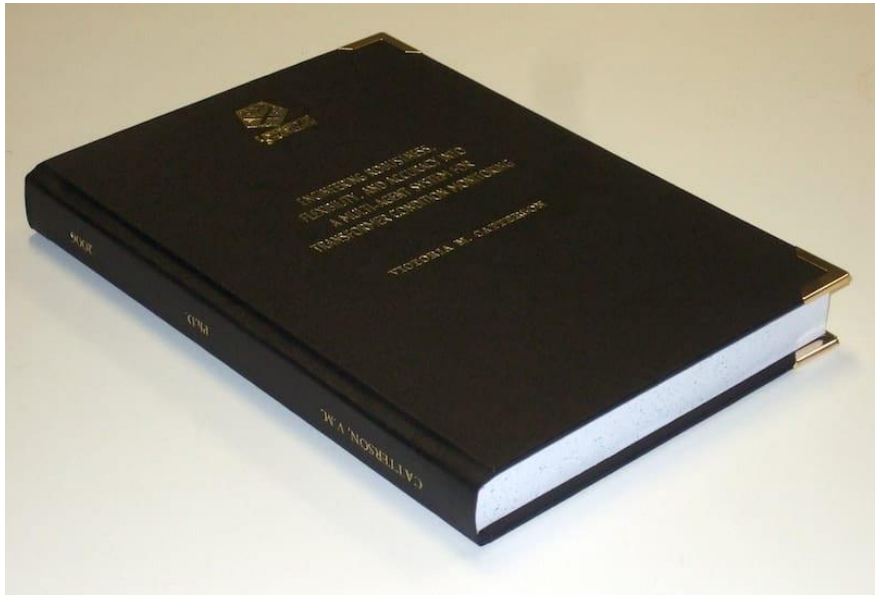
At least two presentations at national level conference. One research paper should be published / accepted in an indexed journal. (It is suggested that the local or University Review committee assess the work sent for publication).

SUMMATIVE ASSESSMENT

Postgraduate MD Pharmacology

- Theory examination shall be held in advance before the Clinical and Practical examination
- Answer books to be assessed and evaluated before the commencement of the clinical/Practical and Oral examination.

Thesis

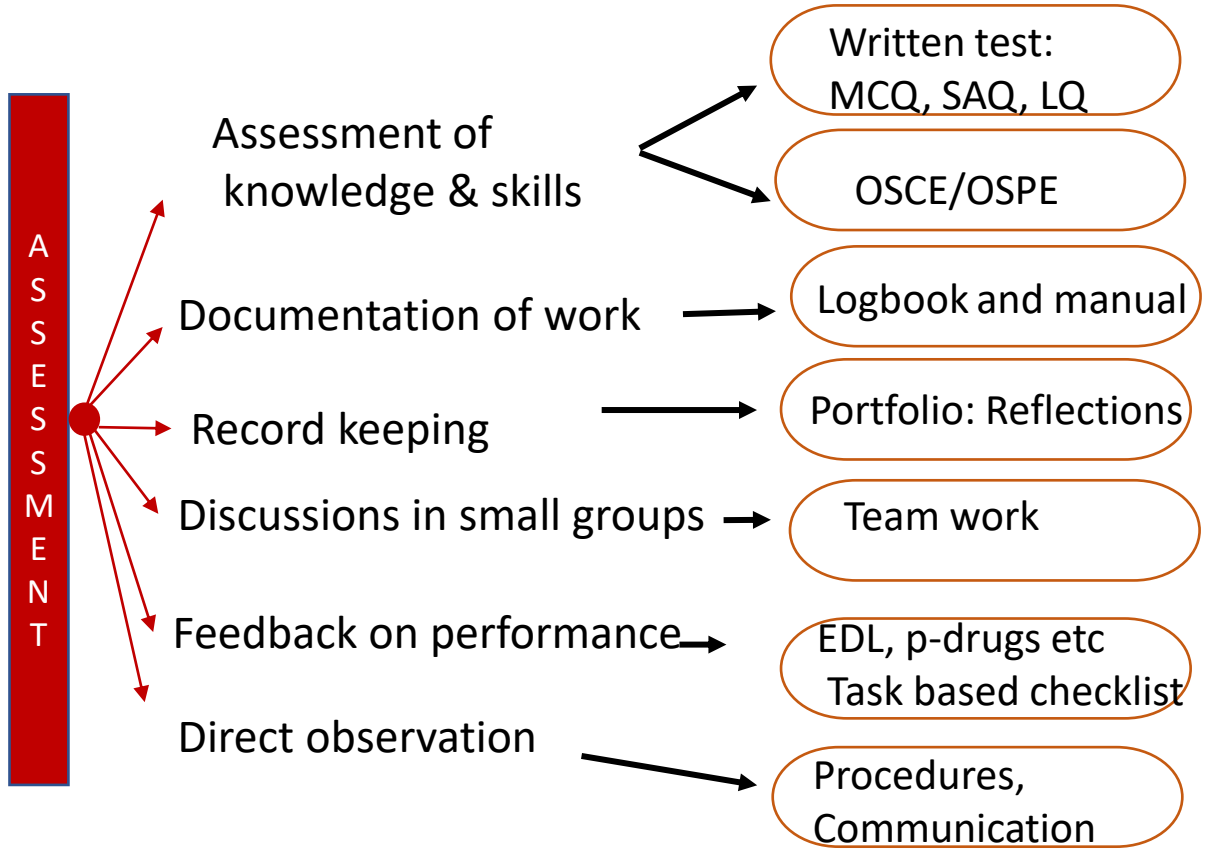


- Submitted at least six months before the Theory and Clinical / Practical examination.
- Examined by a minimum of three examiners
- One internal and two external examiners, who shall not be the examiners for Theory and Clinical examination.
- Acceptance of thesis is mandatory to appear for the Theory and Practical/Clinical examination.

TOOLS FOR ASSESMENT

IN MD PHARMACOLOGY PRACTICAL EXAMINATION

Assessment Tool Box



DOPS
(Direct observation of procedural skill)

Assessment methods

Assessment of communications skills

Assessment methods

Table Viva

Assessment methods

Assessing communication skills

Assessment methods

Simulated patients

Assessment methods

Seminar/journal club presentation

Teaching and training in MD pharmacology

Viva voce bedside

Assessment methods

Real patients(Hospital setting)

Blueprint of Summative assessment

- As per recent NMC guidelines

MD (Pharmacology)

SUMMATIVE ASSESSMENT

To be conducted in three parts

Thesis

Theory examination

Practical examination

Theory examination

- The examination for M.D shall be held at the end of 3rd academic year
- The examinations shall be organized on the basis of ‘Grading’or ‘Marking system’ to evaluate knowledge, skill and competence.
- Obtaining a minimum of 50% marks in ‘Theory’ as well as ‘Practical’ separately shall be mandatory for passing examination as a whole.
- There shall be four theory papers
  - **Paper I:** Basic sciences as applied to Pharmacology
  - **Paper II:** Systemic Pharmacology
  - **Paper III:** Clinical Pharmacology, Experimentation, Research, Biostatistics and Medical Education
  - **Paper IV:** Recent advances in the Pharmacology

MD (Pharmacology)

PRACTICAL EXAMINATION

(As per recent NMC guidelines)

Long exercise	Short exercises	OSPE/OSCE exercises	Grand Viva	Presentation

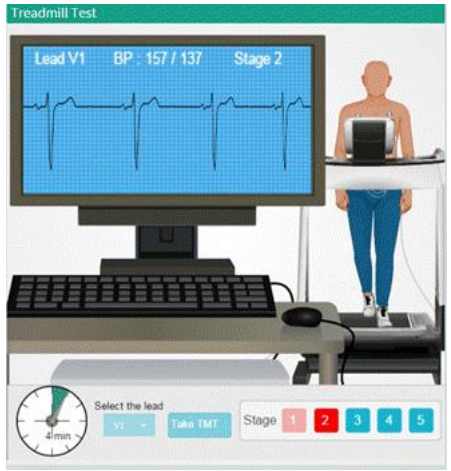
MD Pharmacology Practical examination

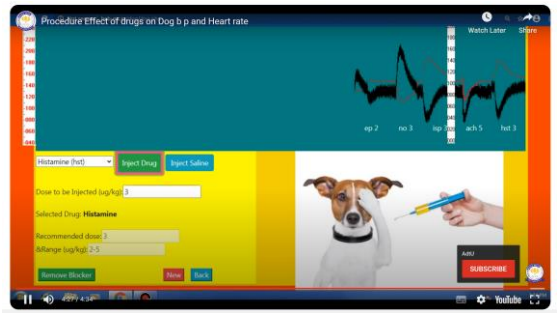
(As per recent NMC guidelines)

Long exercise

Protocol designing

Case audit





Perform experiments or simulated experiments

(as per PG Regulations)

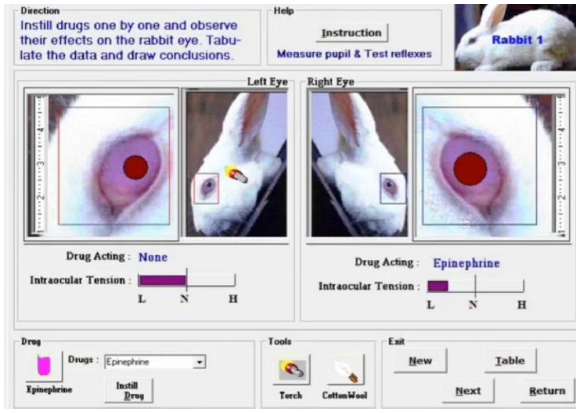
MD Pharmacology Practical examination

(As per recent NMC guidelines)

Short exercises

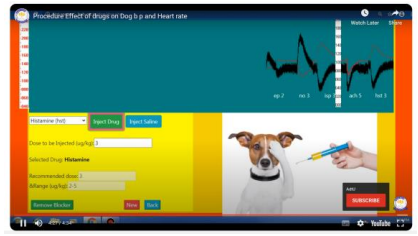
Demonstration of effects of drugs/interpretation of results in human

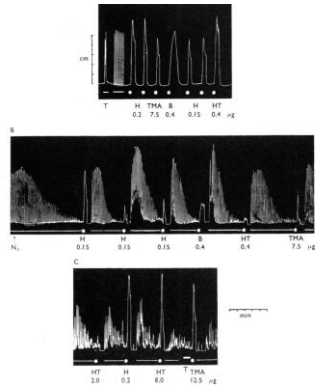
(eg. Dilatation of pupil with Tropicamide)



Demonstration of effects of drugs/interpretation of results in small, animals (optional) as per regulations.

eg. Rabbit eye in animal or CAL





Interpretation of results of a previous tracing ECG, Spirometery , CAL Soft ware Dog BP , Muscle Contraction (Guinea pig ileum)

Pattern of Practical Examination

Total Marks –400 marks

1. **Long Experiment 125 marks**
2. **Short Experiment 75 Marks**

200

3. OSPE 100 marks

4. Viva 100 Marks = (Grand viva(70), + Short presentation (15) + Dissertation(15))

200

Sr No.	Practical Head	Marks	Remarks
1	**LONG EXERCISE**	**125**	**Time 3 hours**
1.1	Protocol synopsis or a section of protocol Designing for a given scenario OR critical assessment/ comments on a given protocol (on any one topic out of suggested list of topics)* or BA/BE study/ clinical trial study report	50	These exercises should be observed, response of the student noted and written answers are assessed. The questions related to these exercises can be asked Time 3 hours
1.2	Prescription Audit (Case Audit) Commenting on a OPD/IPD case papers related to the prescribed therapy Comment on the rationality of the treatment given (Therapeutic problems) / interaction with an actual patient in issues such as counselling on medical adherence, interviewing over a suspected ADR or drug interactions etc	50	
1.3	Critical appraisal of a research article from a journal or Abstract writing of a published paper.	25	

2	**SHORT EXERCISE**	**75**	**Time 1-2 hours**
	Perform bioassay experiment (rat colon, guinea pig ileum or chicken ileum) and to get dose response curves and interpolation, matching or 3 point assay.	75 marks	Time – 2 hours
	OR		
	Interpretation of results of a previous bioassay tracing – Table Exercise OR Perform simulated experiment (CAL software – Effect of drug on Dog BP respiration/Rabbit eye/Bioassay software) OR Demonstration of effects of drugs on animals and instruments used for experimental pharmacology /interpretation of results (graphs/charts) in humans or animals OR Demonstration of short procedures such as giving injection (s.c./i.p.) or feeding small animals like rat/mice	Any three exercises 25 x 3 = 75	Any two exercises Time- 2 hours

3	**OSPE (Objective Structured Practical Examination)**	**100 (10 stations x 10 marks)**	**Type of Station Time 1.5-2 hours**
3.1	Calculating pharmacokinetic parameters or pharmaceutical calculations	10	Unobserved
3.2	Statistical exercise or Pharmacoeconomics exercise	10	Unobserved
3.3	Evaluation of drug promotional literature, package insert	10	Unobserved
3.4	Adverse Drug Reaction (ADR) reporting and causality assessment	10	Unobserved
3.5	Analysis of rational and irrational formulations / Critical appraisal of Fixed Dose combinations	10	Unobserved
3.6	Selecting P drug and writing prescription	10	Unobserved
3.7	Ethics related dilemmas / mistakes in clinical trial documents like Informed consent form, Patient Information sheet. GCP, drug regulations (NDCTR)	10	Unobserved
3.8	Assessment of preclinical toxicity data, concept of EC50, ED50, pA2 values or Analytical instruments or Instruments used for experimental pharmacology research	10	Observed / Unobserved
3.9	Drug Delivery System/Dosage forms	10	Observed / Unobserved
3.10	Exercise on Mannequins routes of drug administration, Basic Cardiac Life Support (BCLS)	10	Observed

4	**VIVA** **Assessment of teaching/presentation skills and knowledge of pharmacology subject**	**100**	**Time 1 hour**
4.1	Microteaching e.g. presentation of UG lecture, OR Writing learning objectives/ making a question paper	15	10 minutes
4.2	Dissertation presentation	15	10-15 minutes
4.3	Grand Viva	70	40 minutes

Practical/clinical examination MD Pharmacology

- Practical examination should be spread over **two** days
- Include various major components of the syllabus focusing mainly on the **psychomotor domain**

MD Pharmacology Practical examination

(As per recent NMC guidelines)

OSPE/OSCE exercises

- 10-15 stations.
- Stations should be mixture of observed (observer present) and unobserved stations


PRACTICAL
EXAMINATION
STATION - 2
PRACTICAL
EXAMINATION
CMDL


ROMA SET
ROUTES OF MEDICATION ADMINISTRATION
DEVICES & TOOLS
COMPETANCY BASED CURRICULUM FOR INDIAN MEDICAL GRADUATE
Developed as per recent guidelines of
MEDICAL COUNCIL OF INDIA
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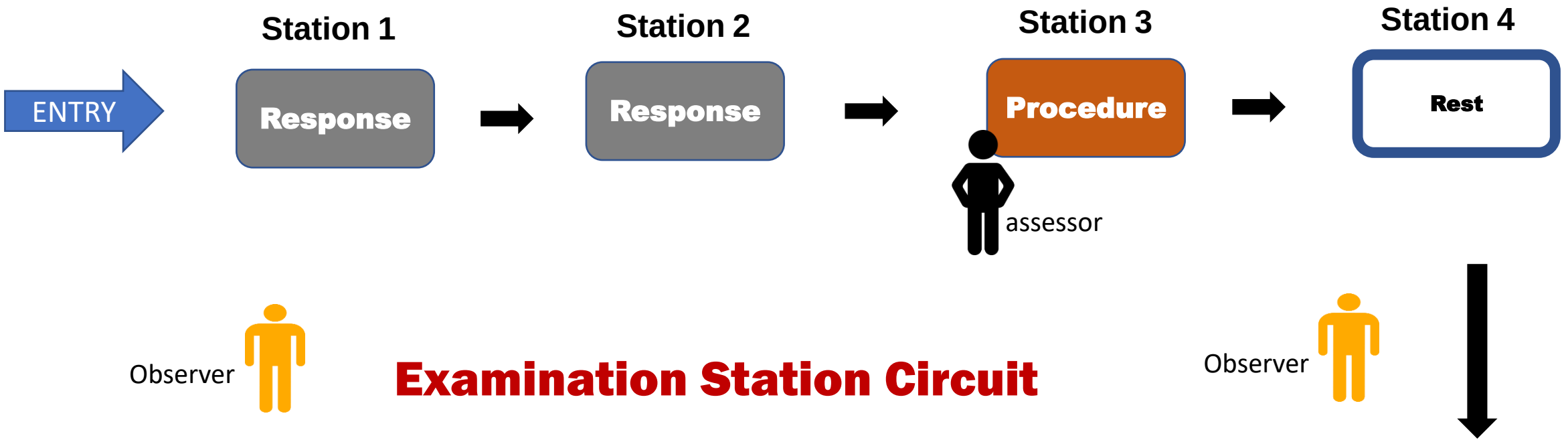
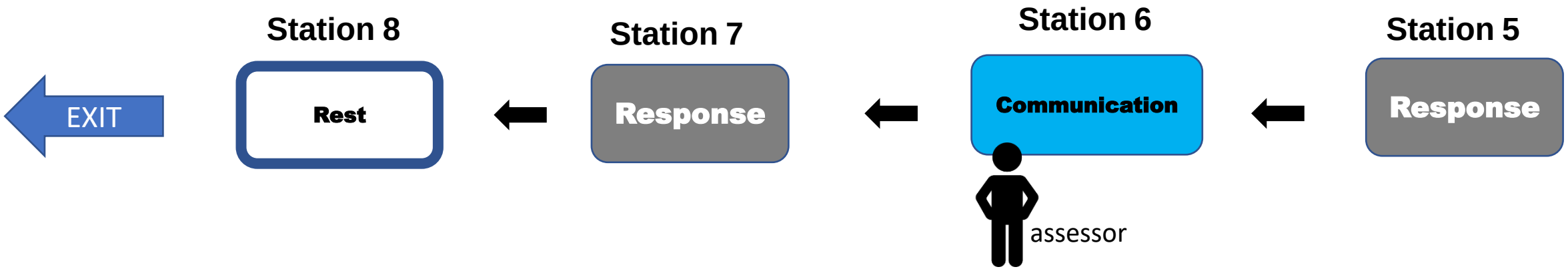


Examination Station Circuit

The Examination stations should be clearly marked in a logical sequence that allows easy, unimpeded transit from one station to the next.



Practical/clinical examination MD Pharmacology

Grand Viva

- Preferably conducted by each examiner separately
- Oral/Viva voce examination on defined areas should be conducted by each examiner separately.
- Should be comprehensive enough to test the postgraduate student’s overall knowledge
- Focusing should be on psychomotor and affective domain.

Practical/clinical examination MD Pharmacology

Assessment of teaching/presentation skills

- Eg. Presentation of a UG lecture, making Question paper, Designing learning objectives
- Discussion on dissertation(Thesis presentation)

MD Pharmacology postgraduates

Heading towards more realistic role of doctors with Pharmacology specialty

Teaching and training in MD pharmacology

Bench to bedside

Assessment methods

Real patients(Hospital setting)

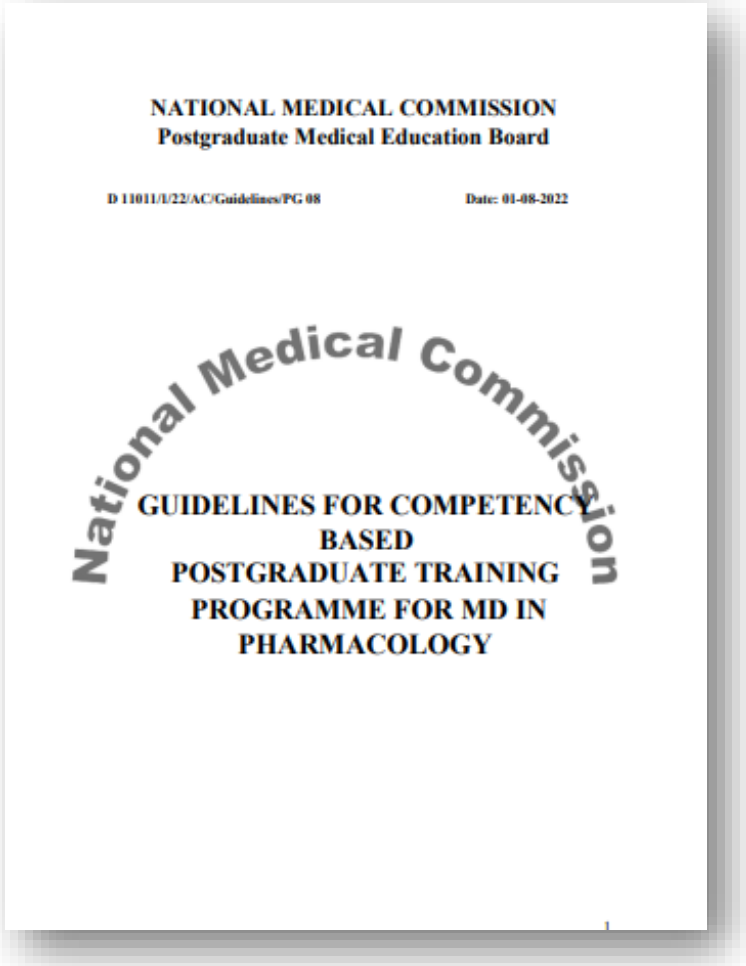
Summary

1. Assessment of Post Graduate is an integral part of PG training and mandatory for the award of MD Pharmacology degree.
2. Summative assessment is done at the end of training after completion of 3 years of PG training. During summative assessment Cognitive, Affective and psychomotor domain are evaluated thoroughly.
3. New guidelines of PG Pharmacology assessment of National Medical Commission has made the assessment of the PG student more realistic for ready to majority of future career aspects.
4. Multiple assessors, multiple tools and multiple assessments improve the validity and reliability of competency based assessment.

Reference

Revised Guidelines for competency based MD in Pharmacology Dated 02/08/2022

Available on www.nmc.org.in


NATIONAL MEDICAL COMMISSION
Postgraduate Medical Education Board

D 11011/1/22/AC/Guidelines/PG 08 Date: 01-08-2022

National Medical Commission

GUIDELINES FOR COMPETENCY BASED POSTGRADUATE TRAINING PROGRAMME FOR MD IN PHARMACOLOGY

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