The West Bengal University of Health Sciences

WBUHS

PHARMACOLOGY LOGBOOK

for

2nd Phase MBBS students

As per competency based curriculum

Objectives of the Logbook

The logbook in individual disciplines is a mandatory component of the revised MBBS curriculum. To maintain uniformity of structure and standards the University provides this structured logbook to all registered students. The logbook may carry 10 marks weightage in the university final examination.

1) The logbook will be a record of the curricular / co-curricular activities of the designated student, who will be responsible for maintaining his / her logbook.

2) The logbook will be used to maintain a record of:
   a. Overall participation & performance in various curricular and co-curricular activities.
   b. Participation in small group discussion sessions.
   c. Participation in practical demonstrations (DOAP sessions), skill lab sessions, adverse drug reaction (ADR) reporting sessions, and other procedural skills training.
   d. Participation in attitude-ethics-communication (AETCOM) sessions.
   e. Self-directed learning undertaken.
   f. Record of completion of other pre-determined activities such as ward rounds under faculty supervision.
   g. Acquisition of certifiable skills (procedural competencies).
   h. Participation in any co-curricular activities with relevance to pharmacology training such as student seminars, poster presentations, real-world patient / caregiver counselling, etc.

3) The student is responsible for getting the entries in the logbook verified and the competencies certified by the faculty in-charge regularly.

4) Entries in the logbook will reflect the activities undertaken both within and outside the department (such as in wards, outdoor clinics, vaccination clinics, etc.) and the competencies acquired and as such will have to be scrutinized and endorsed by the head of the department before presentation to university external examiners during the Final Examination.

5) Even after the Final Examination the logbook will have to be preserved carefully by the student till completion of the entire MBBS course since it may be required for cross-verification later.

Personal details of the student

Name and address of the college

Name of the student

Date of birth

Date of admission to MBBS Course

Date of beginning of the Second Phase

Reg: No. (College ID)

Reg. No. (University ID)

Permanent Address

Present Address

E mail ID: (optional)

Mobile Number: (optional)

Specimen signature

Competencies to be covered through the practical part of the curriculum

PH1.6	Describe principles of pharmacovigilance & adverse drug reaction reporting systems.
PH1.7	Define, identify, and describe the management of adverse drug reaction.
PH1.8	Identify and describe the management of drug interactions.
PH1.9	Describe nomenclature of drugs i.e. generic, branded drugs.
PH1.0	Describe parts of a correct, complete, and legible generic prescription. Identify errors in prescription and correct appropriately.
PH1.12	Calculate the dosage of drugs using appropriate formulae for an individual patient, including children, elderly, and patients with renal dysfunction.
	SKILLS: Clinical Pharmacy
PH2.1	Demonstrate understanding of the use of various dosage forms (oral/local/parenteral; solid/liquid).
PH2.2	Prepare oral rehydration solution from ORS packet and explain its use.
PH2.3	Demonstrate the appropriate setting up of an intravenous drip in a simulated environment.
PH2.4	Demonstrate the correct method of calculation of drug dosage in patients including those used in special situations.
	SKILLS: Clinical Pharmacology
PH3.1	Write a rational, correct, and legible generic prescription for a given condition and communicate the same to the patient.
PH3.2	Perform and interpret a critical appraisal (audit) of a given prescription.
PH3.3	Perform a critical evaluation of the drug promotional literature.
PH3.4	To recognize and report an adverse drug reaction.
PH3.5	To prepare and explain a list of P-drugs for a given case/condition.
PH3.6	Demonstrate how to optimize interaction with pharmaceutical representative to get authentic information on drugs.
PH3.7	Prepare a list of essential medicines for a healthcare facility.
PH3.8	Communicate effectively with a patient on the proper use of prescribed medication.
	SKILLS: Experimental Pharmacology
PH4.1	Administer drugs through various routes in a simulated environment using mannequins.
PH4.2	Demonstrate the effects of drugs on blood pressure (vasopressor and vasodepressors with appropriate blockers) using computer aided learning.
	SKILLS: Communication (Pharmacology)
PH5.1	Communicate with the patient with empathy and ethics on all aspects of drug use.
PH5.2	Communicate with the patient regarding optimal use of a) drug therapy b) devices c) storage of medicines.
PH5.3	Motivate patients with chronic diseases to adhere to the prescribed management.
PH5.4	Explain to the patient the relationship between cost of treatment and patient compliance.
PH5.5	Demonstrate an understanding of the caution in prescribing drugs likely to produce dependence and recommend the line of management.
PH5.6	Demonstrate ability to educate public & patients about various aspects of drug use including drug dependence and OTC drugs.
PH5.7	Demonstrate an understanding of the legal and ethical aspects of prescribing drugs.

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Section 1. Clinical Pharmacy
A. Dosage forms and drug delivery devices

By the end of this module the student must have acquired knowledge and skills pertaining to:

- Medicine label.
- Generic versus branded medicines.
- Enumerating the diversity of dosage forms and drug delivery devices.
- Use of oral solid dosage forms.
- Use of oral liquid dosage forms.
- Use of inhalational drug delivery.
- Use of injections, infusions and implants.
- Use of topical dosage forms.
- Setting up IV infusion.
- Setting up blood transfusion.
- Administration of oxygen.

Carefully remove the label from an expired medicine pack / container of a prescription-only medicine in India and stick it here. Note the various elements in the medicine label.

Compare and contrast Generic versus Branded medicines

Generic medicine	Branded medicine

Enumerate the diversity of dosage forms and drug delivery devices here.

Draw a schematic diagram of a transdermal therapeutic system (transdermal patch).

Note down the steps in use of the following dosage forms

Metered dose inhaler	**Rotahaler®**
Subcutaneous injection	**Intramuscular injection**

Note down the steps in use of the following dosage forms

Intravenous injection	**Intradermal injection**
Eye drop / ointment	**Ear drop**

Note down the steps in use of the following dosage forms

Nasal drop	**Enema**
Rectal suppository	**Vaginal suppository**

Note down the steps and precautions in setting up

Intravenous infusion	**Blood transfusion**

Fill-up the following table on oxygen delivery devices used in your hospital

Mode of O_2 delivery	**Maximum flow rate**	**FiO_2**	**Other notable features**
Nasal cannula / prongs			
Face mask (simple)			
Venturi mask			
NRBM			
(HFNC)			
NIPPV device e.g. BiPAP, CPAP			
Invasive mechanical ventilation (Ventilator)			

NRBM = Non-rebreather mask / HFNC = High flow nasal cannula / NIPPV = Non-invasive positive pressure ventilation / BiPAP = Bilevel positive airway pressure / CPAP = Continuous positive airway pressure

Teacher's signature upon section completion

Section 1. Clinical Pharmacy
B. Preparation and use of Oral Rehydration Solution (ORS)

By the end of this module the student must have acquired knowledge and skills pertaining to:

- Rationale for oral rehydration therapy.
- Composition of ORS with its osmolality.
- Reduced osmolarity ORS.
- Method of preparation using ready-made ORS powder.
- Correct administration of ORS.
- Assessment of dehydration and rehydration.

Write down the composition of World Health Organization (WHO) recommended ORS.

Original formula	Revised formula (Reduced osmolarity ORS)

Mention the purpose of each component of ORS.

Component	Purpose for inclusion

Clinical assessment of dehydration and rehydration in children – list the salient points.

Clinical characteristic	Changes noted in dehydration when it is	
	Mild to Moderate	Severe

Note: Assessment is generally to be repeated every 4 hours.

Write down pointwise the method of preparation of ORS (using readymade ORS powder), appropriate use in children and the counselling that needs to be done for the caregiver

Teacher's signature
upon section completion

Section 1. Clinical Pharmacy
C. Pharmaceutical calculations

By the end of this module the student must have acquired knowledge and skills pertaining to:

- Weights and measures used in compounding and dispensing activity.
- Concentration and dilution of liquids and topical medicaments.
- Stock solutions.
- Dose calculations involving body weight.
- Dose calculations involving body surface area.
- Dose calculation involving parts and proportions.
- Dose calculations involving reconstitution of dry powders.
- Dose calculations involving flow rate of IV preparations.

Weights and measures used in compounding and dispensing activity

Based on discussions held in class fill-up the following tables:

Metric system prefix	Symbol	Multiples of base unit	Mass example	Volume example

Units from other systems used in compounding and dispensing activity	Metric system equivalents

Common household measures	Metric system equivalents

Concentration of liquids and topical medicaments

Based on discussions held in class fill-up the following tables:

Method of expressing concentration	Meaning	Examples
Weight per unit volume		
Weight per given volume		
Percentage concentration w/v		
Percentage concentration v/v		
Percentage concentration w/w		
Ratio or parts		

Dosing of topical medicaments

Based on discussions held in class fill-up the following tables:

Region to be covered	Approximate amount of topical medication required*	Amount in terms of finger tip unit (FTU)
Face and neck		
Trunk (front and back)		
One arm		
One hand		
One leg		
One foot		
Whole body		

* Single light application in adult person

Meaning of FTU	
Examples of medicines whose dose may be expressed in FTU	

Explain the meaning of the following in relation to stock solutions with suitable examples

Stock solution	
Dilution	
Dilution equations	
Alligation	

Dose calculations based on body weight and body surface area

Note down examples discussed in class

Dose calculations related to infusion

$$\text{Infusion rate (drops / min)} = \frac{\text{Volume (mL) X Drop factor (drops / mL)}}{\text{Duration of infusion (min)}}$$

$$\text{Flow rate (mL / h)} = \frac{\text{Dose rate (mg / h or mcg / h)}}{\text{Concentration (mg / mL or mcg / mL)}}$$

Remember the following infusion equations given alongside

Note down examples discussed in class

Teacher's signature
upon section completion

Section 2. Clinical Pharmacology
A. Prescribing and prescription review

By the end of this module the student must have acquired knowledge and skills pertaining to:

- Meaning of prescription, the ideal prescription format, common acceptable abbreviations.
- Do's and don'ts in prescription writing.
- Legal issues in relation to prescribing e.g. prescription of narcotics and other controlled drugs, banned drugs, prescribing for sportspersons.
- Prescribing for commonly encountered clinical situations.
- Prescription review, prescription reconciliation and prescription audit.

Define the term prescription

Write down a simple model prescription in the space below and identify its parts

Note down some common abbreviations used in prescriptions with their meaning

Abbreviation	Meaning

Abbreviation	Meaning

State what are controlled drugs (in Indian context) and provide some examples

State what are banned drugs (in Indian context) and provide some examples of recently banned drugs with reasons for banning

Practice prescriptions

Clinical scenario
Prescription

Clinical scenario
Prescription

Practice prescriptions

Clinical scenario
Prescription

Clinical scenario
Prescription

Practice prescriptions

Clinical scenario
Prescription

Clinical scenario
Prescription

Practice prescriptions

Clinical scenario
Prescription

Clinical scenario
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Practice prescriptions

Clinical scenario
Prescription

Clinical scenario
Prescription

Prescription review

Review (critically evaluate) supplied prescriptions under the following heads

Valid signature and date
Format of the prescription
Choice of individual drugs considering indications and contraindications
Dosing of every individual drug (dosage form, individual dose, route, dosing frequency, duration)
Essential counselling points
Potential drug-drug interactions

Prescription reconciliation

Reconcile (collate into a single unified prescription) supplied prescriptions from multiple sources but intended for the same patient considering the following points

Individual patient characteristics e.g. age, body weight, contraindications
Clinical severity of the individual symptoms / illnesses / disorders – treatment to be prioritized accordingly
Therapeutic goals
Total pill burden
Economic considerations
Availability of caregiver support

Prescription audit

Scrutinize the supplied prescriptions from an auditing point of view. You may look at:

Formatting and legibility
Signature and date
Inappropriate abbreviations
Number of drugs prescribed
Appropriateness of the drugs selected and their dosing regimens (rationality of the prescription)
Extent of use of branded formulations, injections, antibiotics, inappropriate fixed dose combinations
Extent of use of drugs from recommended essential medicine lists
Potential drug-drug interactions
Potential medication errors
Affordability of the selected drugs

You can consider standard set of indicators e.g. World Health Organization-International Network on Rational Use of Drugs (WHO-INRUD) prescribing indicators for prescription auditing.

Teacher's signature upon section completion

Section 2. Clinical Pharmacology
B. Adverse drug reactions and drug interactions

By the end of this module the student must have acquired knowledge and skills pertaining to:

- Meaning of adverse drug reactions (ADRs) and its implications in pharmacotherapy.
- Different types of ADRs with examples, including serious ADRs.
- Pregnancy risk stratification of drugs.
- Meaning of the term pharmacovigilance and various pharmacovigilance strategies.
- Objectives, structure and activities of the pharmacovigilance program of India (PvPI).
- Brief overview of other national adverse event monitoring programs e.g. Herbal pharmacovigilance program, Adverse effects following immunization (AEFI) program, Hemovigilance program of India (HvPI) and Materiovigilance program of India (MvPI).
- Spontaneous reporting of ADRs.
- Basics of causality assessment.
- Meaning of drug-drug interactions and its implications for pharmacotherapy.
- Different types of DDIs with examples.
- Examples of DDI involving modern drugs and herbal medicines.
- Examples of drug-alcohol, drug-smoking, and drug-food interactions.
- Situations that increase risk of ADRs / DDIs like polypharmacy, high alert medication (HAM) and sound alike-look alike (SALA) medication.

Define the terms Adverse Drug Reaction and Drug-drug interaction

ADR	
DDI	

List examples of

Type A ADRs	

Type B ADRs	
Serious ADRs	
Pharmaceutical DDIs	
Pharmacokinetic DDIs	
Pharmacodynamic DDIs	
Herb-drug interactions	
Food-drug interactions	

Note down features of the following causality assessment scale

World Health Organization-Uppsala Monitoring Center causality categories with features

List examples of

High alert medication in the ITU setting	
Sound-alike look-alike medication that you have come across	

Exercises on case scenario based filling up of suspected ADR reporting form

Scenario 1	
Scenario 2	
Scenario 3	
Scenario 4	

Version-1.3

SUSPECTED ADVERSE DRUG REACTION REPORTING FORM

For VOLUNTARY reporting of Adverse Drug Reaction by Healthcare Professionals
INDIAN PHARMACOPOEIA COMMISSION(National Coordination Centre-Pharmacovigilance Programme of India)
Ministry of Health & Family Welfare, Government of India Sector-23, Raj Nagar, Ghaziabad-201002

A. PATIENT INFORMATION

1. Patient Initials _____	2. Age at the time of Event or Date of Birth _____	3. M □ F □ Other □
		4. Weight_____Kgs

Reg. No. /IPD No. /OPD No. /CR No. :

AMC Report No. :

Worldwide Unique No. :

B. SUSPECTED ADVERSE REACTION

5. Event/Reaction start date (dd/mm/yyyy)

6. Event/Reaction stop date (dd/mm/yyyy)

6 (A). Onset Lag Time

7. Describe Event/Reaction with treatment details, if any

12. Relevant tests/ laboratory data with dates

13. Relevant medical/medication history (e.g. allergies, race, pregnancy, smoking, alcohol use, hepatic/renal dysfunction, past surgery etc.)

14. Seriousness of the reaction: No ☐ if Yes ☐(please tick anyone)

☐ Death (dd/mm/yyyy) ☐ Congenital-anomaly
☐ Life threatening ☐ Disability
☐Hospitalization/Prolonged ☐ Other Medically important

15. Outcomes

☐ Recovered ☐ Recovering ☐ Not recovered
☐ Fatal ☐ Recovered with sequelae ☐ Unknown

C. SUSPECTED MEDICATION(S)

S.No	8. Name (Brand/Generic)	Manufacturer (if known)	Batch No. / Lot No.	Exp. Date (if known)	Dose used	Route used	Frequency (OD, BD etc.)	Therapy dates		Indication	Causality Assessment
								Date started	Date stopped		
i											
ii											
iii											
iv*											

S.No as per C	9. Action Taken (please tick)						10. Reaction reappeared after reintroduction (please tick)			
	Drug withdrawn	Dose increased	Dose reduced	Dose not changed	Not applicable	Unknown	Yes	No	Effect unknown	Dose (if reintroduced)
i										
ii										
iii										
iv										

11. Concomitant medical product including self-medication and herbal remedies with therapy dates (Exclude those used to treat reaction)

S.No	Name (Brand/Generic)	Dose used	Route used	Frequency (OD, BD, etc.)	Therapy dates		Indication
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Additional Information:

D. REPORTER DETAILS

16. Name and Professional Address:_____
_____
Pin:_____E-mail_____
Tel. No. (with STD code)_____
Occupation:_____ Signature:_____

17. Date of this report (dd/mm/yyyy):

Sig. and Name of Receiver-

Confidentiality: The patient's identity is held in strict confidence and protected to the fullest extent. Submission of a report does not constitute an admission that medical personnel or manufacturer or the product caused or contributed to the reaction. Submission of an ADR report does not have any legal implication on the reporter.

*use separate page for more information

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*use separate page for more information

Teacher's signature
upon section completion

Section 2. Clinical Pharmacology
C. Drug promotional literature

By the end of this module the student must have acquired knowledge and skills pertaining to:

- Strategies of drug promotion.
- Codes of ethical drug promotion.
- Types of drug promotional literature.
- Critically appraising promotional literature distributed by pharmaceutical companies - responding to text / graphs / statistical data / images / referencing.
- Responding to the individual conveying promotional messages.

List the drug promotional strategies which you can think of

Are you aware of any guidelines or codes for ethical drug promotion?

List the types of drug promotional literature that you have been shown or that which you can think of

State some of the ways that you may be misled through drug promotional literature

Name some impartial sources of drug information

What do you think are the pros and cons of interacting with representatives of pharmaceutical sales personnel (medical representatives)?

Teacher's signature
upon section completion

Section 2. Clinical Pharmacology
D. Rational use of medicines

By the end of this module the student must have acquired knowledge and skills pertaining to:

- Rational use of medicines (RUM) and its three pillars - essential medicines list (EML), formularies, standard treatment guidelines (STG).
- Framing of an EML for a given health facility / healthcare scenario.
- Sources of drug information.
- Extracting information from non-commercial and commercial formularies.
- Basic steps in promulgation of Standard Treatment Guidelines (STG).
- Steps in exercising the P-drug concept.

State the definition of the following terms

Rational use of medicines
Essential medicines list
Formulary
Standard treatment guidelines or protocols

Provide examples of EML that you have come across and identify the factors that determine inclusion of a particular medicine in such a list

Identify 10 to 12 essential medicines that may be required in the following scenarios

A primary health centre in rural area	**A religious mela likely to draw a huge crowd**
A university class field trip into a tropical forest	**Emergency department crash cart**

State some sources of drug information, including examples of formularies

Identify the kind of drug information that may be available from patient package inserts / patient information leaflets and drug formularies

PPI / PIL	**Formulary**

Highlight sequential steps in the development of STGs

Give examples of STGs that you have come across

State what is P-drug concept and highlight sequential steps in the selection of P-drugs

Teacher's signature
upon section completion

Section 3. Experimental Pharmacology
Through computer aided learning (CAL) / Charts

By the end of this module the student must have acquired knowledge and skills pertaining to:

- Interpretation of graphically presented pharmacokinetic information (e.g. plasma concentration time curves).
- Interpretation of graphically presented pharmacodynamic concepts (e.g. log dose response curves).
- Anesthetized cat / dog experiments related to autonomic and cardiovascular pharmacology.
- Isolated tissue experiments related to autonomic, gastrointestinal, and neuromuscular pharmacology.
- Rabbit eye experiments.

If space is inadequate for the following sections affix additional pages

Draw the following graphs / charts (or paste output from computer aided learning experiments) illustrating PK-PD concepts **Date _____**

Plasma concentration time curve for an orally administered drug	**Plasma concentration time curve demonstrating attainment of steady state**
Plasma concentration time curve for an IV drug not showing distribution phase	**Plasma concentration time curve for an IV drug not showing distribution phase**

Dose response curve	**Log dose response curve**
Log dose response curves showing competitive antagonism	**Log dose response curves showing non-competitive antagonism**
Log dose response curves showing potentiation	**Other PK or PD related chart**

Draw the following graphs / charts (or paste output from CAL experiments) illustrating effect of drugs on blood pressure in an anesthetized animal Date _____

Effect of pressor agents
Effect of depressor agents
Effect of a blocker
Dale's vasomotor reversal
Tachyphylaxis
Nicotinic action of acetylcholine

Draw the following graphs / charts (or paste the output from computer aided learning experiments) illustrating effect of drugs in isolated tissue experiments Date _____

Experimental system parameters **Effect noted (graphical)**
Experimental system parameters **Effect noted (graphical)**
Experimental system parameters **Effect noted (graphical)**

Fill-up the following table on the basis of rabbit eye experiments observed Date _____

Eye	Agent	Pupil diameter	Light reflex	Corneal reflex	Intraocular pressure	Other effects (e.g. lacrimation)	Remarks
Test							
Control							
Test							
Control							
Test							
Control							

Teacher's signature
upon section completion

Section 4. Attitude-Ethics-Communication

Date of discussion	**Time spent**
Scenario in brief	
How was it presented? ❒ Role play ❒ Video ❒ Group discussion ❒ Other _____	
What are the attitude and communication issues raised through this scenario?	
What are the ethical dilemmas, if any, raised through this scenario?	
How were issues / dilemmas resolved?	
Were any issues / dilemmas left unresolved and why?	

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upon section completion

Section 5. Self-directed learning

Minimum 12 hours to be spent in SDL activity

Topic
Time spent
Resources used
Salient learning points

Topic
Time spent
Resources used
Salient learning points

Section 5. Self-directed learning

Minimum 12 hours to be spent in SDL activity

Topic
Time spent
Resources used
Salient learning points

Topic
Time spent
Resources used
Salient learning points

Section 5. Self-directed learning

Minimum 12 hours to be spent in SDL activity

Case based learning through ward round / clinic visit	
Ward / Clinic	**Date & time spent**
Clinical case scenario in brief	
Pharmacological treatment offered with therapeutic objectives for the various drugs used	
Any adverse drug reactions noted	
Potential drug-drug interactions	**Potential medication errors**
Any other observations of note	

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Teacher's signature
upon section completion

Certification of attainment of competencies through practical training

Competency addressed	**Type of activity**	**Date done**	**Attempt** First (F) / Repeat (R) / Remedial (R)	**Rating** Below expectation (B) / Meets expectation (M) / Exceeds expectation	**Decision of faculty** Completed (C) / Repeat (R) / Remedial (Re)	**Faculty initials with date**	**Feedback received** Student initials

Certification of attainment of certifiable skills through practical training

SN	Skill	Minimum no. of times to be performed successfully	Date certified	Full signature of faculty certifying	Remarks, if any
1	**Write a rational, correct and legible generic prescription for a given condition and communicate the same to the patient.** (Competency PH 3.1)	**5**			
2	**Perform and interpret a critical appraisal (audit) of a given prescription.** (Competency PH 3.2)	**3**			
3	**Recognize and report an adverse drug reaction.** (Competency PH 3.4)	**3**			
4	**Prepare a list of essential medicines for a healthcare facility.** (Competency PH 3.7)	**3**			

Record of other co-curricular activities

SN	Activity e.g. Seminar / Symposia, Conference / Integrated lecture series / Workshop	Dates	Initials of student	Initials of faculty	Remarks, if any
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

LOGBOOK CERTIFICATE

This is to certify that the candidate Mr. / Ms. _____

bearing University Reg. No. _____, admitted to _____

_____ (college)

in the year _____ has satisfactorily completed / not yet completed all assignments / requirements mentioned in this logbook for second phase MBBS course in the subject of Pharmacology / AETCOM during the period from _____ to _____ and he / she is **ELIGIBLE** / **NOT ELIGIBLE** to appear for the summative (University) examination as on date given below.

Signature of Faculty wit date

Name and designation

Countersigned by Head of the Department with date

Name and seal

Signature of Principal / Dean of the College with date

Name and seal