



**DEPARTMENT OF MEDICAL EDUCATION
COLLEGE OF MEDICINE & DENTISTRY AT THE HILLS
ABBOTTABAD**

Case-Based Learning (CBL) Guidebook 3rd & 4th Year

2025-26

Year

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Department of Medical Education				
Case-Based Learning (CBL) Guidebook				
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ENDORSED BY:				

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1.0 Introduction: Transitioning to Case-Based Learning (CBL)

This section explains the shift from PBL to CBL, highlighting its focus on applying clinical knowledge for diagnosis and management, moving from discovery to decision-making.

What is Case-Based Learning (CBL)?

Welcome to the clinical years! Case-Based Learning (CBL) is the evolution of the PBL skills you mastered in your pre-clinical years. While PBL was about *discovering* basic science principles, CBL is about *applying* your integrated knowledge to diagnose and manage complex clinical cases. You will be presented with detailed, real-world patient cases and will work in small groups to develop clinical reasoning, diagnostic skills, and evidence-based management plans.

How is CBL Different from PBL?

Feature	PBL (Years 1-2)	CBL (Years 3-4)
Focus	Discovering basic science concepts.	Applying knowledge to clinical decision-making.
Case Start	Often a vague, initial presentation.	A more detailed clinical presentation, often with initial data.
Process	Open-ended inquiry (7-Step Method).	Structured clinical reasoning (e.g., VINDICATE, SOAP).
Goal	Formulate Learning Objectives (LOs) for self-study.	Formulate a Differential Diagnosis and Management Plan.
Tutor Role	Pure facilitator of process.	Clinical expert who guides and validates clinical reasoning.

2.0 The CBL Process: The Clinical Reasoning Cycle

This outlines the step-by-step cycle your group will follow during a CBL session, mirroring the actual workflow of a clinical encounter.

The CBL Session Flow

1. **Case Presentation:** The tutor provides the case history, vital signs, and initial physical exam findings.
2. **Problem Identification & Hypothesis Generation:** Identify key clinical features and generate initial differential diagnoses.
3. **Investigation & Analysis:** Decide which diagnostic tests are needed and interpret the results provided by the tutor.
4. **Diagnosis & Management Planning:** Synthesize the information to reach a final diagnosis and create a comprehensive treatment plan.
5. **Synthesis & Reflection:** Discuss the case takeaways, including prevention, patient education, and ethical considerations.

3.0 Roles and Responsibilities in CBL

Clearly defines what is expected from you as a student and from your tutor in the CBL environment to ensure productive sessions.

Table 3.1: The Student's Role in CBL

Your Duty	What It Looks Like in Practice
Clinical Reasoner	Use frameworks like VINDICATE to generate differentials. Justify your choices based on pathophysiology.
Investigator	Suggest relevant labs, imaging, and other tests. Interpret the results when they are "released" by the tutor.
Manager	Develop a treatment plan including pharmacology, non-pharmacological interventions, and follow-up.
Collaborator	Engage in debate about diagnosis and management. Respectfully challenge peers' reasoning with evidence.

Table 3.2: The Tutor's Role in CBL

Tutor's Duty	What It Looks Like in Practice
Clinical Coach	Models expert clinical reasoning. Asks: "What is the most likely diagnosis and why?" "What is the most urgent step?"
Information Gatekeeper	Controls the flow of case information, providing new data (e.g., lab results, imaging) only when the group requests it appropriately.
Reality Check	Ensures the group's diagnostic and management plans are practical, safe, and aligned with current clinical guidelines.
Feedback Provider	Gives specific feedback on the quality of the differential diagnosis, the appropriateness of investigations, and the management plan.

4.0 Essential Clinical Reasoning Frameworks

Introduces key diagnostic and clinical note-taking tools like VINDICATE and SOAP that you must use to structure your clinical thinking.

Table 4.1: The VINDICATE Mnemonic for Differential Diagnosis

Letter	Category	Examples for "Chest Pain"
V	Vascular	Myocardial Infarction, Pulmonary Embolism, Aortic Dissection
I	Inflammatory/Infectious	Pericarditis, Pneumonia, Pleuritis
N	Neoplastic	Lung cancer, Mediastinal tumors
D	Degenerative/Drugs	GERD (degenerative sphincter), Cocaine-induced chest pain
I	Idiopathic/Iatrogenic	Spontaneous Pneumothorax
C	Congenital	Aortic Stenosis, Hypertrophic Cardiomyopathy
A	Autoimmune/Allergic	Rheumatoid lung disease, SLE pericarditis
T	Traumatic/Toxic	Rib fracture, Cardiac contusion
E	Endocrine/Metabolic	Thyrotoxicosis (can cause tachyarrhythmias)

Table 4.2: The SOAP Framework for Clinical Notes

Component	Description	Example Snippet
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S (Subjective)	Patient's history, symptoms, and concerns.	"55yo M with crushing substernal chest pain radiating to left arm, associated with nausea and diaphoresis."
O (Objective)	Measurable data: Vital signs, physical exam, labs, imaging.	"BP 90/60, HR 110. ECG: ST-elevation in anterior leads. Troponin: Elevated."
A (Assessment)	Your diagnosis/differential diagnosis.	"Assessment: Acute Anterior ST-Elevation Myocardial Infarction (STEMI)."
P (Plan)	Diagnostic and therapeutic steps.	"Plan: 1. Activate Cath Lab. 2. Aspirin 325mg chewed. 3. Nitroglycerin SL..."

5.0 CBL Cases for Year 3 & 4 Curriculum

Provides a mapped list of the cases you will encounter, showing how they align with your clinical rotations and what each case aims to teach.

Table 5.1: Year 3 CBL Case Distribution

Block	Module	CBL Case Title	Clinical Focus & Key Tasks
G	Infection & Inflammation-II	The Feverish Traveler	A patient returns from abroad with fever and rash. Focus on taking a travel history, generating a differential for fever, and selecting appropriate microbiological tests.
H	Blood & Immunology-II	The Bruised Elderly Woman	An elderly woman presents with easy bruising and petechiae. Focus on interpreting a coagulopathy panel (PT/aPTT/Platelets), diagnosing ITP vs. DIC, and managing low platelets.
H	MSK-II	The Aching Joints	A young woman with morning stiffness and swollen, painful small joints of the hands. Focus on diagnosing inflammatory vs. non-inflammatory arthritis and initial workup for Rheumatoid Arthritis.
I	CVS-II	The Hypertensive Emergency	A patient with known hypertension presents with severe headache and blurred vision. Focus on diagnosing hypertensive emergency, calculating MAP, and selecting appropriate IV antihypertensive agents.
I	RES-II	The COPD Exacerbation	A long-term smoker with COPD presents with increased shortness of breath and sputum production. Focus on diagnosing an exacerbation, interpreting ABG, and managing with bronchodilators and steroids.

Table 5.2: Year 4 CBL Case Distribution

Block	Module	CBL Case Title	Clinical Focus & Key Tasks
J	Neurosciences-II	The Sudden Weakness	A patient presents with acute-onset left-sided weakness and slurred speech. Focus on localizing the CNS lesion (UMN signs), diagnosing an acute CVA, and interpreting a CT head.
K	GIT & Hepatobiliary-II	The Jaundiced Patient	A patient with yellow eyes and dark urine. Focus on differentiating pre-hepatic, hepatic, and post-hepatic jaundice using LFTs, diagnosing viral hepatitis, and managing cirrhosis complications.
L	Endo & Repro-II	The Diabetic Foot	A diabetic patient presents with a non-healing ulcer on the foot. Focus on the pathophysiology of diabetic foot, classifying the ulcer, selecting antibiotics, and understanding multidisciplinary care.
M1	ENT	The Hoarse Voice	A patient with a persistent hoarse voice and history of smoking. Focus on the differential for hoarseness, understanding indications for laryngoscopy, and discussing laryngeal cancer.
M2	EYE	The Red Eye	A patient presents with a painful red eye. Focus on differentiating between conjunctivitis, keratitis, acute angle-closure glaucoma, and uveitis based on history and examination findings.

6.0 Assessment in CBL

Details how you will be formatively assessed on your clinical reasoning, diagnostic planning, and teamwork during CBL sessions.

You will be assessed on your clinical reasoning and professional contributions.

Table 6.1: CBL Assessment Rubric

Criterion	Excellent (4)	Proficient (3)	Developing (2)	Unsatisfactory (1)
Clinical Reasoning	Generates a broad, prioritized differential using frameworks. Pathophysiology is expertly applied.	Differential is appropriate and logical. Explains reasoning clearly.	Differential is narrow or illogical. Struggles to justify choices.	Fails to generate a coherent differential diagnosis.
Diagnostic Planning	Selects highly relevant, cost-effective	Orders appropriate key tests and	Sends irrelevant tests or	Unable to suggest or

	investigations and interprets complex results correctly.	interprets standard results.	misinterprets findings.	interpret basic investigations.
Management Plan	Creates a comprehensive, evidence-based plan addressing acute & chronic care, including follow-up.	Plan addresses the primary diagnosis appropriately.	Plan is incomplete or has significant errors.	Fails to propose a viable management plan.
Collaboration & Insight	Actively listens, builds on others' ideas, and introduces high-level insights (e.g., ethics, cost).	Communicates and collaborates effectively.	Participation is minimal or disruptive. Lacks insight.	Passive or disrespectful. No meaningful contribution.

7.0 Templates for Your CBL Session

Provides ready-to-use tables for structuring your group's discussion (whiteboard) and for your personal reflection and learning (case log).

Template 7.1: CBL Whiteboard Template

Use this to structure your group's discussion.

CBL Session Component	Your Group's Notes
Case Title	
1. Summary of Presentation	<i>Briefly summarize the case in your own words.</i>
2. Key Clinical Features	<i>List the most important subjective and objective findings.</i>
3. Differential Diagnosis (VINDICATE)	<ul style="list-style-type: none">• V:• I:• N:...etc.
4. Investigations Needed	<ul style="list-style-type: none">• <i>Labs:</i>• <i>Imaging:</i>• <i>Other:</i>
5. Assessment & Plan (SOAP)	<p>A (Assessment): [Your leading diagnosis]</p> <p>P (Plan):</p> <ul style="list-style-type: none">• Diagnostic:• Therapeutic:• Patient Education:

Template 7.2: Individual Case Log & Reflection

A personal log to complete after each case to consolidate learning and identify areas for self-study.

Complete this after each CBL session for your portfolio.

Reflection Log	Your Notes
Case Title	
Final Diagnosis	
Key Learning Points	<ul style="list-style-type: none">• Pathophysiology:• Diagnostic Pearl:• Management Principle:
Clinical Pearl	One memorable takeaway from this case.
Areas for Self-Study	What topics do I need to review based on this case?

8.0 A Complete CBL Session Walkthrough: "The Hypertensive Emergency"

A step-by-step example demonstrating how a typical CBL session unfolds, from case presentation to final synthesis and reflection.

Case Trigger for CBL Session:

Mr. Ahmed, a 58-year-old man with a history of poorly controlled hypertension, is brought to the ER by his family. He complains of a severe, throbbing headache for the last 3 hours, associated with blurred vision and nausea. He has not taken his medications for a week.

On examination: BP 220/120 mmHg, HR 110 bpm, RR 22. Fundoscopy reveals arteriovenous nicking and papilledema. Neurological exam is non-focal.

CBL Session Progression:

Session Phase	Group Discussion & Tutor Interaction
1. Problem Identification	Group: "Key features: Severe HTN, headache, visual disturbances, papilledema. This is not just uncontrolled hypertension; this is a hypertensive emergency because there is end-organ damage (the eyes/brain)."
2. Hypothesis Generation	Group uses VINDICATE: <ul style="list-style-type: none">• V: Hypertensive Emergency.• I: Meningitis/Encephalitis (less likely without fever).• N: Space-occupying lesion (but non-focal exam). Leading Hypothesis: Hypertensive Emergency.
3. Investigation & Analysis	Group: "We need an ECG, troponin, BUN/Creatinine, and a urinalysis to check for other end-organ damage (heart, kidneys). A CT head is needed to rule out hemorrhage." Tutor (releases data): "ECG shows LVH. Troponin is normal. Creatinine is elevated at 2.0 mg/dL. CT head shows no hemorrhage."
4. Diagnosis & Management	Group (creates Plan): A: Hypertensive Emergency with Hypertensive Encephalopathy and Acute Kidney Injury. P: <ul style="list-style-type: none">• Therapeutic: Admit to ICU. Start IV Labetalol or Nicardipine drip. Goal: Reduce MAP by 20-25% in the first hour.• Diagnostic: Monitor BP every 5 mins. Repeat renal function tests.• Education: Discuss critical importance of medication adherence.
5. Synthesis & Reflection	Tutor: "Excellent. You correctly identified the emergency, targeted your workup, and chose an appropriate initial therapy. Remember, you must lower the pressure <i>gradually</i> ; too fast can cause watershed infarcts."

This guidebook provides the structure and tools you need to excel in CBL. Embrace the role of a clinical reasoner, engage deeply with your peers, and prepare to bridge the gap between knowledge and practice.

We wish you the best of luck in your PBL journey at CMDH!