



COMPETENCY BASED EDUCATION



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FIRST OF ALL

Define: Competence ... Competency

- **Competence**: broad, general attributes of a good doctor
- **Competency** : the ability to do something successfully

TRADITIONAL EDUCATION... OBE



Design a curriculum

Teaching methods

Assessment of learners



- A way of designing, developing, delivering and documenting instruction in terms of its intended goals and outcomes,
- **Exit outcomes** are a critical factor in designing the curriculum

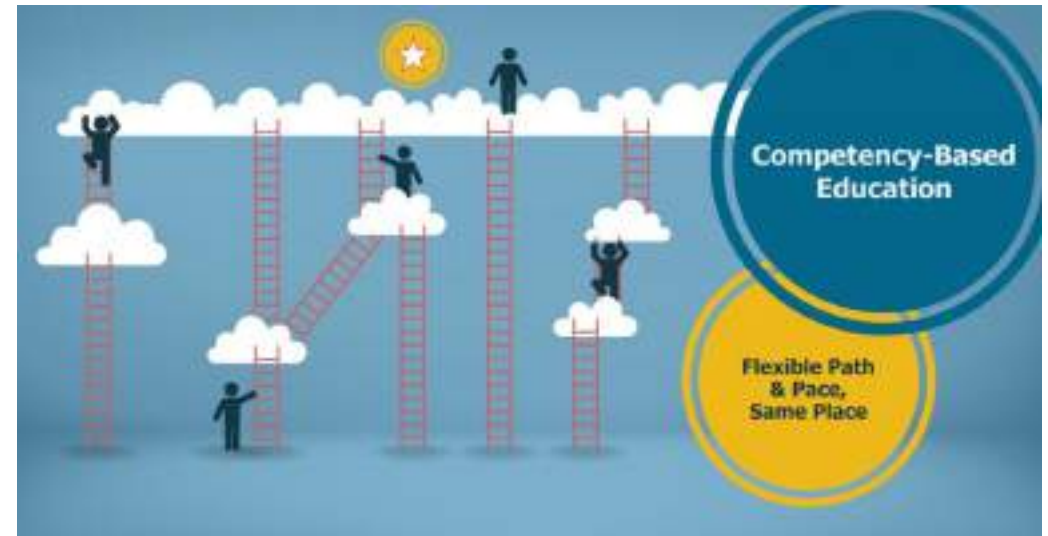
Results-orientated Thinking

A performance-based approach at the cutting edge of curriculum development and offers a powerful way of changing and managing medical education

CBE

- An approach to preparing physicians for practice that is fundamentally orientated to graduate outcome abilities and organised around competencies derived from an analysis of societal and patient needs.

It de-emphasises time-based training and promises a greater accountability, flexibility, and learner centeredness



WHY OBE / CBE

- 1- Education for capability**
- 2- Necessary given the rapid advances in medicine**
- 3- Ensures consideration is given to important topics that otherwise might be neglected**
- 4- Emphasises accountability, quality and transparency in medical education**
- 5- Empowers students and points them in the right direction**
- 6- Ensures that the assessment is more valid**
- 7- Provides continuity across the continuum of medical education**
- 8- Flags up problems in the curriculum**
- 9- facilitates mobility of doctors and enables curricula in different countries to be compared**

Important Topics That Otherwise Might Be Neglected:

- Communication Skills,
- Attitudes And Professionalism,
- Health Promotion,
- Management Of Errors.
- Clinical Reasoning, Decision Making,
- Self-assessment,
- Quality And Safety Improvement Skills,
- Interprofessional Teamwork,
- Creativity,
- Patient Safety And Social Responsibility

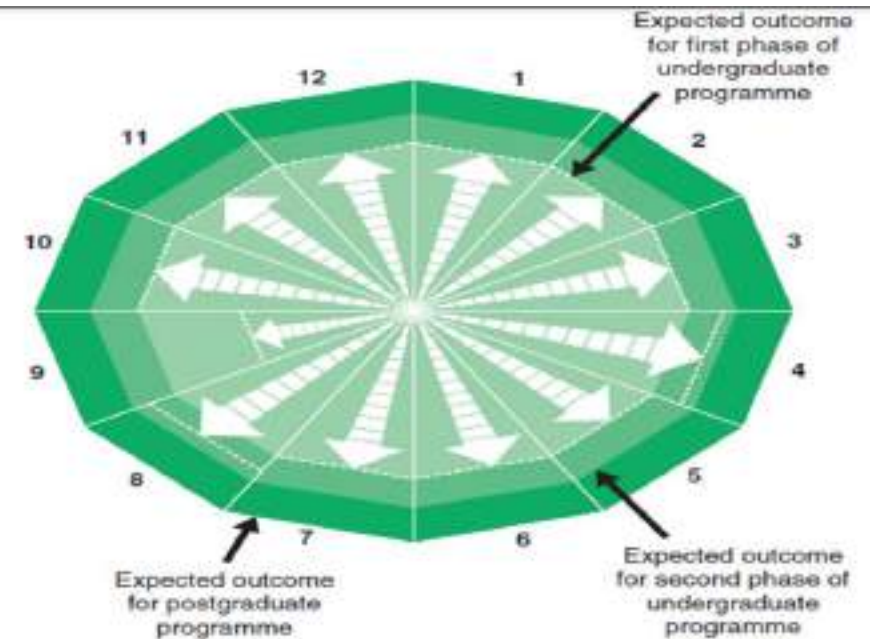


Fig. 15.2 A representation of progress by a first-phase student in relation to each of 12 learning outcome domains. The expected progress for each outcome is indicated by the inner target for the first phase of the programme, by the middle target for the second phase of the curriculum and by the outer target for postgraduate training. (with permission from Harden RM: Learning outcomes as a tool to assess progression, *Medical Teacher* 29(7):678–682, 2007)

IMPLEMENTATION OF CBE

- **Plz Mention one Myth you assume for CBE**



MYTHS IN IMPLEMENTATION OF CBE

- 1- **OBE**: It is concerned with details & big picture is missing
- 2- **OBE**: It stifles instructor creativity / autonomy / independence “attempt to eventually phase out instructors”
- 3- **OBE**: It is contrary to trends in medical education
- 4- It works well only with better students
- 5- It is mechanical & students don't like it
- 6- May not apply to all programs, when it come to real life
- 7- It is not any different from what good instructor have been doing for years & years
- 8- I already had a program that is running smoothly & all gets graduated at the end

An Outcome / Competency Framework

Competency frameworks usually read as logical sets of general qualities that every medical specialist/ graduate in other words, every doctor—should acquire. They have been reviewed for their relevance and comprehensiveness.

If one doesn't know where one is going, how can one decide how to get there?

A Competency Based Program includes

There are two requirements for OBE. The first is that learning outcomes are clearly defined and presented. **The second** is that decisions relating to the curriculum are based on the learning outcomes specified.

- Defining program outcomes expected competencies of graduates.
- Through a curriculum planning :
 - Providing relevant learning opportunities that allows for the development competencies.
 - Assessment for competences.
- **Role of teachers:**
 - 1- Guide students
 - 2- Answer questions
 - 3- Lead discussions
 - 4- Help them to synthesize and apply knowledge

WHO IS RESPONSIBLE?

- The Royal College of Physicians and Surgeons of Canada (RCPSC),
- The Accreditation Council for Graduate Medical Education (ACGME) in the United States,
- The General Medical Council (GMC) in the United Kingdom,
- The Central College of Medical Specialties in The Netherlands

Phase of education	Responsibility in USA
Learning outcomes for continuing professional development	ACCME
Learning outcomes for postgraduate education <ul style="list-style-type: none">• Specialist training outcomes• General training outcomes	ACGME
Learning outcomes for undergraduate education <ul style="list-style-type: none">• Phase outcomes• Course outcomes• Lesson outcomes	LCME
Learning outcomes for pre-medical training	Regional University



Criteria For An Outcome / Competency Framework

1. The framework is clear, unambiguous and intuitive to the users.
2. It reflects accepted and defined areas of competence.
3. The vision and mission of the programme are reflected in the domains chosen.
4. It is manageable in terms of the number of outcome domains (usually 6–12).
5. It supports the development of enabling outcomes in each of the domains.
6. The relationship between different outcomes is indicated.

NARS 2017/ Undergraduates' Medical Program

I-The graduate as a health care provider

II-The graduate as a health promoter

III-The graduate as a professional

IV-The graduate as a scholar and scientist

V-The graduate as a member of the health team and part of the health care System

VI-The graduate as a lifelong learner and researcher

Specific Enabling Competencies

Competency I 17 enabling / key competencies

Competency II 9 enabling / key competencies

Competency III 9 enabling / key competencies

Competency IV 8 enabling / key competencies

Competency V 12 enabling / key competencies

Competency VI 10 enabling / key competencies

Competency Area I: The graduate as a health care provider The graduate should provide quality, safe, patient-centered care, drawing upon his/her integrated knowledge and clinical skills, and adhering to professional values. The graduate should collect and interpret information, make clinical decisions, and carry out diagnostic and therapeutic interventions - with an understanding of the limits of his/her expertise- considering the patient's circumstances and preferences as well as the availability of resources.

The graduate should be able to:

Keys of Competency Area I	
<p>1.1 Take and record a structured, patient centered history.</p> <p>1.2 Adopt an empathic and holistic approach to the patients and their problems.</p> <p>1.3 Assess the mental state of the patient</p> <p>1.4 Perform appropriately-timed full physical examination of patients, appropriate to the age, gender, and clinical presentation of the patient while being culturally sensitive.</p> <p>1.5 Prioritize issues to be addressed in a patient encounter.</p> <p>1.6 Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors.</p> <p>1.7 Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice.</p> <p>1.8 Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at hand.</p> <p>1.9 Retrieve, analyze, and evaluate relevant and current data from literature, using information technologies and library resources, in order to help solve a clinical problem based on evidence (EBM)</p> <p>1.10 Integrate the results of history, physical examination and laboratory test findings into a meaningful diagnostic formulation</p>	<p>1.11 Perform diagnostic and intervention procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances.</p> <p>1.12 Adopt strategies and apply measures that promote patient safety</p> <p>1.13 Establish patient-centered management plans in partnership with the patient, his/her family and other health professionals as appropriate, using Evidence Based Medicine in management decisions.</p> <p>1.14 Respect patients' rights and involve them and /or their families / careers in management decisions.</p> <p>1.15 Provide the appropriate care in cases of emergency, including cardio-pulmonary resuscitation, immediate life support measures and basic first aid procedures</p> <p>1.16 Apply the appropriate pharmacological and <u>nonpharmacological</u> approaches to alleviate pain and provide palliative care for seriously ill people, aiming to relieve their suffering and improve their quality of life.</p> <p>1.17 Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification.</p>

IMPLEMENTATION OF CBE

Learning outcomes and competencies describe the attributes and the abilities of the student or doctor



Ostrich



Peacock



Beaver





Ensure that staff are familiar with and receptive to the introduction of an outcome-based approach.

- Staff may be unfamiliar with the approach and a staff development programme is essential.
- Demonstrate to staff and students the advantages of implementing an outcome-based approach.
- Discuss with staff what they expect of a graduate of the school.
- Empower staff by giving them some responsibility and autonomy within the programme.
- Encourage staff to work as members of a team.

IMPLEMENTATION OF CBE

- **Miles stones:** may be specified for each stage of the education programme.

These are defined observable indicators of the individual's progress for their development.

Students' achievements of the learning outcomes can be used to monitor and plan for their progression through the curriculum. Mastery of an outcome to a specified standard may be a requirement before the student is allowed to progress

from one part to the next.

PC1. History (appropriate for age and impairment)				
Level 1	Level 2	Level 3	Level 4	Level 5
Acquires a general medical history	Acquires a basic psychiatric history including medical, functional, and psychosocial elements	Acquires a comprehensive psychiatric history integrating medical, functional, and psychosocial elements Seeks and obtains data from secondary sources when needed	Efficiently acquires and presents a relevant history in a prioritized and hypothesis driven fashion across a wide spectrum of ages and impairments Elicits subtleties and information that may not be readily volunteered by the patient	Gathers and synthesizes information in a highly efficient manner Rapidly focuses on presenting problem, and elicits key information in a prioritized fashion Models the gathering of subtle and difficult information from the patient

Fig. 15.5 Example template for the creation of the ACGME specialty milestones describing five developmental stages for postgraduate training programmes. (with permission from ACGME)

Continuous Learning and Quality Improvement

Graduates will:			Phase 1 Benchmark	Phase 2 Benchmark	Phase 3 Benchmark	Aspirational behavior
CLQI - 4	Demonstrate quality improvement knowledge and skill.	Lacks knowledge regarding quality improvement in the healthcare setting.	Demonstrates knowledge of how health systems produce variable quality of care and how quality improvement activities are used to improve care.	Demonstrates quality improvement knowledge and skill through application of this knowledge to simple clinical settings.	Demonstrates quality improvement knowledge and skill through application of this knowledge to complex clinical settings.	Leads or takes ownership of a quality improvement project.

IMPLEMENTATION OF CBE

Entrustable Professional Activities (EPA): introduced in 2005 by Olle ten Cate

- It represents a unit of work / unit of professional practice that can be entrusted to a sufficiently competent learner or professional

Ex. Providing preoperative assessment,

Conducting a risk assessment

Relationship between an EPA And Learner Outcomes and Competencies

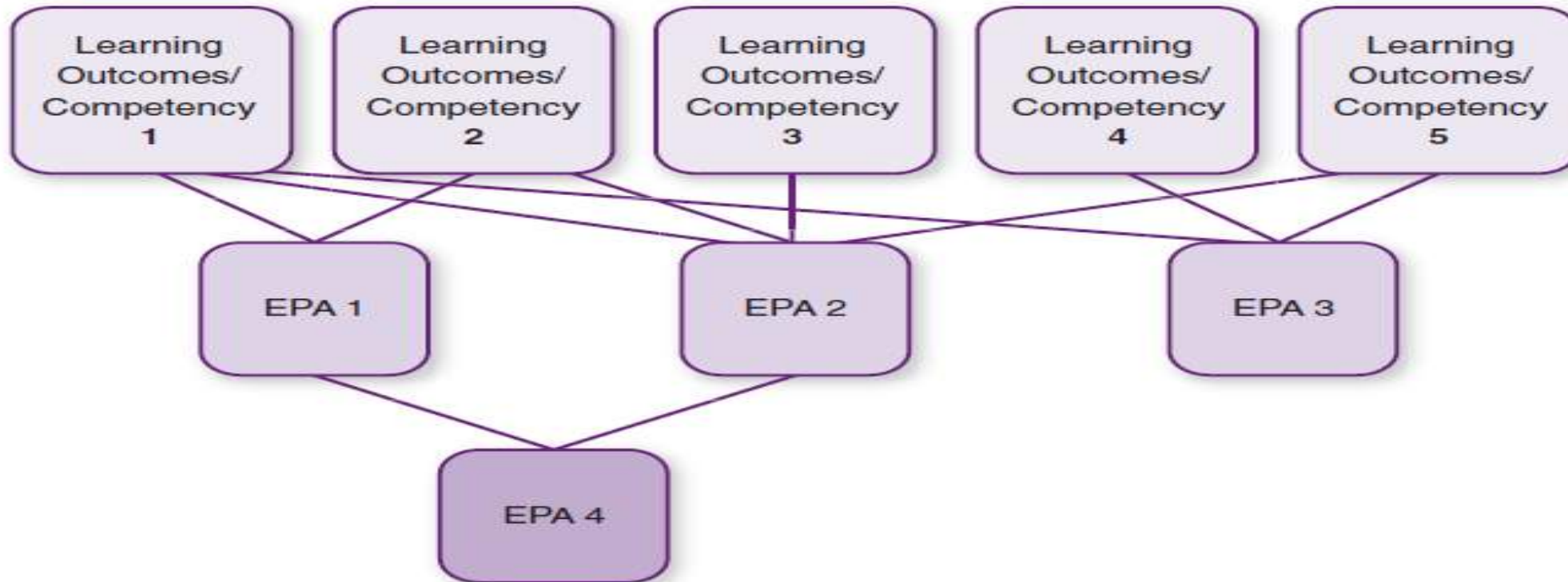


Figure 8.2 Each EPA requires a number of learning outcomes or competencies. Smaller EPAs may be nested in a broader EPA

EPA: Taking and Recording a Patient's History'


Requires mastery of outcomes from at least five Domains:

- | | |
|--|------------|
| 1- Clinical skills | I |
| 2 - Communication skills | V |
| 3- Information handling skills | VI |
| 4- An understanding of clinical medicine | IV |
| 5- Attitudes and professionalism | III |

Relationship between an EPA And Learner Outcomes and Competencies

	EPA I	EPA2	EPA3	EPA4
Competency I	X	X	X	
Competency II		X		X
Competency III			X	
Competency IV	X	X		X
Competency V				
Competency VI			X	X

- Competencies should be related to the professional environment in which they must be demonstrated.
- In the clinical clerkships, medical students may reach levels of competence that may be sufficient to execute well-defined, limited activities independently

- 
- EPAs have become increasingly popular among a number of specialties in a number of countries as an approach to define more holistic outcomes for training programmes, **using milestones as ‘building blocks’ to create EPAs that define the core activities of a specialty.**
 - Both milestones and EPAs can guide both assessment programmes and curriculum

EPA: Taking and Recording a Patient's History'

Requires mastery of outcomes from at least five Domains:

- 1- Clinical skills I
- 2 - Communication skills V
- 3- Information handling skills VI
- 4- An understanding of clinical medicine IV
- 5- Attitudes and professionalism III

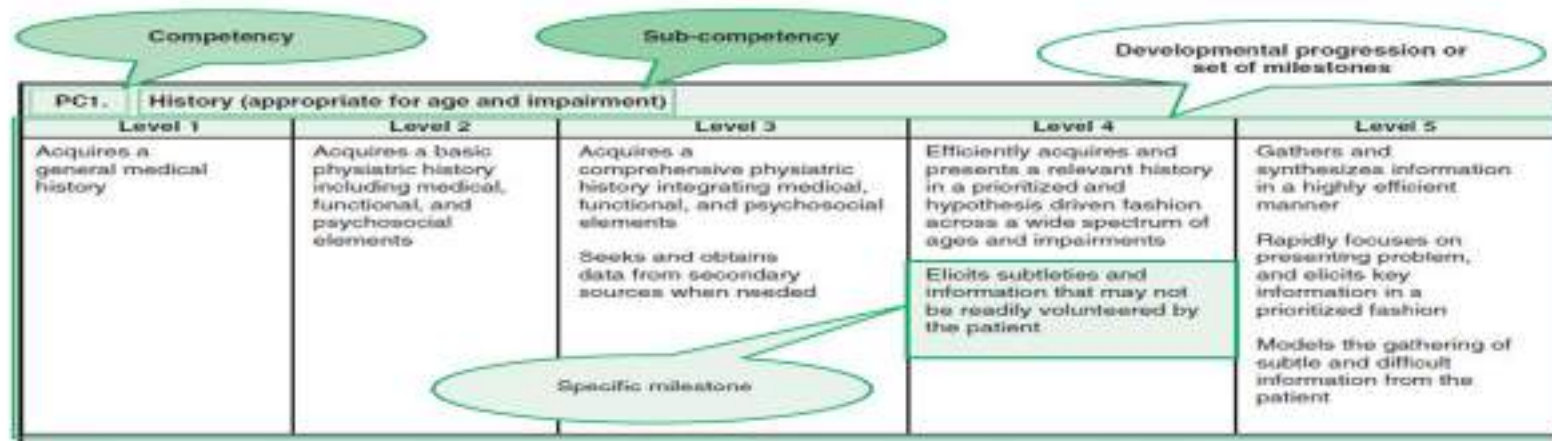


Fig. 15.5 Example template for the creation of the ACGME specialty milestones describing five developmental stages for postgraduate training programmes. (with permission from ACGME)

EPA

- EPAs are critical activities in a medical discipline that, according to opinion leaders in the field, must be assessed and approved of at some point during program. To be precise, EPAs have been specified with a number of conditions to be met, to demarcate them from daily activities that do not require specialist training

Conditions of Entrustable Professional Activities:

1. Is part of essential professional work in a given context.
2. Must require adequate knowledge, skill, and attitude.
3. Must lead to recognized output of professional labor.
4. Should be confined to qualified personnel.
5. Should be independently executable.
6. Should be executable within a time frame.
7. Should be observable and measurable in its process and outcome (well done or not well done).
8. Should reflect one or more competencies.

EPAs and specification of the level of supervision

1. Perform under direct supervision with the supervisor present
2. Perform under indirect supervision with the supervisor not in the same room but immediately available
3. Perform with the supervisor available at a distance
4. Perform with no supervisor → **A statement of awarded responsibility (STAR)**

Netherlands, The postgraduate curriculum acknowledges five levels of proficiency:

- (1) has knowledge,
- (2) may act under full supervision,
- (3) may act under moderate supervision,
- (4) may act independently, STAR**
- (5) may act as a supervisor and instructor

FOR UNDERGRADUATE MEDICAL PROGRAM....

- **Plz Mention one EPA you assume essential for students upon graduation in Our Medical program**



IMPLEMENTATION OF CBE

Entrustable Professional Activities (EPA):

The EPA should be sufficiently large

Measuring the blood pressure
Taking history from a patient



Routine checkup of a stable adult
Managing a clinical ward

FOR UNDERGRADUATE MEDICAL PROGRAM....

APPENDIX 1

ENTRUSTABLE PROFESSIONAL ACTIVITIES (EPAS) FOR UNDERGRADUATE MEDICAL EDUCATION AS SPECIFIED BY THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES (AAMC) (Greenberg, R., 2014. Core Entrustable Professional Activities for entering residency. <https://www.aamc.org/cepaer>)

1. Gather a history and perform a physical examination
2. Prioritise a differential diagnosis following a clinical encounter
3. Recommend and interpret common diagnostic and screening tests
4. Enter and discuss orders and prescriptions
5. Document a clinical encounter in the patient record
6. Provide an oral presentation of a clinical encounter
7. Form clinical questions and retrieve evidence to advance patient care
8. Give or receive a patient handover to transition care responsibility
9. Collaborate as a member of an interprofessional team
10. Recognise a patient requiring urgent or emergent care and initiate evaluation and management
11. Obtain informed consent for tests and/or procedures
12. Perform general procedures of a physician
13. Identify system failures and contribute to a culture of safety and improvement



■ What do our Assessor NEED?



STEPS FOR NARS IMPLEMENTATION

- 1- Match NARS with Program ILOs,,,,, **Adopt NARS 2017 as your Institutional Program**
- 2- Map Key competencies to courses
- 3- Define Milestones
- 4- Match Program ILOs to courses ILOs,
- 5- Identify teaching and assessment method to each competency

2

Key Comp.	Competency area 2 The graduate as a health promoter									professional
	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	
Course 2	2.1 Identify the basic determinants of health and principles of health improvement.									
Course 1				X						X
Course 2		X			X		X			
Course 3	X		X			X				
Course 4										
Course 5			X	X				X		
Course 6	X	X		X	X					X

What is missing? What should be added & where?

What is too redundant?

3

- Milestones provide narrative descriptors of the competencies and sub-competencies along a developmental continuum with varying degrees of granularity. **Simply stated**, milestones describe performance levels learners are expected to demonstrate for skills, knowledge and behaviours in the pertinent clinical competency domains. They lay out a framework of observable behaviours and other attributes associated with learners' development as physicians

Block: Cardiovascular System

Key competencies/ Program ILOs
<p>Competency area II: The graduate as a health promoter The graduate should advocate for the development of community and individual measures which promote the state of well-being, he/she should empower individuals and communities to engage in healthy behaviors and put his/her knowledge and skills to prevent diseases, reduce deaths and promote quality life style. The graduate should be able to:</p>
2.1 Discuss basic principles of health improvement, including the wider determinants of health, health inequalities, health risks and disease surveillance.
2.2 Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing.
2.3 Discuss the role of nutrition and physical activity in health.
2.4 Identify the major health risks in his community, including occupational and environmental risks, endemic diseases and non-communicable chronic diseases.

Block: Cardiovascular System

key competencies/ Program ILOs	Course ILOs
<p>Competency area II: The graduate as a health promoter The graduate should advocate for the development of community and individual measures which promote the state of well-being, he/she should empower individuals and communities to engage in healthy behaviors and put his/her knowledge and skills to prevent diseases, reduce deaths and promote quality life style. The graduate should be able to:</p>	
2.2 Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing.	<p>2.2.1 Identify risk factors of hypertension</p> <p>2.2.2 Explain risk factors of coronary artery diseases</p> <p>2.2.3 Identify risk factors of rheumatic heart diseases</p>


4

Block: Cardiovascular System

key competencies/ Program ILOs	Course ILOs
Competency Area IV: The graduate as a scholar and scientist The graduate should build his clinical practice on a base of knowledge of scientific principles and methods of basic medical and social sciences, applying this knowledge into clinical care, and using it as a foundation for clinical reasoning, care provision, further professional development and research. The graduate should be able to:	
4.1 Explain normal human structure and functions and the scientific bases for common disease presentations.	4.1.1. Discuss anatomy of the pericardium in terms of (Parts, relations, sinuses, blood supply, nerve supply, lymphatic drainage). 4.1.2. Discuss anatomy of the heart in terms of: External features Internal features (chambers feature, septa and valves). Surface anatomy of heart and valves. 4.1.3. Discuss anatomy of blood supply of the heart. 4.1.4 Discuss anatomy of nerve supply of the heart. 4.1.5. Discuss anatomy of the great vessels Pulmonary trunk: beginning and relations. Formation, course and termination of each of the superior and inferior venae cavae, and name their tributaries. Ascending & arch of aorta: Branches, relations and level of terminations.



Learning outcomes differ from instructional objectives, and five important differences can be recognized (Harden, 2002):

- Learning outcomes, if set out appropriately, are intuitive and user-friendly. They can be used easily in curriculum planning, in teaching and learning and in assessment.
 - Learning outcomes are broad statements and are usually designed round a framework of 8–12 higher-order outcomes.
 - The outcomes recognize the authentic interaction and integration in clinical practice of knowledge, skills and attitudes and the artificiality of separating these.
 - Learning outcomes represent what is achieved and assessed at the end of a course of study and not only the aspirations or what is intended to be achieved.
 - A design-down approach encourages ownership of the outcomes by teachers and students.
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Block: Cardiovascular System

key competencies/ Program ILOs	Teaching methods	Assessment methods
<p>Competency area II: The graduate as a health promoter</p> <p>The graduate should advocate for the development of community and individual measures which promote the state of well-being, he/she should empower individuals and communities to engage in healthy behaviors and put his/her knowledge and skills to prevent diseases, reduce deaths and promote quality life style. The graduate should be able to:</p>		
<p>2.1. Discuss basic principles of health improvement, including the wider determinants of health, health inequalities, health risks and disease surveillance.</p>	<ul style="list-style-type: none"> - Flipped classroom - Lectures - Small group discussion - TBL 	<p>Formative, in tutorial session:</p> <ul style="list-style-type: none"> - Tutor & Peer assessment <p>Summative:</p> <ul style="list-style-type: none"> - MEQ/short essay <ul style="list-style-type: none"> - MCQs - Assignments

The Student's Progress In Each Of The Outcome Domains Can Be Looked At From Different Perspectives

1. **Increased breadth**, e.g. extension to new topics or different practice contexts
2. **Increased difficulty**, e.g. more advanced or in-depth consideration
3. **Increased utility** and application to medical practice, e.g. a move from theory to practice and integration of what is learned into the work of a doctor
4. **Increased proficiency**, e.g. more efficient performance with fewer errors and less need for supervision.

AN OBE IMPLEMENTATION INVENTORY

1. Statement of learning outcomes	0 1 2 3 4 5
2. Communication with staff/students	0 1 2 3 4 5
3. Choice of educational strategies	0 1 2 3 4 5
4. Choice of learning opportunities	0 1 2 3 4 5
5. Course content	0 1 2 3 4 5
6. Student progression	0 1 2 3 4 5
7. Choice of assessment tools	0 1 2 3 4 5
8. Educational environment	0 1 2 3 4 5
9. Student selection	0 1 2 3 4 5

Figure 11.1 OBE implementation inventory

