Curriculum Implementation Support Program of the Competency Based Undergraduate Medical Education Curriculum

2019

Medical Council of India
Pocket-14, Sector-8, Dwarka,
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Backside Cover Page

Introduction

The Medical Council of India has revised the undergraduate medical education curriculum so that the Indian Medical Graduate is able to recognize "health for all" as a national goal and should be able to fulfill his/her societal obligations. The revised curriculum has attempted to enunciate the competencies the student must be imparted and should have learnt, with clearly defined teaching-learning strategies and effective methods of assessment. Communicating effectively and sympathetically with patients and their relatives has been visualized as a core area of the revised curriculum. These and other goals identified in the curriculum are to be implemented in all medical colleges under the ambit of Medical Council of India from August 2019 and to smoothen this process Guidelines have been prepared for its effective implementation. In response to the need for a seamless introduction of the curriculum into the Undergraduate system, all medical colleges need to upgrade the teaching-learning skills of their faculty. Earlier experience with implementation of curricular changes suggests that a carefully managed, sustainable approach is necessary to ensure that every college has access to the new skills and knowledge enunciated in the new curriculum. Faculty training and development thus assumes a key role in the effective implementation and sustenance of the envisaged curricular reforms.

Though **Medical Council of India has provided broad framework**, it is not possible to bring complete uniformity in a vast country like India. Hence, local authorities such as Universities, Colleges and faculty need to make appropriate refinements at local level to suit their local needs keeping the broad framework intact. The program needs to be implemented by all stakeholders and shall be facilitated by Universities, Nodal and Regional centers along with Curriculum Committees in all colleges.

State Health Universities and other Universities shall develop appropriate assessment plan along the directions and principles mentioned in the curriculum documents, as assessment is mainly a University prerogative. They can use a variety of established methods of assessment that would test competency and make choices as per feasibility and available expertise. Academic Councils along with Board of Studies should revamp the assessment plans to achieve goals and objectives of the revised UG Curriculum.

MCI has already issued directions that Dean/ Principal of medical College should constitute a " **Curriculum committee**" with following representation:

a) One Professor/ Associate Professor from Medicine & allied disciplines
b) One Professor/ Associate Professor from Surgery & allied disciplines
c) One Professor/ Associate Professor from Para-clinical disciplines
d) One Professor/ Associate Professor from Pre-clinical disciplines
e) MEU coordinator of the college

f) Student/Intern representative
g) Dean: Chairman of Committee

The Curriculum Committee members (a to e) require to undergo the Faculty Development Programme of the Council, imparted through its network of Nodal and Regional Centres.

Curriculum Committees along with Medical Education Units/ Departments would help colleges to implement the new UG curriculum including the AETCOM (Attitude, Ethics & Communication) program. Each college should develop the framework for the Foundation Course. The Foundation course which will be of 1-month duration after admission, aims to orient the students to national health scenarios, medical ethics, health economics, learning skills & communication, Basic Life Support, computer learning, sociology & demographics, biohazard safety, environmental issues and community orientation. Foundation course may also include 1) Orientation program 2) language and computer skills 3) communication skills and 4) time management skills and 5) Professional development program highlighting ethical and humanities issues. Each College should select elements of Foundation course as per local needs and develop faculty expertise from initial years. However, experts and other teachers may be invited as per need. It is emphasized that interactive case scenarios, movies, videos, and small group discussions may be used for each concept along with the principles of reflective learning.

The Curriculum Committee will be responsible for developing the curricular modules and their implementation at their institution.

The Curriculum implementation Support Program (CISP) developed by the Expert Group constituted by the Medical Council of India, provides the much needed intellectual support to colleges for smooth transition from existing to the new curriculum. The key players in CISP are the faculty of the Medical Education Department of Regional centers and Nodal centers to which all colleges are attached. Four of the many new key areas recommended in the Vision 2015, were identified for implementation across the entire duration of the course at Phase I. The areas identified were such that they would be helpful to initiate the process of curricular reforms from first year of the undergraduate course. These areas are Foundation course, Early Clinical Exposure, Integrated teaching & Learning & Skill development & training.

a) **Foundation Course:** This is a one month to orient medical learners to MBBS program and provide them with requisite knowledge, communication (including electronic), technical and language skills.

b) **Early clinical exposure**: The clinical training would start in the first year, focusing on

communication, basic clinical skills and professionalism. There would be sufficient clinical exposure at the primary care level and this would be integrated with the learning of basic and laboratory sciences. Introduction of case scenarios for classroom discussion/case-based learning would be emphasized. It will be done as a coordinated effort by the pre-clinical, para-clinical and clinical faculty.

c) **Integrated teaching and learning** : The innovative new curriculum has been structured to facilitate horizontal and vertical integration between and among disciplines, bridge the gaps between theory & practice, between hospital based medicine and community medicine. Basic and laboratory sciences (integrated with their clinical relevance) would be maximum in the first year and will progressively decrease in the second and third year of the training when clinical exposure and learning would be dominant.

d) **Skill development and learning (throughout curriculum):** A mandatory & desirable comprehensive list of skills has been planned and would be recommended for the Indian Medical Graduate. Certification of skills would be necessary before licensure.

e) **Electives:** The aim of adding electives is to allow flexible learning options in the curriculum and may offer a variety of options including clinical electives, laboratory postings or community exposure in areas that students are not normally exposed as a part of regular curriculum. This will also provide opportunity for students to do a project, enhance self-directed learning, critical thinking and research abilities.

Examples:- Bio-Informatics, Tissue Culture, Tissue Engineering/Processing, Computer and Computer applications, Immunology, Genetics, Human Nutrition, Sports Medicine, Laboratory Sciences, Research Methodology, Ethics, Accident and Emergencies (A&E), Community Projects, HIV Medicine, Pharmacokinetics/Pharmacodynamics/Pharmacoeconomics, Assisted Reproductive Technology, Ethics & Medical Education.

All Nodal centers and Regional centers will conduct CISP workshops for all faculty assigned to their Centres, in the above mentioned areas.

1. All Nodal and Regional Centres (NC/RC) will conduct workshop/s for all MEU Unit coordinators and Curriculum Committee members of the colleges under their charge for Faculty Development program (FDP), before March 2019. This workshop should be of similar nature and convey the theme along with these concepts to all ME Unit coordinators. MEU coordinators should conduct local workshop for first Phase teachers and few senior teachers from other phases to initiate implementation of new curriculum.

2. All NCs/RCs would also conduct a workshop for their respective medical school teachers prior to the workshop for ME Unit coordinators workshop. This will be an in-house workshop.
3. All Teaching-Learning materials may be refined and uploaded on website for wider access.
4. Basic skill labs to be made mandatory requirement in all medical colleges. This must be made a part of the Minimum Standard Requirements for a college.

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PREAMBLE

The undergraduate medical curriculum of the medical council of India is created to ensure that the medical doctor who emerges from the MBBS training program is capable of assisting the nation to achieve its goal of health for all. In addition, it aspires to ensure that the "graduate" meets or exceeds global bench-mark in knowledge, attitude, skills and communication. This intent is at the core of the Graduate Medical Regulations, 2019.

The Graduate Medical Regulations, 2019 represents the first major revision to the medical curriculum since 1997 and hence incorporates changes in science and thought over two decades. A significant advance is the development of global competencies and subject-wise outcomes that define the roles of the "Indian Medical Graduate". Learning and assessment strategies have been outlined that will allow the learner to achieve these competencies/outcomes. Effective appropriate and empathetic communication, skill acquisition, student-doctor method of learning, aligned and integrated learning and assessment are features that have been given additional emphasis in the revised curriculum.

The revised curriculum is to be implemented by all medical colleges under the ambit of Medical Council of India from August 2019. The roll out will be progressive over the duration of the MBBS course.

Since the curriculum requires significant change in planning, delivery and assessment, the Council has created a governance and support structure that would help institutions, teachers and students navigate the change successfully. Capacity building in the form of basic and advanced support for faculty is an ongoing activity of the Medical Council of India. The structural framework of support includes the Medical Education Unit or the Medical Education Department of the institutions and the Nodal and Regional Centers of the Medical Council of India. To these, the MCI has added the governance oversight of the curriculum in the form of the Curriculum Committee at the institutional level.

As part of the roadmap to the curricular roll out - a nationwide Curriculum Implementation Support Program is being cascaded in a 'train the trainer' format. The program will be supported by learning resource material, workshops, videos online support etc. A carefully designed quality and oversight program will ensure monitoring of the curricular implementation and required course corrections.

The change requires extensive stakeholder commitment and involvement. These include commitment for the curricular change at the leadership level in institutions, investment in infrastructure, oversight and training programs and technology that will facilitate smooth delivery and evaluation of the curriculum. Faculty would be required

to unlearn, re-learn, adapt and innovate. The role of the University in adopting and embracing the change and aligning assessment along the lines suggested in the Graduate Medical Education Regulations (GMR) document are critical to achieving the objectives of the curricular change. At a student level, the curriculum requires greater commitment, shared responsibility, self directed and ongoing learning.

This document represents a compilation of the resource material that will be used in the Curricular Implementation Support Program (CISP) and has attempted to provide a stepwise and comprehensive approach to implement the curriculum. It details the philosophy and the steps required in a simple and richly illustrated manner. Teaching slide decks, faculty guides and online resource material supplement this document. The document is to be used in conjunction with the Competency document, AETCOM module and the GMR document.

The timelines and measurables for the new curriculum are outlined in the chapter on curricular governance. The Expert Group for curricular implementation would like to place on record the tremendous contribution by subject experts, the Reconciliation Board, the Academic Cell of the MCI, the faculty, administration, Medical Education Units and leaders of each medical college, the Nodal and Regional Centers, and the Universities who have all helped to create the right environment for change. The Board of Governors of MCI are the pivot who have led from the front and facilitated this important national need in a very short time duration and deserve the praise and gratitude of the medical fraternity.

Curriculum Implementation Support Program (CISP) for Conveners of Nodal & Regional Centres & Curriculum Committee members of colleges

Day 1

Day **Time**	**Session**	**Objectives**	**Duration**
9.00	Introduction	Program Objectives	30 minutes
9:30	Salient features of GMR 2019	Presentation of salient features Discussion	60 minutes
10:30	Break		15 minutes
10:45	Implementation of CBME	1. Principles of CBME 2. Principles of integration 3. Review of Competency and AETCOM booklet 4. Linking competencies to learning and assessment 5. Lunch Break (1:00 to 1:45 PM) 6. Aligning subject competencies within a phase and integration across phases	3hours & 30 Minutes + 45 minutes (Lunch)
15:00	Introduction to Electives	Concept of Electives Assessment of electives	30 minutes
15:30	Break		15 minutes
15:45	Early Clinical Exposure	Concept and assessment of Early Clinical Exposure	60 minutes
16:45	Discussion and Task assignment		15 minutes
17:00	Close		

Curriculum Implementation Support Program (CISP) for Conveners of Nodal & Regional Centres & Curriculum Committee members of colleges

Day 2

Day Time	Session	Objectives	Duration
9.00	Principles of Assessment in CBME	Principles as relevant to CBME	45 minutes
9:45	Alignment and integration within each phase and across	Concept with activities	75 minutes
11.00	Break		15 minutes
11.15	Skill training and assessment	Competency acquisition Skills lab Assessment	105 minutes
13:00	Lunch		
13:45	Learning Resource Materials	Sharing/ Discussion	15 minutes
14.00	Curricular Governance	Presentation and discussion	60 minutes
15.00	Foundation Course	Presentation and discussion	45 minutes
15:45	AETCOM	Implementation Strategy	30 minutes
16:15	Open house	Discussion/Clarifications	45 minutes
17:00	Close		

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FACULTY GUIDES

(Session wise)

Introduction to Graduate Medical Education Regulations, 2019

Introduction to Graduate Medical Education Regulations, 2019

60 min

Time	Topic	Details	Material
09:30 – 10:00	Introduction	Context Salient Features	Slide deck
09:45- 10:00		Relevance	
10:00-10:15	Discussion		
10:15-10:30	Wrap Up		

Session	**Salient Features of the GMR, 2019**
Competency	The learner must enumerate the unique features of the GMR document
Specific learning objective	At the end of the session the participants must be able to: a. Enumerate the unique features of GMR, 2019
Method	Interactive Lecture
Required reading	GMR document
Additional reading	None
Assessment	None
Faculty guide	1. An initial discussion on what are the salient changes in medical education since the last GMR, may be done to set the ball rolling 2. The slides do not have much content and are intended to set the stage for the CISP program and provide an overview 3. Encourage questions with the caveat that there is will detailed discussion on each of these features during the course of the discussions

Principles of CBME

Time	Topic	Detail	Material
10.45-10.50	Introduction	What is CBME, competency, objectives Similarities and differences	Slide deck
10.50-11.00	Comparison with traditional curricula	Outcomes, relation to community health needs	
11.00-11.05	Stages of competence		
11.05-11.10	IMG roles	CLPCL	
11.10-11.20	Goals to objectives	Goals, roles, competencies, objectives and assessment cycle	
11.20-11.25	Strengths, weaknesses		
11.25-11.30	Debrief, conclusion	Task ahead	

Alignment and Integration

Day 1

60 min

Time	Topic	Detail	Material
11:30 - 11:15	Introduction		Slide deck
11:15 - 12:00	Discussion	Deriving a learning session from competencies – workshop Deriving an aligned time table from competencies - workshop	
12:00 - 12:15	Wrap Up		

Day 2

75 min

Time	Topic	Detail	Material
09:45 - 10:00	Introduction		Slide deck
10:00 - 10:20	Group Activity		
10:20 – 10:50	Plenary		
10:50 - 11:00	Wrap Up		

Session 1	**Principles of Integration**
Competency	The participant must be able to : Facilitate the development of an aligned and integrated curriculum in his/her institution as envisaged in the GMR document
Specific learning objective	At the end of the session the participants must be able to: a) Comprehend the glossary of terms used in the regulations b) Appreciate the extracts from the GMR, 2019 that addresses integration in UG curriculum c) Recognize the scientific basis that supports the process of "integration" in UG competency based curriculum d) Clarify certain perceptions regarding the concept of "integration" in subject based learning
Method	**Interactive lecture**
Mandatory Reading	**Integration for CISP document , MCI Competency document**
Assessment	Reflection

Alignment & Integration Session

Session 2 Day 1	**Deriving a learning session from competencies - workshop**
Competency	The learner must be able to derive learning sessions from competencies
Specific learning objective	At the end of the session the participants must be able to: a. Write specific learning objectives from subject competencies b. Group objectives that can be achieved in a single learning session c. Choose the appropriate learning method for a group of objectives d. Write a lesson plan for the learning method chosen
Method	Task based workshop and plenary
Required reading	Deriving learning from competencies in the CISP document Alignment and integration
Assessment	Reflection
Faculty guide	1. Note that this workshop can be combined with the Alignment and Integration workshop or can be done stand alone 2. Review the required reading document 3. Divide learners into 4 groups each with a facilitator 4. Review the principles using the slide deck provided for both alignment and deriving learning sessions from competency 5. Choose topics and assign - eg Anemia and Jaundice one to two groups 6. Each group reviews the competency table that is provided in the appendix in the LRM provided for alignment and integration 7. From phase 1 the group chooses a few competencies to convert to learning objectives using the worksheet provided 8. The group then discusses and chooses an appropriate learning session for a the objectives identified using the worksheet provided 9. A lesson plan is created for the learning method identified using the worksheet provided 10. In the plenary two groups that have done the same topic present together to compare and contrast and learn from each other 11. Reflection is used to enhance the learning session

Session 3 Day 1	**Deriving an aligned time table from competencies - workshop**
Competency	The learner must be able to derive an aligned timetable from a set of competencies
Specific learning objective	At the end of the session the participants must be able to: a. Write specific learning objectives from subject competencies for a particular topic b. Group objectives that can be achieved in a single learning session c. Place different learning sessions into a time table d. Identify a linker activity to provide relevance to the aligned sessions e. Derive a sample timetable
Method	Task based workshop and plenary
Required reading	Deriving learning from competencies in the CISP document Alignment and integration
Assessment	Reflection
Faculty guide	1. Note that this workshop can be combined with the Alignment and Integration workshop or can be done stand alone 2. Review the required reading document 3. Divide learners into 4 groups each with a facilitator 4. Review the principles using the slidedeck provided for both alignment and deriving learning sessions from competency 5. Review the sample timetable provided 6. Choose topics and assign – eg. Anemia and Jaundice one to two groups 7. Each group reviews the competency table that is provided in the appendix in the LRM provided for alignment and integration 8. From phase 1 the group chooses a few competencies to convert to learning objectives using the worksheet provided 9. The group identifies the objectives from phase 1that can be taught in one subject for alignment 10. The group identifies the objectives from phase 1 that can be combined into a common session for horizontal integration 11. The group identifies competencies/ objectives from other phases that can be used as a linker 12. The group creates a sample time table based on the sessions identified

Session 4 Day 2	**Alignment and integration within each phase and across**
Competency	The participant must be able to: Facilitate the development of an aligned and integrated curriculum in his/her institution as envisaged in the GMR document
Specific learning objective	At the end of the session the participants must be able to develop and schedule an aligned and integrated topic across all phases
Method	Group activity – Work shop
Facilitator role	The objective of the facilitators is to ensure that the participants read, understand the required sections of the regulations on alignment and integration, and become comfortable in using it as a guide. J Divide participants into 4 groups J Elect a chair, scribe and a rapporteur for each group J Helps group to refer to the process of Alignment and integration as in the CISP Guide J Explain the templates the groups have to work with J Facilitate group to develop and present an Aligned integrated topic (AITo) J Provide support for Plenary presentation
Guide	Integration for CISP document, MCI Competency Document
Assessment	The quality of AITo developed and feed back

Session 5 Day 2	**Aligning subject competencies within a phase and integration across phases**
Competency	The participant must be able to : Facilitate the development of an aligned and integrated curriculum in his/her institution as envisaged in the GMR document
Specific learning objective	At the end of the session the participants must be able to Comprehend the step wise process in developing and implementing “Integrated” topics across all three phases using with an example
Method	Interactive lecture
Mandatory Reading	Integration for CISP doc , MCI COMPETENCY Document
Assessment	Performance in the workshop and nature of module developed

Electives

Objectives:

1. Explain the rationale of Electives
2. Identify various options that can be offered as Elective at their respective institutions
3. Plan the complete curriculum of elective in hospital /community/ project

30 minutes

Time	Topic	Method/mode/details	Material
5 min	Introduction to Electives	Interactive discussion	
5 min	Concept and definitions	Think, pair, share followed by lecturette	LCD projector Flip chart Marker pens
10 min	Identification of various options as electives in their institutions	Group activity	Flip charts, marker pens
5 mins each	Assessment of Electives	Think, pair, share	
5 mins	Challenges and Solutions	Interactive discussion	

Early Clinical Exposure (ECE)

Objectives:

1. Explain the rationale of ECE
2. Enumerate the pedagogical advantages of ECE
3. Plan their teaching-learning methods around clinical scenarios
4. Optimally use ECE to orient students to basic clinical methods and soft clinical skills (communication, professionalism, ethics etc.)

60 minutes

Time	Topic	Method/mode/details	Material
3.45-3.50	Introduction to ECE	Interactive discussion	
3.50-3.55	Concept and definitions	Think, pair, share followed by lecturette	LCD projector Flipchart Marker pens
3.55-4.05	Sharing of best practices	Appreciative inquiry followed by large group presentations	Interview guide Flipcharts, marker pens
4.05-4.15	Advantages and impact of ECE	Interactive lecture	
4.15-4.25	Opportunities for using ECE Concept of observation guides	Interactive lecture	Sample observation guide
4.25-4.35	Group work: 1. ECE in class room 2. ECE in hospital settings (wards/labs/radiology) 3. ECE in community settings 4. Develop a sample observation guide	Task Prepare a sample teaching material What will be the objectives? Write out a plan of how and what T/L methods will you use? What resources are needed? What issues should be emphasized in affective domain? How to get and give feedback?	List of possible clinical conditions for use in each setting Templates/guides and samples
4.35-4.45	Presentations and discussion		

Principles of Competency Based Assessment

40 min.

Time	Topic	Details	Material
9.00-9.05	Introduction	Role of assessment	PPT deck
9.05-9.10	Requirements for CBA	Differences in general and competency-based assessment, common misconceptions	
9.10-9.20	Aligning assessment with competencies	Examples from curriculum document	
9.20-9.30	Group work	Select assessment methods and tools	
9.30-9.35	Internal assessment	Focus of IA, mechanics	
9.35-9.40	University examinations	Focus of University examinations, mechanics	
9.40-9.45	Debrief		

Skill Training and Assessment

105 mins

Time	Topic	Comments
11:15-11:30	Introduction, definition of skill with examples	Interactive lecture
11.30-11.40	Why teach skills	Interactive lecture
11.40-11.55	How skills are currently taught	Think, pair, share
11.55-12.05	Models of skills training	Technical and non-technical skills; STEPS model, SISFR model, SODOTO
12.05-12.15	Simulation for skills training	
12.15-12.30	Develop an outline of a skills-training module	Think, pair, share
12.30-12.40	Assessment of skills	Concept, issues
12.40-12.50	Assessment tool box	Interactive lecture
12.50-13.00	Reflection, taking forwards	

Foundation Course

Session	**Foundation Course**
Competency	The participant must be able to : a. Facilitate the development of a schedule for the one month foundation course in his/her institution as envisaged in the GMR document b. Facilitate the Curriculum Committee in the implementation of the one month foundation course in his/her institution as envisaged in the GMR document
Specific learning objective	At the end of the session the participants must be able to a) Describe and discuss the need for foundation course in the first year of the MBBS course in India b) Appreciate the extracts from the GMR, 2019 that addresses foundation course c) Plan the conduct of the foundation course with regard to the contents in accordance with the timings as per GMR, 2019 d) Develop a plan for monitoring the foundation Course
Method	**Interactive lecture followed by Group Discussion and Plenary**
Mandatory Reading	**Graduate Medical Regulations, 2019**
Assessment	Reflection

Total Time : 45 mins

Time	Agenda/Activity	Materials
15 mins	Introduction to Foundation course Scope and need	PPT
10 min	Discussion in small groups on a. Challenges and suggestions b. Session planning with regard to contents, faculty c. Time table. 1. Orientation to medical profession & college [w.r.t GMR 9.1.2(a)] 2. Professional Development & Ethics [w.r.t AETCOM module] 3. Language & Computer skills [w.r.t GMR 9.1.2(b)] 4. Basic Skills Training [w.r.t GMR 9.1.2(c)]	
20 min	Plenary on the above (3 min presentation and 2 minutes discussion from each group)	

AETCOM (Attitude Ethics Communication) Skills

30 min.

Time	Topic	Details	Material
15.45-15.50	Introduction	Overview of attitudinal competencies in revised GMR. AETCOM: purpose, mission and objectives	PPT deck AETCOM module
15.50-16.00	Linking of AET-COM modules with Competencies, Objectives, Teaching-Learning methods and Assessment.	Use Template from AETCOM competencies: Competency - Objective - Teaching Learning - Assessment	PPT deck AETCOM module
16.00-16.10	Teaching Ethics cases, Teaching Communication skills cases	Use Template from AETCOM	PPT deck AETCOM module
16.10-16.15	Reflection		

Curricular Governance

Day 2

60 min

Time	Topic	Detail	Material
14:00 - 14:15	Introduction		Slide deck
14:15 - 14:45	Group Activity		
14:45 – 15:00	Plenary		

LEARNING RESOURCE MATERIALS

Salient features of
Graduate Medical Education Regulations, 2019

Overview

The new Graduate Medical Education Regulations, 2019 attempts to stand on the shoulder of the contributions and the efforts of resource persons, teachers and students past and present attempts to take the learner to provide healthcare to the evolving needs of the nation and the world.

More than twenty years have passed since the existing Regulations on Graduate Medical Education, 1997 was notified necessitating a relook at all aspects of the various components in the current regulations and adapt them to the changing demography, socio-economic context, perceptions, values and expectations of stakeholder, emerging health care issues particularly in the context of newly emerging diseases, impact of advances in science and technology, shorter distances on diseases and their management, The strong and forward looking fundamentals enshrined in the Graduate Medical Education Regulations, 1997 has made this job easier. A comparison between the 1997 Regulations and proposed Regulations on Graduate Medical Education, 2019 (GMR) will reveal that the 2019 Regulations have evolved from several key principles enshrined in the 1997 Regulations.

The thrust in the new Regulations is continuation and evolution of thought in medical education making it more learner-centric, patient-centric, gender-sensitive, outcome oriented and environment appropriate. The result is a competency based curriculum which conforms to global trends. Emphasis is made on alignment and integration of subjects both horizontally and vertically while respecting the strengths and necessity of subject-based instruction and assessment.

A significant attempt has been made in the competency based undergraduate curriculum to provide the orientation and the skills necessary for life-long care of the patient. In particular, the curriculum provides for early clinical exposure, electives and longitudinal care. Skill acquisition is an indispensable component of the learning process in medicine. The curriculum reinforces this aspect by necessitating certification of certain essential skills. The experts and the writing group have factored in patient availability, access, consent, number of students in a class etc in suggesting skill acquisition and assessment methods; the use of skills labs, simulated and guided environments are encouraged.

The importance of ethical values, responsiveness to the needs of the patient and acquisition of communication skills is underscored by providing dedicated curriculum time in the form of a longitudinal program called Attitude, Ethics and Communication (AETCOM) competencies. Greater emphasis has been placed on collaborative and interdisciplinary teamwork, professionalism, altruism and respect in professional relationships with due sensitivity to differences in thought, social and economic position and gender.

In addition to the above an attempt has been made to allow students from diverse educational streams and backgrounds to transition appropriately through a foundation program. Dedicated time has been allotted for self directed learning and co curricular activity.

Formative and internal assessment has been streamlined to achieve the objectives of the curriculum. Minor tweaks to the summative assessment have been made to reflect evolving thought and regulatory requirements. Curricular governance and support have been strengthened.

The curriculum document in conjunction with the new Graduate Medical Education Regulations, when notified, must be seen as a "living document" that should evolve as stakeholder requirements and aspirations change.

Key components of GMR, 2019 are summarised below. The time distribution according to phases is summarised in figure 1 later.

1. Concept of the Indian Medical Graduate as an achievable goal
2. Roles that define the Indian Medical Graduate
3. Definition of Global competencies for each role envisaged
4. Defined subject-based outcomes that can be mapped to the global competencies
5. Alignment of instruction with reasonable integration
6. Greater emphasis on learner centric instruction
7. Greater emphasis on learning in primary and secondary care environments
8. Student Doctor Method of Clinical Training
9. Emphasis on skill acquisition and certification
10. Early Clinical Exposure
11. Longitudinal program on attitude ethics and communication
12. Foundation course
13. Shared responsibility and self directed learning
14. Electives
15. Time for sport and extracurricular activities
16. Assessment changes

Concept of the Indian Medical Graduate as an achievable goal

The undergraduate medical education program is designed with a goal to create an "Indian Medical Graduate" (IMG) possessing requisite knowledge, skills, attitudes, values

and responsiveness, so that he or she may function appropriately and effectively as a physician of first contact of the community while being globally relevant.

Defined Roles of the Indian Medical Graduate

The GMR envisages the following roles that a graduate must perform in-order to achieve the goal of the UG medical education program

Clinician: who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.

Leader and member of the healthcare team and system: with capabilities to collect analyze, synthesize and communicate health data appropriately.

Communicator: with patients, families, colleagues and community.

Lifelong learner: committed to continuous improvement of skills and knowledge.

Professional: who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

Global Competencies mapped to each role:

Statement of achievement of defined measurable outcomes have been spelt out for each role - these are called global competencies and are summarised in GMR, 2019 document.

Defined subject based outcomes that can be mapped to the global competencies

The GMR, 2019 proposes continuance with subject based instruction. To reconcile subject based instruction with transition to competency based education - subject based outcomes (so called sub-competencies) have been derived by subject experts and compiled. Guidance on the domain, level of mastery required, suggested learning and assessment methods, requirement of certification, recommended integration etc have been provided in a three volume stand alone document. This document can be accessed at https://old.mciindia.org/InformationDesk/ForColleges/UGCurriculum.aspx

Alignment of instruction with reasonable integration

To the extent possible the GMR, 2019 stresses the importance of temporal coordination of related topics in each phase - this is called alignment. Integration within the phase (horizontal integration) and with other phases have been provided for - this is explained in greater length in this document.

Learner centered instruction

The GMR, 2019 lays great emphasis on learner centric methods of instruction. Time has been apportioned for small group learning, interactive and case based learning, collaborative and team based learning. Didactic learning time has been reduced to less than a third of the allotted time in each subject.

Learning in primary and secondary care environments

The GMR, 2019 has provisions for learning in both primary and secondary care settings such as Taluk hospitals and Urban Health Care Centres. Learning will have a strong prevention and primary care focus with particular emphasis on national and regional health care priorities and programs.

Student - Doctor Method of Clinical Training

The student - doctor method of clinical training provides for the student to function as a member of the clinical care team, work with patients and follow them longitudinally. The program allows for students to care for patients in a supervised manner taking part in admission day activities, following patients during the course of hospitalisation, writing and maintaining case records and participating, observing and assisting in procedures in a graded fashion. The student doctor method of training will commence in the second clinical posting

Skill Acquisition and Certification

The ability of students to be able to acquire and practice important skills in a safe and supervised environment is given importance. Institutions are mandated to create skills labs in which skill acquisition is possible. A list of certifiable skills that the learner has to acquire prior to graduation has been developed. Protected skill acquisition time for basic skills has also been appropriated in the timetable.

Early Clinical Exposure (ECE)

Providing a clinical context and ensuring patient centricity of instructions are the key principles underlying early clinical exposure. The ECE provides for three key elements - basic science correlation, clinical skills including authentic patient contact and an introduction to humanities in medicine. ECE is expanded further in this document.

Attitude Ethics and Communication

AETCOM (Attitude Ethics and Communication) is a longitudinal modular program that provides for instruction in professionalism, bioethics and communication skills. Dedicated time has been carved out for AETCOM instruction in all the phases. The program has already been rolled out by the MCI.

Foundation Course

The Foundation Course is aimed at providing an introduction to the MBBS program that will allow students from diverse backgrounds languages and varying degrees of technical and communication skills to adapt and enhance required skills. There is a provision for continued longitudinal instruction in language and computer skills following the one month program.

Self Directed Learning

The GMR, 2019 encourages shared responsibility in learning with emphasis on knowledge and skill acquisition, assignment and task completion, living experiences, reflection and self directed learning. Dedicated time for self directed learning is provided in each subject in every phase.

Electives

Electives provide opportunities for students to acquire diverse learning experiences. Two, four week blocks of elective time, has been created to allow students to a) rotate in a pre- or a para - clinical / work under the supervision of a researcher, and b) rotate in a pre-specified specialty / work in a rural or urban community clinic under supervision.

Sports and Extracurricular activity

Protected time for sports and extracurricular activity has been carved into the curriculum to allow students to preserve work life balance and prevent burn out.

Assessment changes

Some key changes in areas of assessment have been proposed in the GMR, 2019. A pass score in the theory AND practical/ clinical parts of the Internal Assessment will be a prerequisite to attempt the summative examination. Formative assessment is streamlined. Continuous assessment through log books, documentation reports etc are given additional importance. Internal Assessment will not contribute to the summative examination. Separate pass in theory and practical / clinical is required. Viva marks will be added to practical/ clinical examination. A provision for skill assessment and assessment of AETCOM competencies has also been made.

Figure 1: Time distribution of MBBS program & Examination Schedule

1. Short Title and Commencement

The undergraduate medical education program is designed with a **goal** to create an **"Indian Medical Graduate" (IMG)** possessing requisite knowledge, skills, attitudes, values and responsiveness, so that he or she may function appropriately and effectively *as a physician of first contact of the community* while being globally relevant.

2. Objectives

2.3. Goals and Roles for the Learner

In order to fulfil the goal of the IMG training programme, the medical graduate must be able to function in the following roles appropriately and effectively:-

2.3.1. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.

2.3.2. Leader and member of the health care team and system with capabilities to collect analyze, synthesize and communicate health data appropriately.

2.3.3. Communicator with patients, families, colleagues and community.

2.3.4. Lifelong learner committed to continuous improvement of skills and knowledge.

2.3.5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

3. Competency Based Training Programme of the Indian Medical Graduate

Competency based learning would include designing and implementing medical education curriculum that focuses on the desired and observable ability in real life situations. In order to effectively fulfil the roles as listed in clause 2, the Indian Medical Graduate would have obtained the following set of competencies at the time of graduation:

3.1. Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion

3.1.1 Demonstrate knowledge of normal human structure, function and development from a molecular, cellular, biologic, clinical, behavioural and social perspective.

3.1.2. Demonstrate knowledge of abnormal human structure, function and development from a molecular, cellular, biological, clinical, behavioural and social perspective.

3.1.3 Demonstrate knowledge of medico-legal, societal, ethical and humanitarian principles that influence health care.

3.1.4 Demonstrate knowledge of national and regional health care policies including the National Health Mission that incorporates National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM), frameworks, economics and systems that influence health promotion, health care delivery, disease prevention, effectiveness, responsiveness, quality and patient safety.

3.1.5. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is complete and relevant to disease identification, disease prevention and health promotion.

3.1.6. Demonstrate ability to elicit and record from the patient, and other relevant sources including relatives and caregivers, a history that is contextual to gender, age, vulnerability, social and economic status, patient preferences, beliefs and values.

3.1.7 Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.

3.1.8 Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.

3.1.9 Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.

3.1.10 Maintain accurate, clear and appropriate record of the patient in conformation with legal and administrative frame works.

3.1.11 Demonstrate ability to choose the appropriate diagnostic tests and interpret these tests based on scientific validity, cost effectiveness and clinical context.

3.1.12 Demonstrate ability to prescribe and safely administer appropriate therapies including nutritional interventions, pharmacotherapy and interventions based on the principles of rational drug therapy, scientific validity, evidence and cost that conform to established national and regional health programmes and policies for the following:

i) Disease prevention,

ii) Health promotion and cure,

iii) Pain and distress alleviation, and

iv) Rehabilitation

3.1.13 Demonstrate ability to provide a continuum of care at the primary and/or secondary level that addresses chronicity, mental and physical disability.

3.1.14 Demonstrate ability to appropriately identify and refer patients who may require specialized or advanced tertiary care.

3.1.15 Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient.

3.2. *Leader and member of the health care team and system*

3.2.1 Work effectively and appropriately with colleagues in an inter-professional health care team respecting diversity of roles, responsibilities and competencies of other professionals.

3.2.2 Recognize and function effectively, responsibly and appropriately as a health care team leader in primary and secondary health care settings.

3.2.3 Educate and motivate other members of the team and work in a collaborative and collegial fashion that will help maximize the health care delivery potential of the team.

3.2.4 Access and utilize components of the health care system and health delivery in a manner that is appropriate, cost effective, fair and in compliance with

the national health care priorities and policies, as well as be able to collect, analyze and utilize health data.

3.2.5 Participate appropriately and effectively in measures that will advance quality of health care and patient safety within the health care system.

3.2.6 Recognize and advocate health promotion, disease prevention and health care quality improvement through prevention and early recognition: in a) life style diseases and b) cancers, in collaboration with other members of the health care team.

3.3. ***Communicator with patients, families, colleagues and community***

3.3.1 Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.

3.3.2 Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.

3.3.3 Demonstrate ability to communicate with patients in a manner respectful of patient's preferences, values, prior experience, beliefs, confidentiality and privacy.

3.3.4 Demonstrate ability to communicate with patients, colleagues and families in a manner that encourages participation and shared decision-making.

3.4. Lifelong learner committed to continuous improvement of skills and knowledge

3.4.1. Demonstrate ability to perform an objective self-assessment of knowledge and skills, continue learning, refine existing skills and acquire new skills.

3.4.2. Demonstrate ability to apply newly gained knowledge or skills to the care of the patient.

3.4.3. Demonstrate ability to introspect and utilize experiences, to enhance personal and professional growth and learning.

3.4.4. Demonstrate ability to search (including through electronic means), and critically evaluate the medical literature and apply the information in the care of the patient.

3.4.5. Be able to identify and select an appropriate career pathway that is professionally rewarding and personally fulfilling.

3.5. ***Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession***

3.5.1. Practice selflessness, integrity, responsibility, accountability and respect.

3.5.2. Respect and maintain professional boundaries between patients, colleagues and society.

3.5.3. Demonstrate ability to recognize and manage ethical and professional conflicts.

3.5.4. Abide by prescribed ethical and legal codes of conduct and practice.

3.5.5. Demonstrate a commitment to the growth of the medical profession as a whole.

Principles of CBME
Aligning Competencies to Learning

Objectives of the session

At the end of this session, the learner will be able to facilitate institute faculty to derive learning sessions as envisaged in the GMR and competency documents of the MCI

Glossary of terms used

A **competency** is an observable ability of a learner that includes multiple components including knowledge skills values and attitude.

An **objective** is a statement of what a learner should be able to do at the end of a specific learning session (or experience).

Core: A competency that is necessary in order to complete the requirements of the subject (traditional must know).

None Core: A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know).

Lecture: Any instructional large group method including traditional lecture and interactive lecture.

Small Group Discussion: Any instructional method involving small groups of students in an appropriate learning context.

Skill Assessment: A session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/ paper case/simulated patients/real patients as the context demands.

DOAP (**D**emonstrate **O**bserve **A**ssist **P**erform Session) A practical session that allows the student to observe a demonstration, assist the performer, perform (demonstrate) in a simulated environment, perform under supervision or perform independently.

Relevant Extract from GMR, 2019

4. **Broad Outline on training format**

4.1.3 Teaching-learning methods shall be student centric and shall predominantly include small group learning, interactive teaching methods and case based learning.

4.1.4 Clinical training shall emphasize early clinical exposure, skill acquisition, certification in essential skills; community/primary/secondary care based learning experiences and emergencies.

4.1.5 Training shall primarily focus on preventive and community based approaches to health and disease, with specific emphasis on national health priorities such as family welfare, communicable and non-communicable diseases including cancer, epidemics and disaster management.

4.1.6 Acquisition and certification of skills shall be through experiences in patient care, diagnostic and skill laboratories.

4.1.7 The development of ethical values and overall professional growth as integral part of curriculum shall be emphasized through a structured longitudinal and dedicated programme on professional development and ethics.

7.5 Didactic lectures shall not exceed one third of the schedule; two third of the schedule shall include interactive sessions, practicals, clinical or/and group discussions. The learning process should include living experiences, problem oriented approach, case studies and community health care activities.

Description in the context of the curriculum

The curriculum in GMR, 2019 is outcome (competency) driven. The transition from a syllabi-driven curriculum (structure process) to a competency based framework necessitates several important changes in approach to the learning and assessment. These are summarised in table 1.

Table 1: Difference between CBME and Structure process (syllabus) based

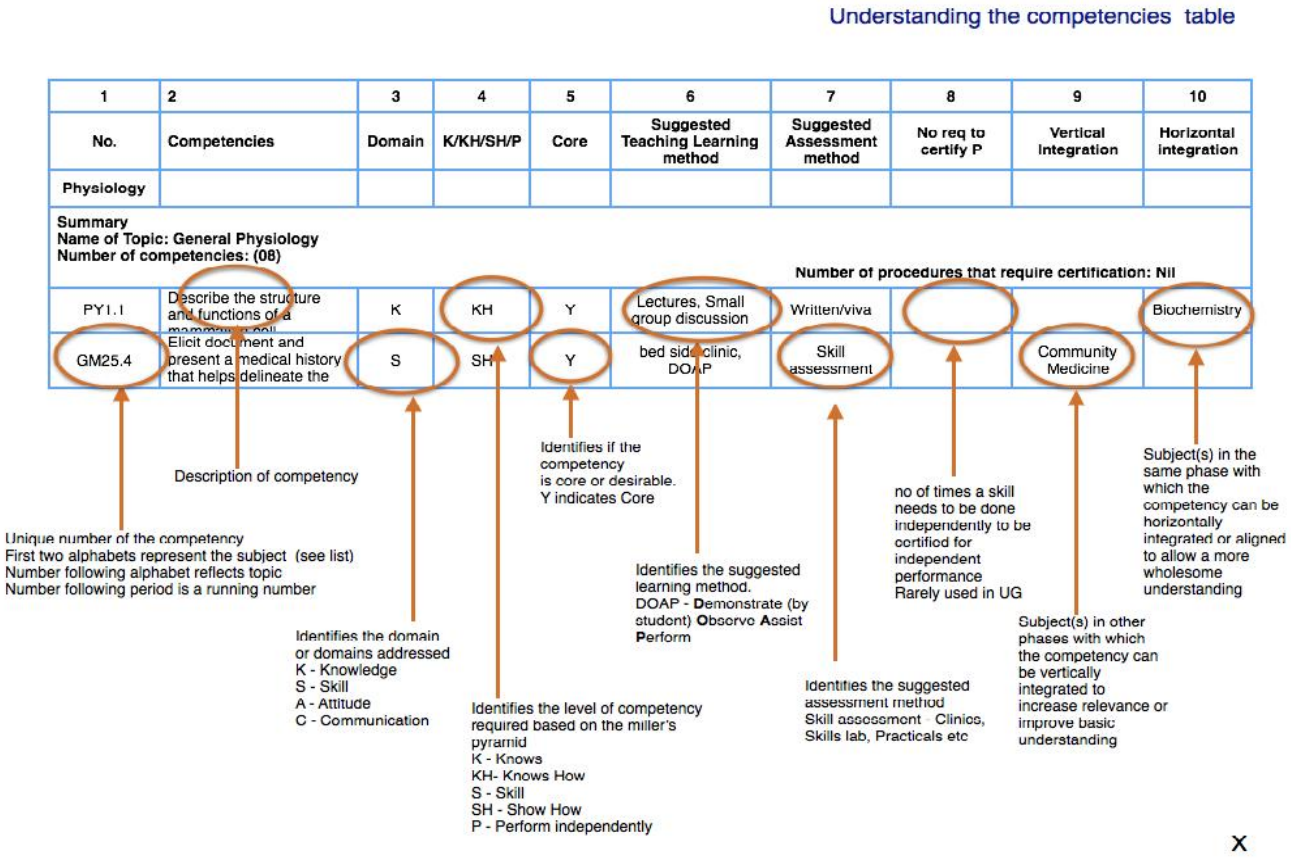
	Structure / Process	Competency Based
Driving force for curriculum	Content: Knowledge acquisition	Outcome: Knowledge application
Driving force for process	Teacher	Student
Responsibility for content	Teacher	Student and teacher
Goal of educational encounter	Knowledge acquisition	Knowledge application
Typical assessment tool	Single subjective	Multiple objective
Assessment tool	Proxy	Authentic
Setting for assessment	Removed (gestalt)	Direct observation
Assessment	normative referenced	criterion referenced
Timing of assessment	Emphasis on summative	Emphasis on formative
Program completion	Fixed time	Variable time

The shift in focus from knowledge acquisition to application necessitates important changes in the learning process: These include greater emphasis on (a) shared responsibility in the learning process (b) self-directed and collaborative learning (c) use of

learner centric approaches (d) skill acquisition and certification e) formative assessment as integral to the learning process (f) progressive increase in the complexity of learning (the so called ascendancy in competencies).

A careful review of the competency table is invaluable in helping derive learning sessions (figure 1):

Understanding the competencies table (Figure 1)



a. Subject-wise competencies that are listed in the three volume MCI book are themselves linked to the global competencies and roles that are spelt out in the IMG document. In that sense they should be viewed as sub-competencies. It should also be pointed out that competencies generally imply end of course achievements. They are listed in phases and in subjects since we are at this time still subject based in our approach and assessment. It must be remembered that some of the components that make up the basic sciences competency can be achieved at later phases. Indeed the GMR has allocated time for teaching of pre and para-clinical competencies in phase III.

b. The competencies themselves may be broadly divided into core and non-core - core representing the must know and tested - the non-core being desirable to know and not essential to test summatively (Table 2).

Table 2 - Core and non-Core competencies

	Core	Non- Core
Taught	Yes	Yes
% of curriculum	Not < 80%	Not > 20%
Summative assessment	Y	N
Formative assessment	Y	Y

c. In a broad sense - competencies may be described as an amalgamation of different objectives and therefore represent objectives derived from different domains. The MCI document lists four domains - three conventional Knowledge (K) Skill (S) Attitude (A) and an additional Communication (C); this is in recognition of the importance of communication as a key domain for Indian Medical Graduate. The importance is further exemplified by the introduction of the AETCOM module.

d. The highest levels of achievement of each competency are also specified as a continuum from Knows (K) to Knows How (KH) as knowledge attributes and Shows (S) to Shows how (SH) as skill or behavioral attributes. For the purpose of the 41/2 year MBBS curriculum there are very few Perform Independently skills in the competency document. In internship and post-graduation - the level of highest achievement for the same competency will change reflecting the learning continuum. Other measures such as milestones and entrustable Professional Activity (EPA) are natural additions to competency based medical education and will find greater application in the internship and post-graduation years (Table 3).

Table 3: Proficiency levels

K	Knows	A knowledge attribute – Usually enumerates or describes
KH	Knows how	A higher level of knowledge – is able to discuss or analyse
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute: is able to interpret / demonstrate a complex procedure requiring thought, knowledge and behavior
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre specified number of times - certification or capacity to perform independently results

e. In keeping with the principles of CBME a greater emphasis on acquisition of KH levels in the early phases with a shift to SH at the later phases will be evident from a review of the competency tables. It will be also evident that both acquisition of both KH and SH levels will require a shift from the traditional didactic classroom based teaching to

learning environments where there is a greater emphasis on learning by exploring, questioning, applying, discussing analysing, collaborating and doing. The recognition of this need is enshrined by a greatly enhanced allocation of time to these methods of learning in GMR, 2019.

Deriving teaching learning methods from competencies

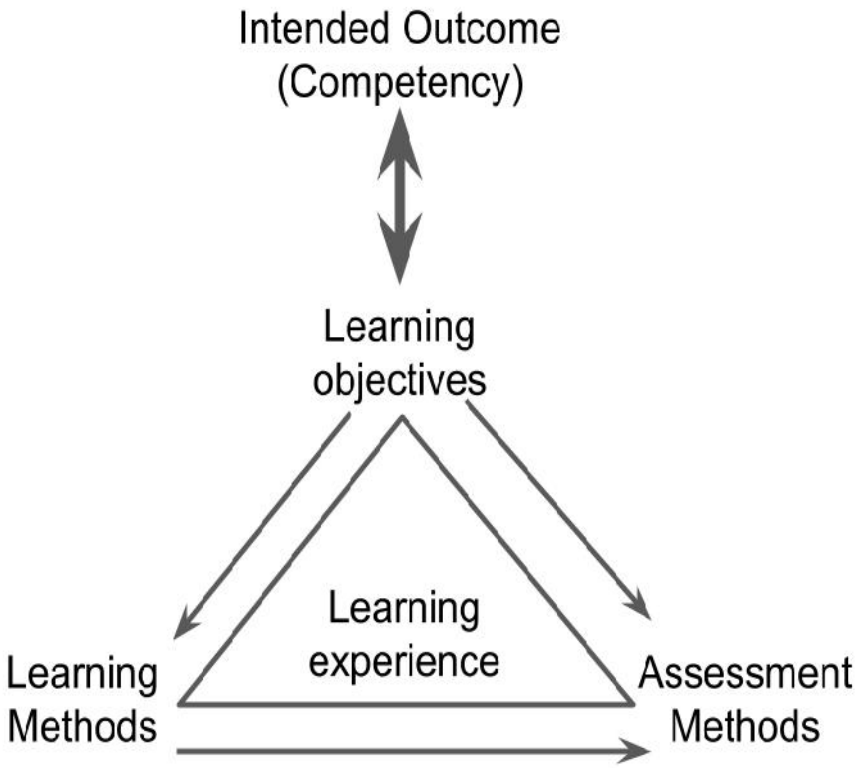
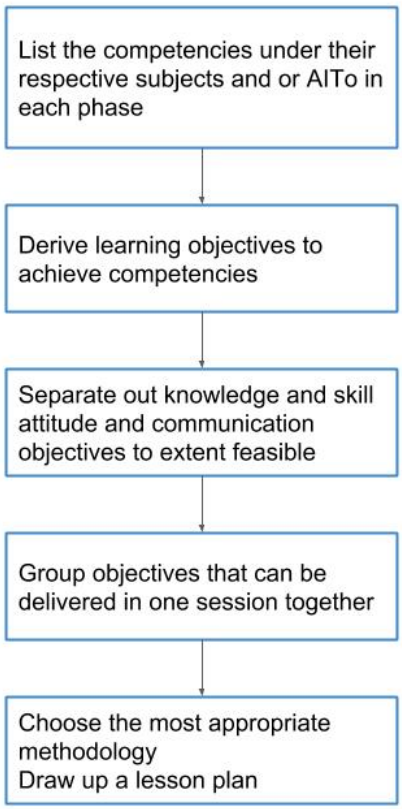


Figure 2: Relationship between outcomes, assessment and learning

The overall relationship between competencies learning and assessment is pictorially represented in figure 2.

The overall approach to deriving learning methods from competencies is summarised in figure 3.



KGS 2018

Figure 3: Steps in deriving learning methods

1. Grouping competencies and aligning them in an organ system or disease based aligned and integrated topic as outlined in the integration section of this document
2. The next step is to break down competencies into measurable objectives. The method that is usually used to create objectives is the Audience Behaviour Condition Degree (ABCD). One advantage of writing objectives in this manner is that the learning method and the assessment method are instantly apparent. A sample worksheet is provided in Appendix 1 of this section. This is illustrated in figure 4.
3. Learning sessions are created grouping together objectives that can be taught together. Choosing the correct learning method is a function of the objective, the domain, the level and importantly the faculty student ratio (figure 5 and appendix 1).
4. Knowledge domain objectives with lower cognitive level achievements lend well to traditional classroom. KH level achievements require small group sessions that allow greater student involvement, interaction with ability to probe student understanding

and application. The higher the cognitive level of the objective of the competency, the greater is the requirement of a learning setting with a low student-teacher ratio.

5. There are many competing constraints that restrict the choice of small group learning sessions. These include faculty comfort burden and training, student motivation and involvement, infrastructure support and resources. Therefore, a balanced approach to the use of this setting is required as illustrated in figures 6 and 7.
6. In conditions where a lower student teacher ratio is required but not feasible - several strategies can be adopted including greater student responsibility, greater use of process vs subject experts, technology, innovative large group techniques such as the flipped classroom and the large group case discussion.

Examples of suggested teaching-learning methods to be used for each competency are provided for each competency in the competency table (figure 1).

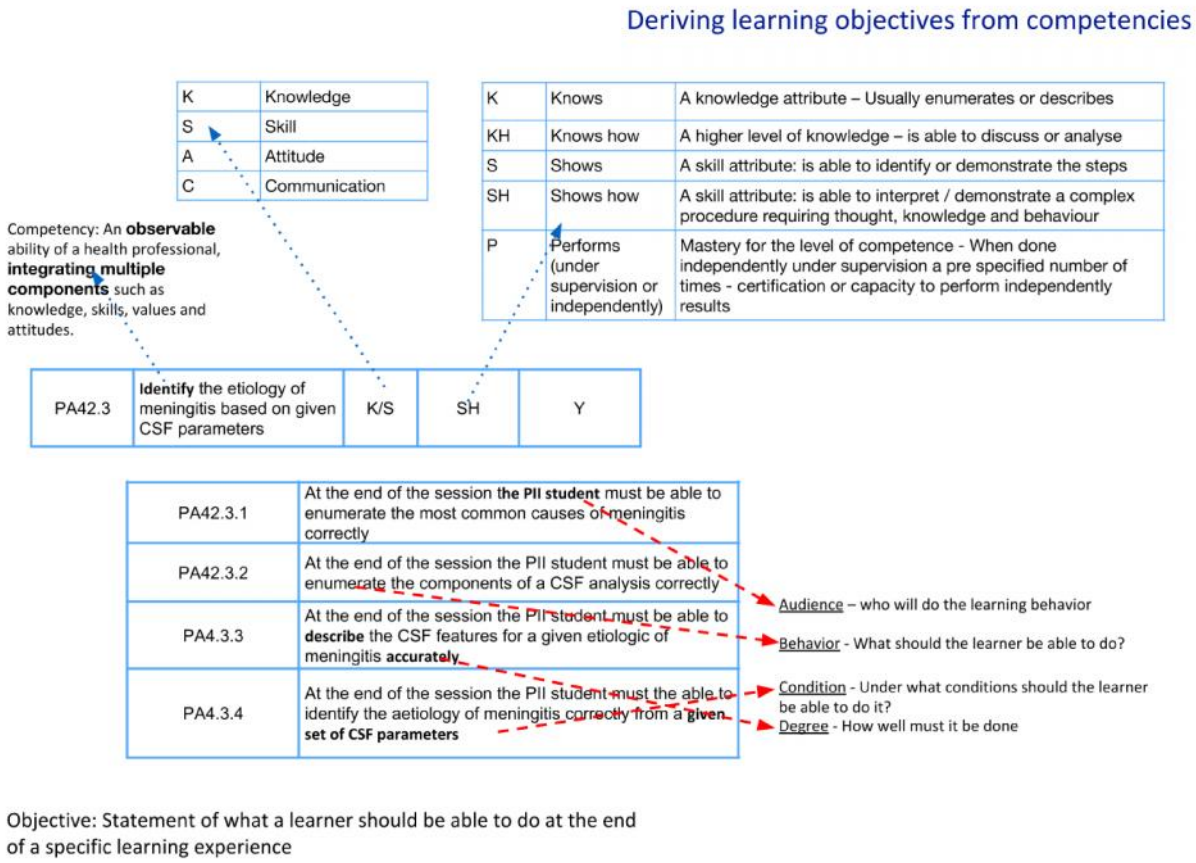


Figure 4: Deriving learning objectives from competencies

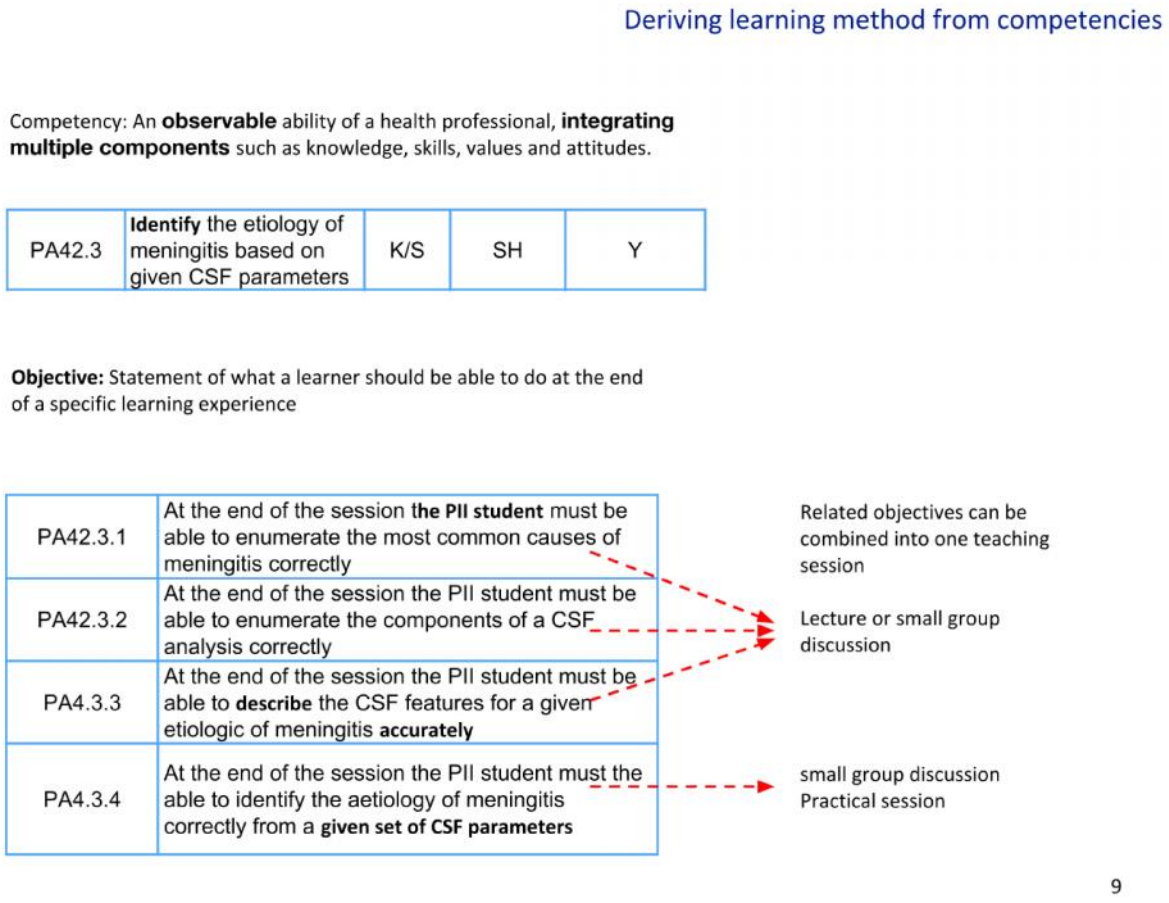


Figure 5: Deriving learning methods from objectives

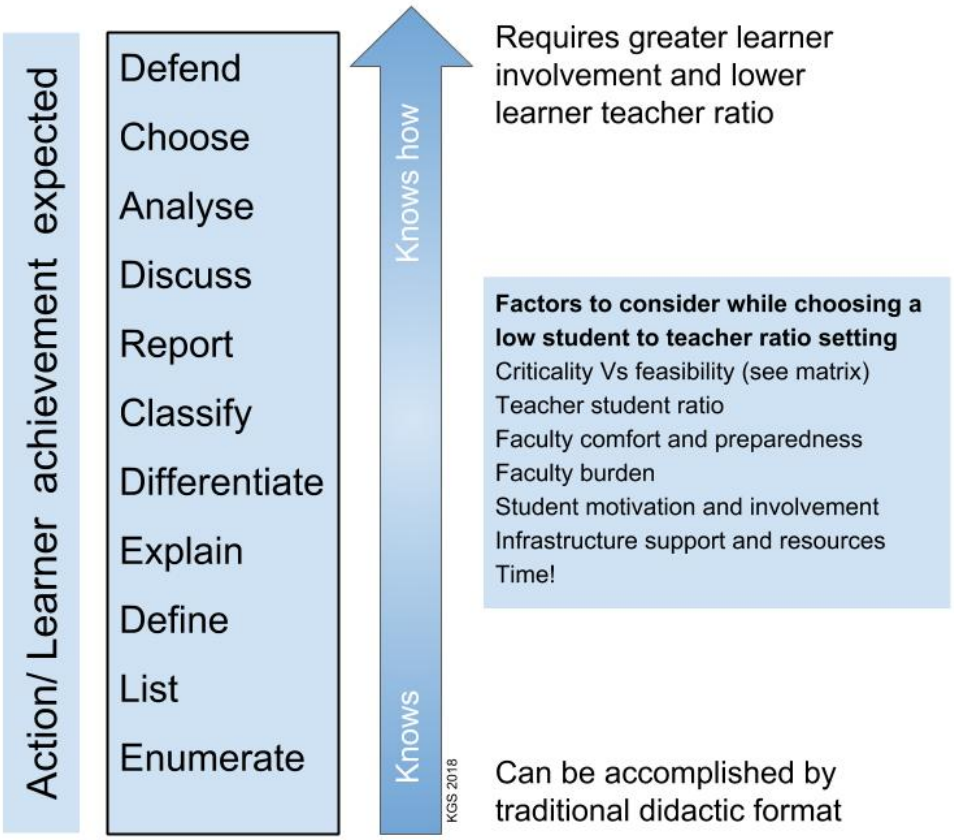


Figure 6: Factors to be considered while choosing TL methods in the cognitive domain. Higher level of cognition required lower teacher to student settings. The choice must consider other factors.

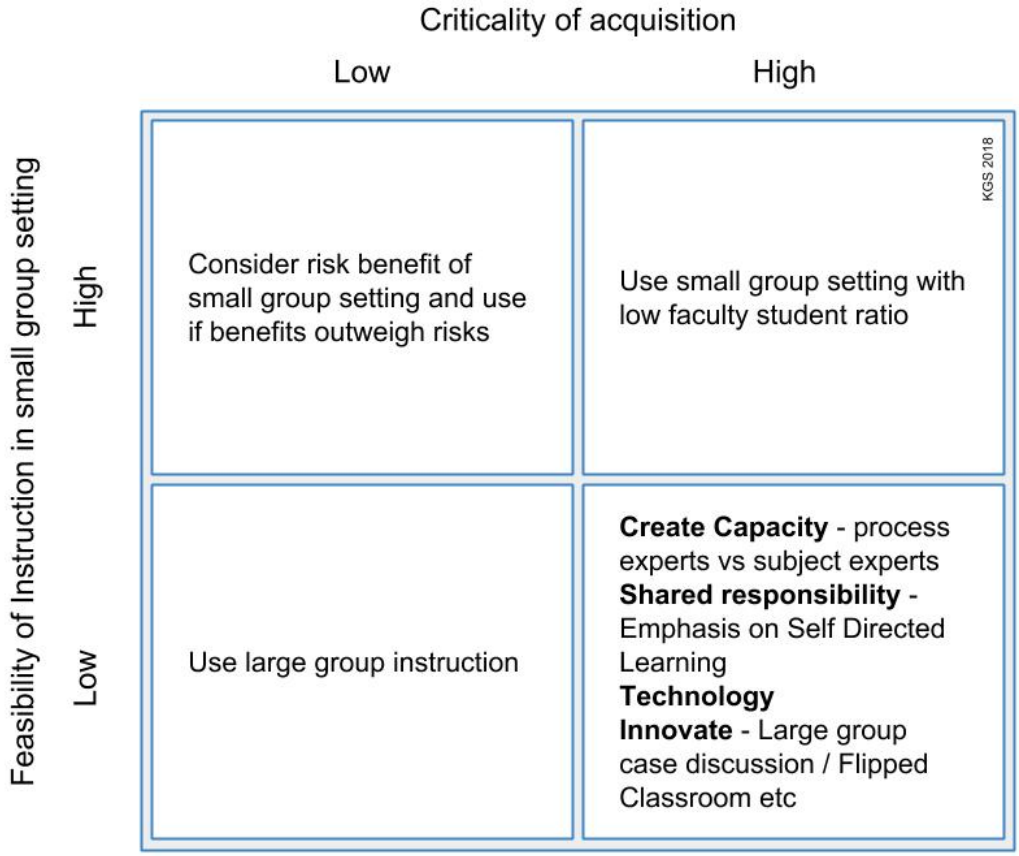


Figure 7: Criticality vs feasibility matrix for choosing a low teacher student ratio setting of instruction

7. Varying levels of competence are required for skill level objectives. The most crucial of them require certification of independent performance; others require the ability to demonstrate steps in a simulated or controlled environment; some may merely need observation in the MBBS program. These sessions have been called DOAP sessions in the competency table and are dealt in detail in the session on skill acquisition. A criticality vs feasibility matrix for skill sessions is also provided.

8. It must be remembered that multiple sessions (often addressing different domains) in a phase in the same and different subjects AND across multiple phases may be required to achieve a particular competence

Sample Worksheets

Deriving Objectives from Competencies

Competency:

I. **Objective development worksheet :**

No.	Audience	Behaviour	Condition	Degree

II. Transfer your developed objectives into this sheet

No	Objective	Domain K/S/A/C	Level (K/KH/S/SH)	Departments(s)	A/I (Y/N) (H/V)

A/I: Alignment/Integration; H/V: Horizontal/Vertical

III. Choosing a Teaching-Learning Method Worksheet

Major / Sub Competency:

Name of Topic:

Identified Learning Objectives:

1.
2.
3.
4.
5.
6.

Target Audience:

Number of students:

Parameter	Method 1	Method 2	Method 3
Advantages			
Disadvantages			
Infrastructure/Aids required			
Faculty preparation required			
Other Issues			

Method Chosen: (Use summary sheet for further discussion)

IV. Choosing a Teaching-learning method - Summary Sheet

Parameter	Description
Name of the Lesson	
Number of learners	
Objectives of the session	
Primary Teaching Method chosen	
Advantages of the Teaching method chosen	
Possible disadvantages	
Faculty preparation required	
Breakup of the session	Step 1 Step 2 Step 3 Step 4 Step 5
Teaching Aids required	
Infrastructure required	
Student preparation required	
Instant assessment method Chosen	
Other comments	

Alignment and Integration

Objectives

The participant must be able to:

a. Facilitate the development of an aligned and integrated curriculum in his/her institution as envisaged in the GMR, 2019 document

Glossary of terms used

For the purposes of this document -

Alignment implies the teaching of subject material that occurs under a particular organ system/ disease concept from the same phase in the same time frame i.e., temporally.

Integration implies that concepts in a topic / organ system that are similar, overlapping or redundant are merged into a single teaching session in which subject based demarcations are removed. For the purpose of this document, topics from other phases that are brought into a particular phase for the purpose of reinforcement or introduction will also be considered as integrated topics. In GMR, 2019 time for integrated teaching is clearly demarcated.

Linker is a session that allows the learner to link the concepts presented in an aligned topic

Curricular Element or Program Addressed

Alignment and Integration

Relevant Extract from GMR

10.1 Preamble:

The salient feature of the revision of the medical curriculum is the emphasis on learning which is competency-based, integrated and student-centered acquisition of skills and ethical & humanistic values.

Each of the competencies described below must be read in conjunction with the goals of the medical education as listed in items 2 and 3.

It is recommended that didactic teaching be restricted to less than one third of the total time allotted for that discipline. Greater emphasis is to be laid on hands-on training, symposia, seminars, small group discussions, problem-oriented and problem-based discussions and self-directed learning. Students must be encouraged to take active part in and shared responsibility for their learning.

Subject specific competencies with appropriate alignment and integration are available with Medical Council of India.

10.2 Integration must be horizontal (i.e. across disciplines in a given phase of the course) and vertical (across different phases of the course). As far as possible, it is desirable that teaching/learning occurs in each phase through study of organ systems or disease blocks in order to align the learning process. Clinical cases must be used to integrate and link learning across disciplines.

Description of the curricular program

Concept of integration used in the GMR

Integration is a learning experience that allows the learner to perceive relationships from blocks of knowledge and develop a unified view of its basis and its application (KGS 2018). The GMR, 2019 applies these principles to the extent that will retain the strengths of silo based education and assessment while providing experiences that will allow learners to integrate concepts.

Keeping this in mind the regulations recommend temporal coordination as described by Harden (called alignment in this document) as the major method to be followed allowing similar topics in different subjects to be learnt separately but during the same time frame (figure 1a).

In a small proportion - not to exceed 20% of the total curriculum an attempt can be made to **share** (figure 1b) topics or **correlate** (figure 1c) topics by using an integration or linker session. The integration session most preferred will be a case based discussion in an appropriate format ensuring that elements in the same phase (horizontal) and from other phases are addressed.

Care must be taken to ensure that achievement of phase based objectives are given primacy - the integrative elements from other phases are used only to provide adequate recall and understand the clinical application of concepts. It must be emphasised that integration does not necessarily require multiple teachers in each class. Experts from each phase and subject may involved in the lesson planning but not it in its delivery unless deemed necessary.

As much as possible, the necessary correlates from other phases must also be introduced while discussing a topic in a given subject - **Nesting** (figure 1 d) (Harden).

Topics that cannot be aligned and integrated must be provided adequate time in the curriculum throughout the year. These concepts are summarised in table 1.

Assessment will continue to be subject based. However effort must be made to ensure that phase appropriate correlates are tested to determine if the learner has internalised and integrated the concept and its application.

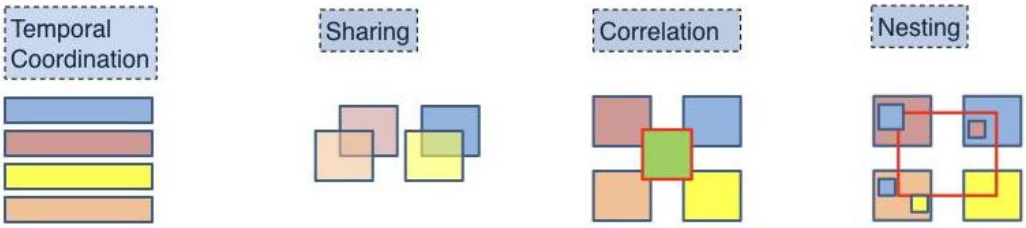
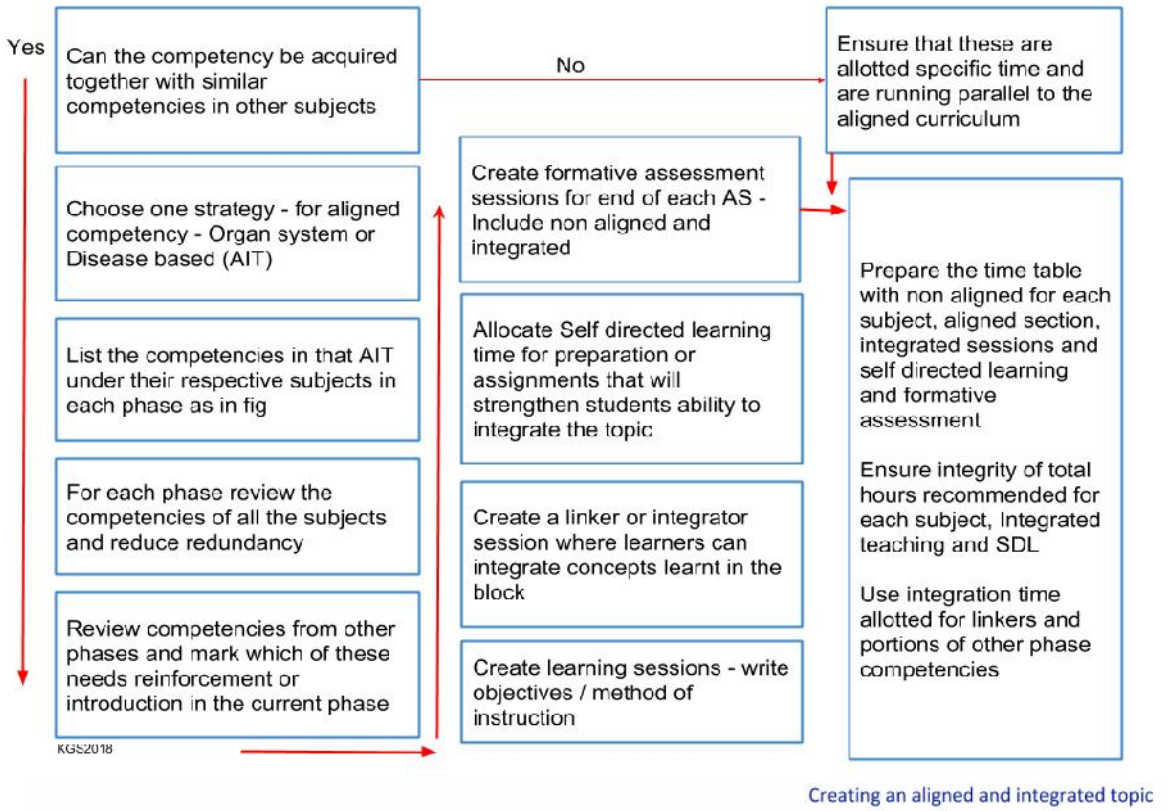


Figure 1: Integration concepts framed in the GMR. Coloured boxes represent subjects. 1 a. Temporal coordination: The timetable is adjusted so that topics within the subjects or disciplines which are related, are scheduled at the same time. b. Sharing: Two disciplines may agree to plan and jointly implement a teaching program c. Correlation: the emphasis remains on disciplines or subjects with subject-based courses taking up most of the curriculum time. Within this framework, an integrated teaching session or course is introduced in addition to the subject-based teaching (green box with red border) d. Nesting: the teacher targets, within a subject-based course, skills relating to other subjects. Adapted from Harden R Med Edu 2000. 34; 551

Table 1 Considerations for using alignment and integration in the curriculum

Competency /Objective	Same Phase	Different Phase KGS 2018
Cannot be taught in a particular topic	Teach separately	-
Can be taught together in different sessions in the same topic	Align	Align From earlier phase to reinforce a concept From later phase to introduce a concept or create relevance
Can be taught in the same session in the same topic	Integrate	Integrate From earlier phase to reinforce a concept From later phase to introduce a concept or create relevance
Can be used to link concepts taught in a particular topic	Linker (Usually Linkers are from a higher phase)	Linker (Usually a clinical condition problem or case)

Figure 2 - Overview of process to create an aligned and integrated topic



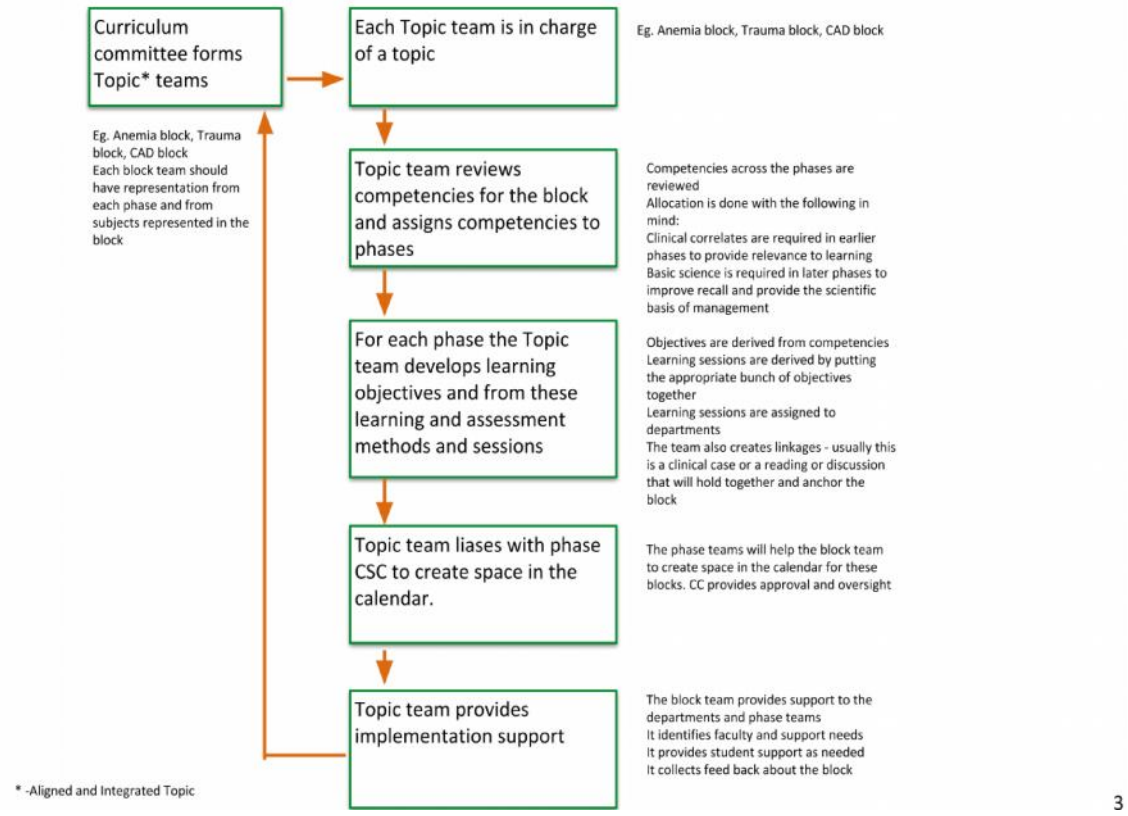


Figure 3: Steps in development of an aligned and integrated topic

Step 1: Identify a list of topics or organ systems that will be accommodated in the timetable as aligned and integrated topics (AITo). Examples of such topics included : Anemia, Febrile illnesses, Trauma etc are provided in Appendix 1.

Step 2: From the subject wise competency document book developed by the MCI transfer the competences that address the topic into a template. A sample is provided Arrange these competencies according to phase and subject. Examples for the topics are available in appendix 1 and presented in Appendix 2. A glossary to understand competencies is available in Appendix 3.

Step 3: For each competency derive learning objectives, learning sessions and assessment methods (figures 4 - 6).

a. A learning session is created by putting together a bunch of objectives that can be accomplished in the allotted time and/or require a similar method of instruction.

b. A bunch of learning sessions that are put together that address the topic from different subjects in the phase form an Aligned and Integrated Topic (AITo)

Step 4: In each AITo of the phase, it is important to review competencies from the previous phase that will bear reinforcement in the current phase. Similarly, it is important to ensure that competencies in the next higher phases are reviewed to explore if some of these require introduction in this phase. Integration sessions allotted in each phase may be used to deliver these competencies.

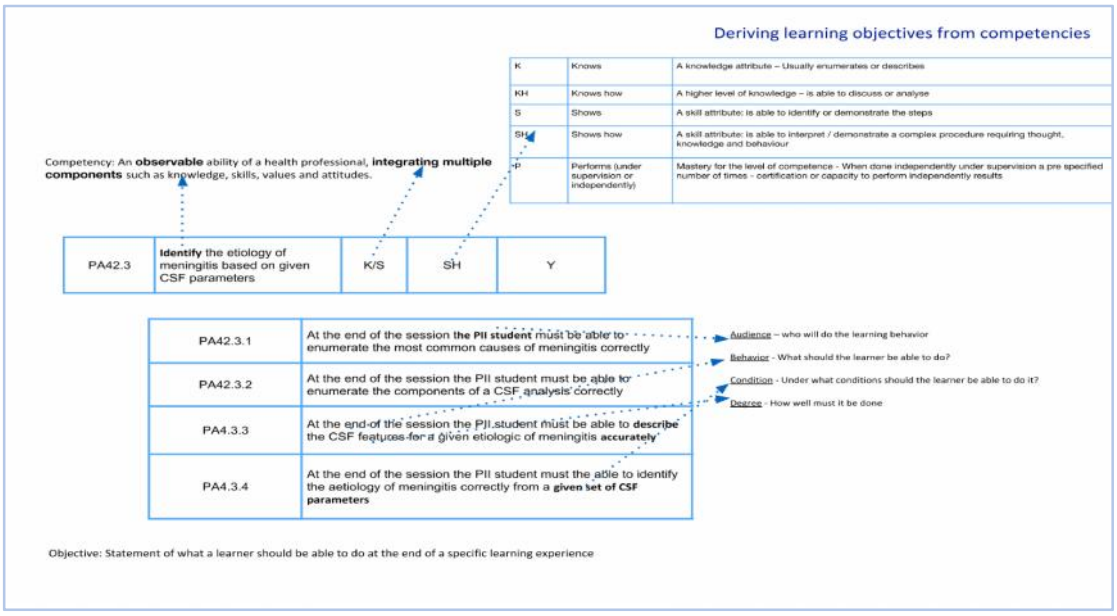


Figure 4 - Deriving learning objectives from competencies

a. By reviewing objectives / competencies in a phase redundant ones and those in each subject that can be thought together without a subject demarcation can be identified for horizontal integration.

b. Similarly by reviewing objectives or competencies across phases those with a common thread can be identified for vertical integration. These are illustrated in figures 7-9.

c. Objective writing and session planning must be done with teachers of all subjects involved in the aligned and integrated topic (AITo) and their inputs taken for the integrated session.

d. It is important to remember that *the concept and not necessarily teachers* have to be integrated. Using different teachers in each integrated session is nice but rarely required

Step 5: Consider adding a linker to each AITo. A linker as defined above is a session that aptly links the various related standalone elements represented in a AIT In the medical curriculum the linker is most commonly a case. A case that is creatively written can be used in each phase (often the same case) to allow students to correlate what they have learnt and apply into understanding disease process, diagnosis and care. Using a case based discussion to in small groups will in addition encourage collaborative and self directed learning. Using the case discussion at different time points in AITo will allow students to reinforce and link concepts appropriately

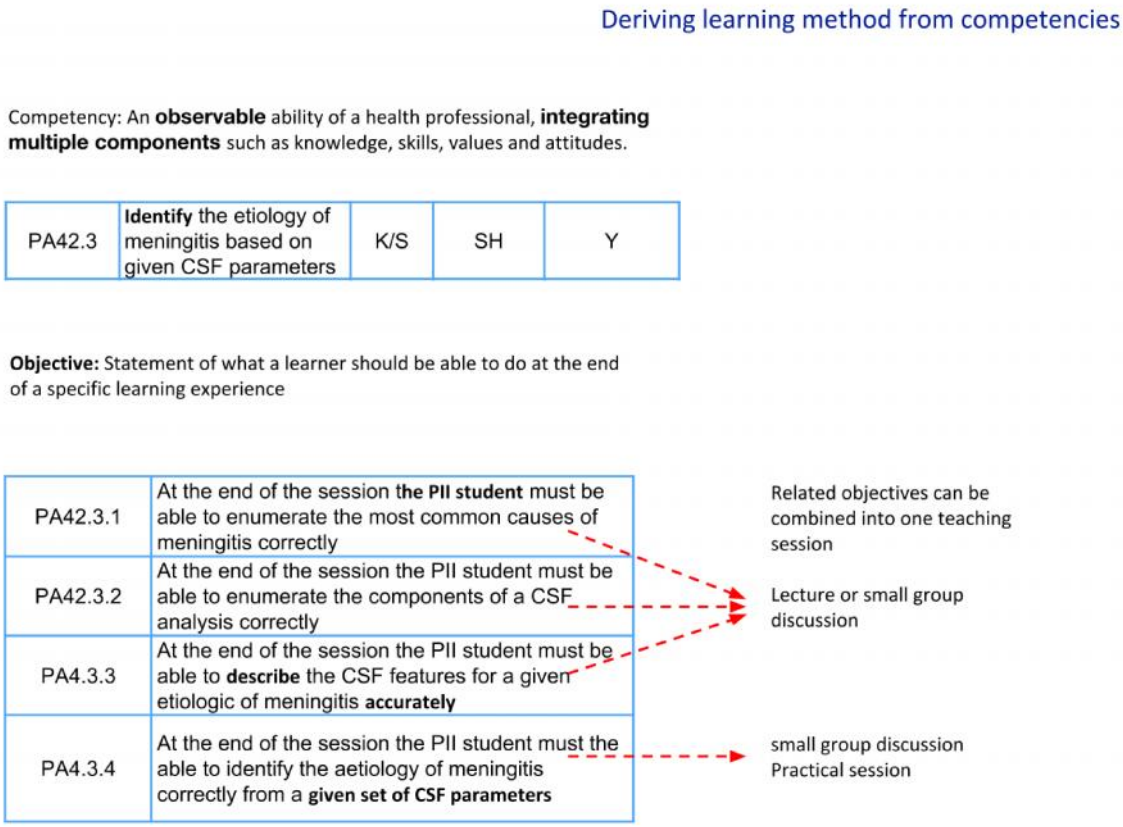


Figure 5. Deriving learning methods from competencies

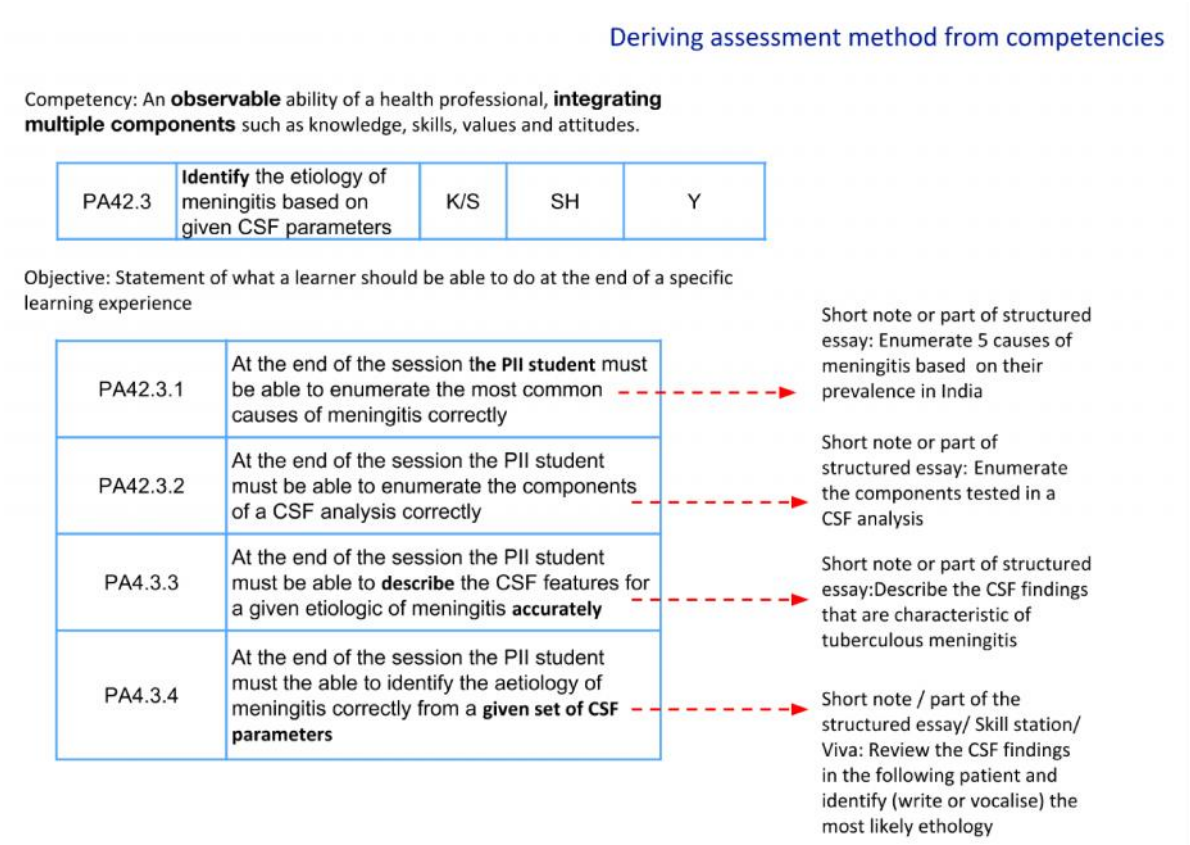


Figure 6: Deriving assessment methods from competencies

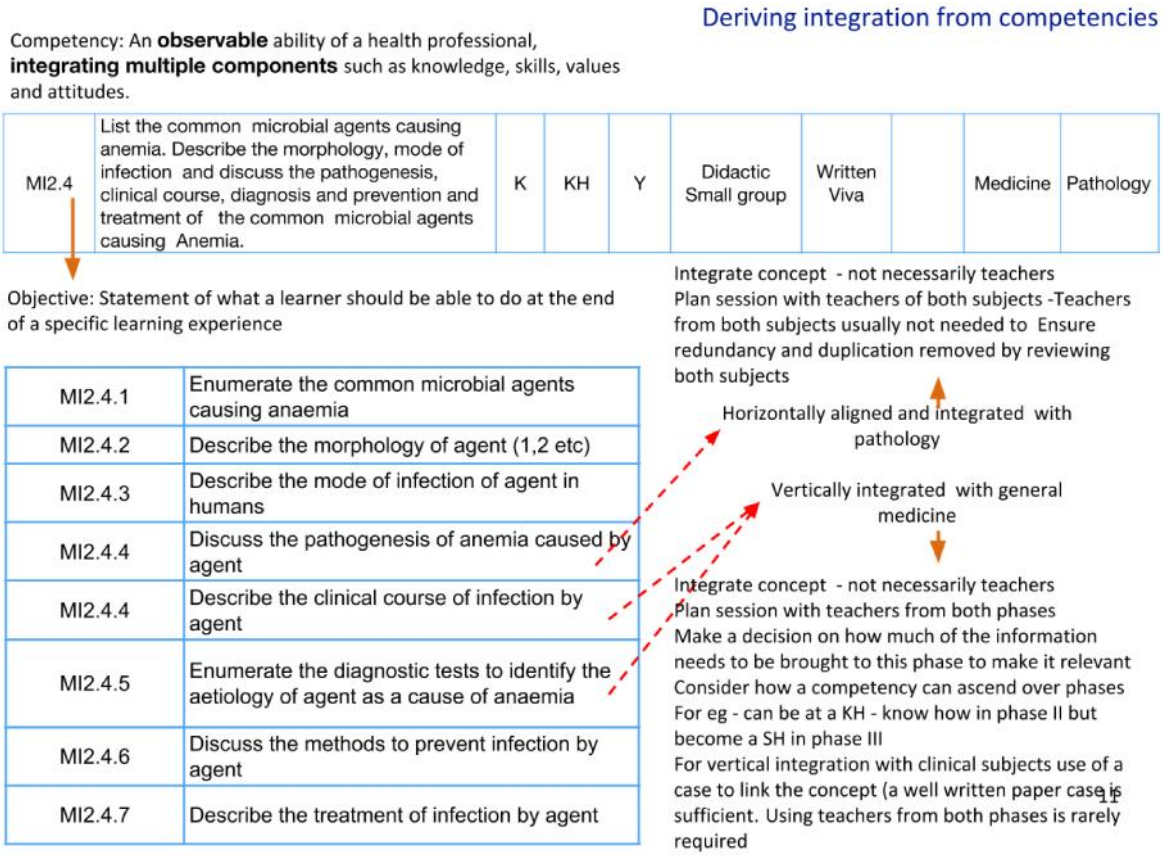


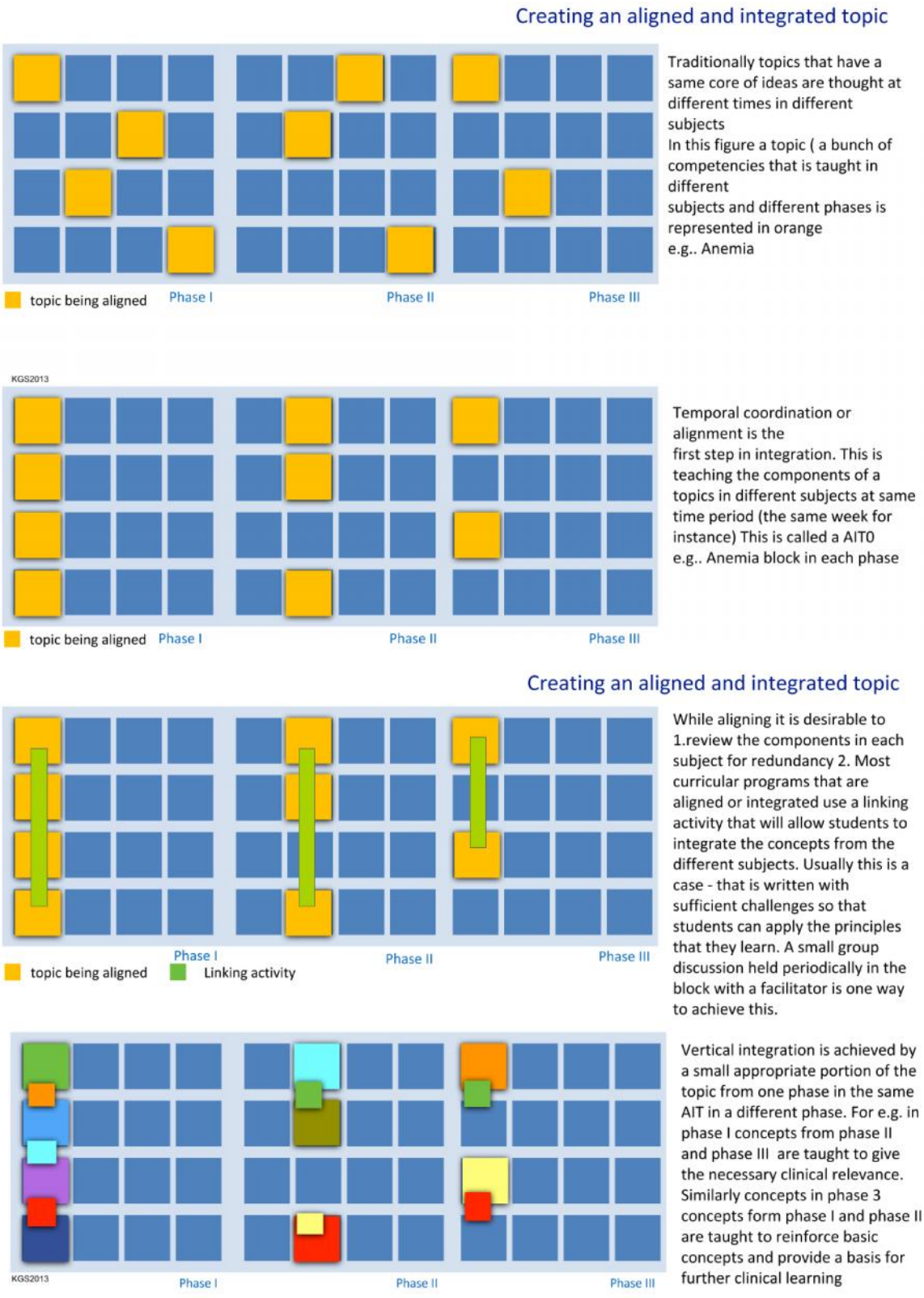
Figure 7**:** Marking objectives/ competencies for integration

The creation of an aligned and integrated topic (AITo) are pictorially illustrated in figures 8 and 9.

Step 6: Ensure that adequate time for the block is created in the time table. It is important to consider the inclusion of an end of block assessment that will count towards formative/ internal assessment.

Important: While creating the timetable ensure that topics in each subject that cannot be aligned are also taught simultaneously in each subject and that the timetable accommodates these topics appropriately.

An example timetable incorporating an aligned and integrated topic is available in Appendix 4. The functions of the AIT team in collaboration on CSC and CC in creating the AIT/Block is illustrated in figure 10.



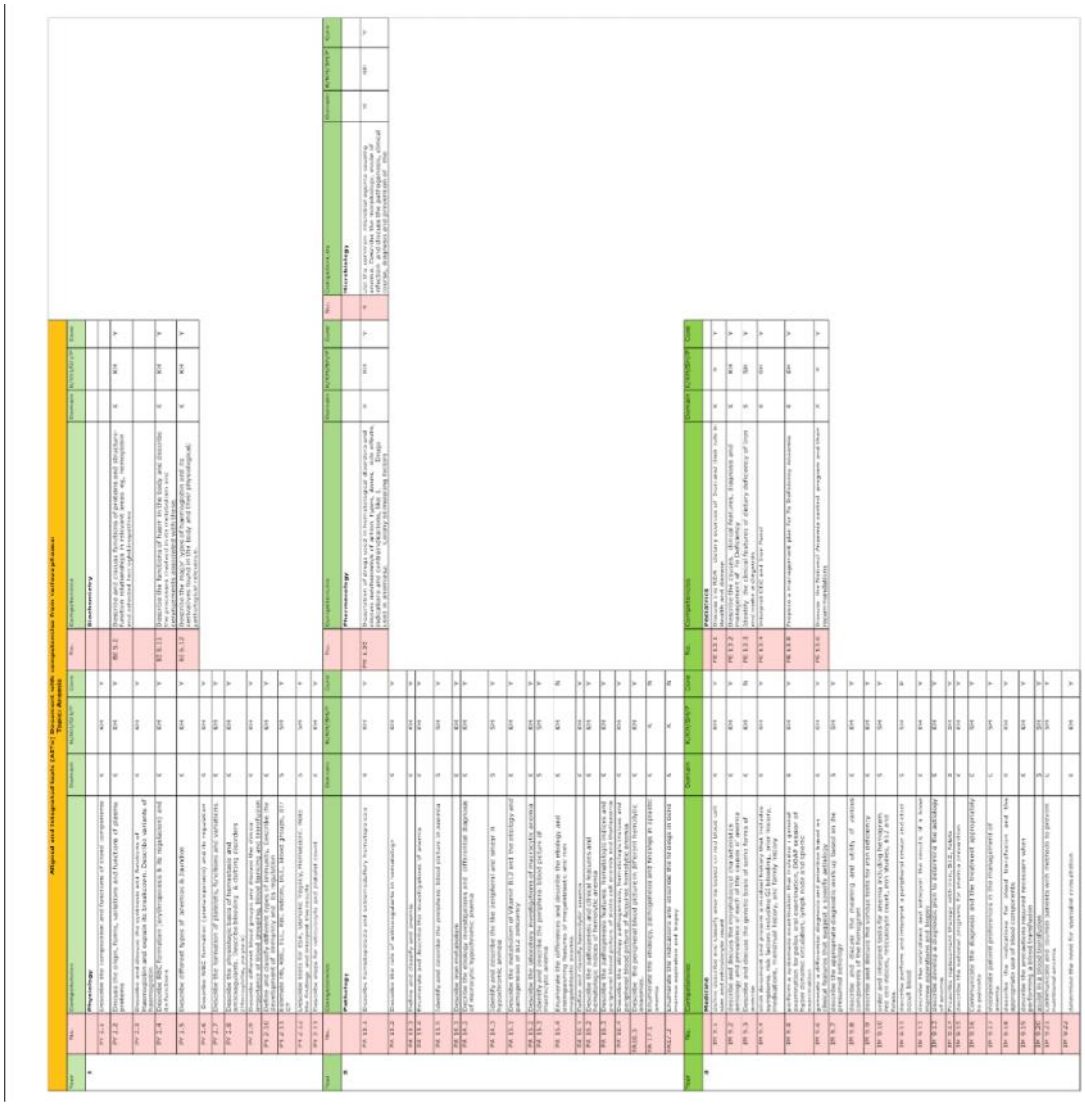
Figures. 8 and 9. Pictorial illustration of creating horizontal alignment and horizontal vertical integration

Appendix 1

Example topics developed by the RCB for the aligned and integrated topics (indicative)

- Anemia
- Jaundice
- Diabetes
- Thyroid Diseases
- Nutrition
- Febrile Illness
- Tuberculosis
- Malaria
- Diarrhoea
- Ischemic Heart Disease
- Polycystic Ovarian Syndrome

Appendix 2 & Figure 10. : Example of phase wise competency table for a single Aligned and Integrated Topic (AITo) - Anemia



Appendix 3

Understanding the competencies table

1	2	3	4	5	6	7	8	9	10
No.	**Competencies**	**Domain**	**K/KH/SH/ P**	**Core**	**Suggested Teaching Learning method**	**Suggested Assessment method**	**No req to certify P**	**Vertical Integration**	**Horizontal integration**
Physiology									
Summary **Name of Topic: General Physiology** **Number of competencies: (08)**							**Number of procedures that require certification: Nil**		
PY1.1	Describe the structure and functions of a mammalian cell	K	KH	Y	Lectures, Small group discussion	Written/viva			Biochemistry
GM25.4	Elicit document and present a medical history that helps delineate the aetiology of these diseases that includes the evolution and pattern of symptoms, risk factors, exposure through occupation and travel	S	SH	Y	bed side clinic, DOAP	Skill assessment		Community Medicine	

Unique number of the competency
First two alphabets represent the subject (see list)
Number following alphabet reflects topic
Number following period is a running number

Description of competency

Identifies the domain or domains addressed
K - Knowledge
S - Skill
A - Attitude
C - Communication

Identifies the level of competency required based on the miller's pyramid
K - Knows
KH- Knows How
S - Skill
SH - Show How
P - Perform independently

Identifies if the competency is core or desirable. Y indicates Core

Identifies the suggested learning method.
DOAP - **D**emonstrate (by student) **O**bserve **A**ssist **P**erform

Identifies the suggested assessment method
Skill assessment - Clinics, Skills lab, Practicals etc

no of times a skill needs to be done independently to be certified for independent performance
Rarely used in UG

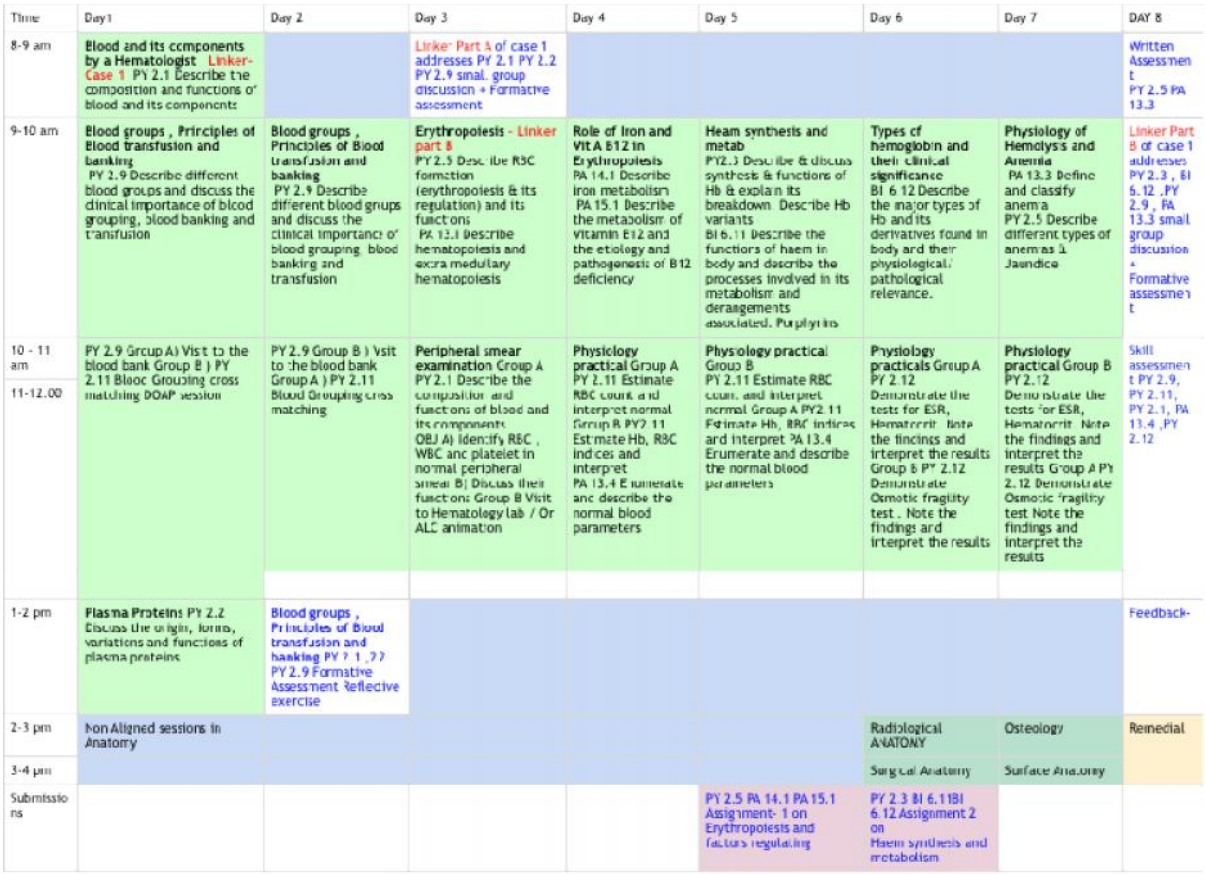
Subject(s) in other phases with which the competency can be vertically integrated to increase relevance or improve basic understanding

Subject(s) in the same phase with which the competency can be horizontally integrated or aligned to allow a more wholesome understanding

7

Appendix 4

Sample time table with AIT



Time	Day1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	DAY 8
8-9 am	Blood and its components by a Hematologist Linker-Case 1 PY 2.1 Describe the composition and functions of blood and its components		Linker Part A of case 1 addresses PY 2.1 PY 2.2 PY 2.9 small group discussion + Formative assessment					Written Assessment PY 2.5 PA 13.3
9-10 am	Blood groups , Principles of Blood transfusion and banking PY 2.9 Describe different blood groups and discuss the clinical importance of blood grouping, blood banking and transfusion	Blood groups , Principles of Blood transfusion and banking PY 2.9 Describe different blood groups and discuss the clinical importance of blood grouping, blood banking and transfusion	Erythropoiesis - Linker part B PY 2.5 Describe RBC formation (erythropoiesis & its regulation) and its functions PA 13.1 Describe hematopoiesis and extra medullary hematopoiesis	Role of Iron and Vit A B12 in Erythropoiesis PA 14.1 Describe iron metabolism PA 15.1 Describe the metabolism of vitamin B12 and the etiology and pathogenesis of B12 deficiency	Heam synthesis and metab PY2.3 Describe & discuss synthesis & functions of Hb & explain its breakdown Describe Hb variants BI 6.11 Describe the functions of haem in body and describe the processes involved in its metabolism and derangements associated. Porphyrins	Types of hemoglobin and their clinical significance BI 6.12 Describe the major types of Hb and its derivatives found in body and their physiological/ pathological relevance.	Physiology of Hemolysis and Anemia PA 13.3 Define and classify anemia PY 2.5 Describe different types of anemias & Jaundice	Linker Part B of case 1 addresses PY 2.3 , BI 6.12 ,PY 2.9 , PA 13.3 small group discussion + Formative assessment
10 - 11 am 11-12.00	PY 2.9 Group A) Visit to the blood bank Group B) PY 2.11 Blood Grouping cross matching DOAP session	PY 2.9 Group B) Visit to the blood bank Group A) PY 2.11 Blood Grouping cross matching	Peripheral smear examination Group A PY 2.1 Describe the composition and functions of blood and its components OBJ A) Identify RBC , WBC and platelet in normal peripheral smear B) Discuss their functions Group B Visit to Hematology lab / Or ALC animation	Physiology practical Group A PY 2.11 Estimate RBC count and interpret normal Group B PY2.11 Estimate Hb, RBC indices and interpret PA 13.4 Enumerate and describe the normal blood parameters	Physiology practical Group B PY 2.11 Estimate RBC count and interpret normal Group A PY2.11 Estimate Hb, RBC indices and interpret PA 13.4 Enumerate and describe the normal blood parameters	Physiology practicals Group A PY 2.12 Demonstrate the tests for ESR, Hematocrit Note the findings and interpret the results Group B PY 2.12 Demonstrate Osmotic fragility test . Note the findings and interpret the results	Physiology practical Group B PY 2.12 Demonstrate the tests for ESR, Hematocrit Note the findings and interpret the results Group A PY 2.12 Demonstrate Osmotic fragility test Note the findings and interpret the results	Skill assessment PY 2.9, PY 2.11, PY 2.1, PA 13.4 ,PY 2.12
1-2 pm	Plasma Proteins PY 2.2 Discuss the origin, forms, variations and functions of plasma proteins	Blood groups , Principles of Blood transfusion and banking PY 2.1 ,2.2 PY 2.9 Formative Assessment Reflective exercise						Feedback-
2-3 pm	Non Aligned sessions in Anatomy					Radiological ANATOMY	Osteology	Remedial
3-4 pm						Surgical Anatomy	Surface Anatomy	
Submissions					PY 2.5 PA 14.1 PA 15.1 Assignment- 1 on Erythropoiesis and factors regulating	PY 2.3 BI 6.11BI 6.12 Assignment 2 on Haem synthesis and metabolism		

Required Reading

1. Ronald M Harden,The integration ladder: a tool for curriculum planning and evaluation, Medical Education 2000;34:551±557.
2. Alam Sher Malik &Rukhsana Hussain Malik, UniversitiTeknologi MARA, Malaysia Twelve tips for developing an integrated curriculum"> Medical Teacher 2011; 33: 99–104.
3. David G. Brauer & Kristi J. Ferguson 1 Washington University School of Medicine, USA, University of Iowa, USA The integrated curriculum in medical education: AMEE Guide No. 96.
4. Integration of basic and clinical sciences - AMEE 2008 Paul Bradley and Karen Mattick, Peninsula College of Medicine and Dentistry, UK,https://amee.org/getattachment/Conferences/AMEE-Past-Conferences/AMEE-Conference-2008/Introduction-to-Medical-Education-Bradley-Mattick.pdf.

Additional reading

1. Integrated Medical Curriculum: Advantages and Disadvantages. Gustavo a. Quintero et al. Journal Of Medical Education And Curriculum Development.

Electives

Introduction

Elective can be defined as a brief course made available to the learner during his/her undergraduate study period, where she/he can choose from the available options depending upon their interest and career preferences. This provides an opportunity in the form of an elective course, where an undergraduate medical student can explore his/her deeper interest areas, by working in a medical specialty in hospital/ community setting or undertake a project under an identified expert, which can be an important component in the undergraduate medical education. A student can be helped in identifying his/her future career path by direct experiences in diverse areas. An elective is not being offered by medical schools in India till now.

Introduction of electives in undergraduate medical curriculum is an important step for providing flexible choices in student's areas of interest, direct individual experience and this will help in developing self-directed learning skills.

The range of electives that can be offered to the students will depend upon the local logistics and resources available for the medical institutions (within or nearby). These can be in a wide range that can include electives from educational, community and research-project related, directly or indirectly with health care, super-specialty clinical electives and specific laboratory electives.

Relevant Extract from GMR:

Method:

9.3.2 Two months are allotted for elective rotations after completion of the exam at end of the third MBBS Part I examination and before commencement of third MBBS Part II.

9.3.3 It is compulsory for learners to do an elective. The protected time for electives should not be used to make up for missed clinical postings, shortage of attendance or any other purpose.

9.3.4 Structure

(a) The learner shall rotate through two elective blocks of 04 weeks each,

(b) Block 1 shall be done in a pre-selected preclinical or para-clinical or other basic sciences laboratory OR under a faculty researcher in an ongoing research project. During the electives regular clinical postings shall continue.

(c) Block 2 shall be done in a clinical department (including specialties, super-specialties, ICUs, blood bank and casualty) from a list of electives developed and

available in the institution OR as a supervised learning experience at a rural or urban community clinic.

(d) Institutions will determine the number and nature of electives beforehand , names of the supervisors, and the number of learners in each elective based on the local logistics, available resources and faculty.

9.3.5 Each institution will develop its own mechanism for allocation of electives.

9.3.6 It is preferable that electives are made available to the learners in the beginning of the academic year.

9.3.7 The learner must submit a learning log book based on both blocks of the elective.

9.3.8 75% attendance in the electives and submission of log book maintained during elective is mandatory for eligibility to appear in the final MBBS examination.

9.3.9 Institutions may use part of this time for strengthening basic skill certification.

Description of the curricular program

Objectives:

To provide learner with opportunities

- for a wide spectrum of learning experiences
- to carry hospital/ community based research projects which stimulate enquiry, self-directed, experiential learning and lateral thinking

Intent:

The purpose of introducing electives in the undergraduate curriculum is to:

- allow flexibility and choice during study period
- provide opportunity to explore their areas of interest that can supplement their future studies
- develop self directed learning skills
- have direct experience of working in their interest areas
- develop ability of deeper learning and critical thinking through reflection
- have a student centric component in curriculum

Elements and components of the program:

1) Faculty Development:

The existing MCI curriculum for UG does not have electives and thus faculty as well as institutions need to be trained to implement this new element.

2) Incorporation in the curriculum:

List of electives offered by the institution must be displayed for students. Each elective should have well defined objectives, expected outcomes, expectations from the students, their assessment mechanism and faculty guide or mentors. A faculty mentor should guide the student, monitor their learning activities and assess the students' performance with regular feedback.

Curricular delivery:

Method:

- Two months are designated for elective rotations after completion of the examination at end of the third MBBS Part I and before commencement of third MBBS Part II
- It is compulsory for learners to do an elective.
- The protected time for electives should not be used to make up for missed clinical postings, shortage of attendance or any other purposes.

Curricular governance and evaluation of the program (Person responsible, evaluation periodicity, methods, reporting)

Each medical institution will be primarily responsible for the elective postings. Dean's office in each medical college will identify a person/office/department/ MEU in the college who will be assigned the task of identifying, organizing and taking all administrative responsibilities for the elective postings.

The responsible person/office/department/ MEU will identify possible electives within and outside institution that can be offered to the students. These need to be specified and communicated to the students at the beginning of the academic year. The departments and/ or faculty who will guide/ supervise/mentor the students during their elective posting also need to be identified and trained in various requirements of electives.

If resources are available, students may be permitted to do electives in other medical colleges or institutions within/ outside the country with permission of local authorities and Universities.

Examples of some of the electives that may be offered are:

Example of General Electives:

- Bio-Informatics, Tissue Engineering/ Processing,

- Computer & Computer Applications, Immunology,
- Genetics, Human Nutrition, etc. Sports Medicine,
- Laboratory Sciences, Research Methodology,
- Ethics, Accident and Emergencies (A&E),
- Community Projects, HIV Medicine, Tissue Culture,
- Pharmaco-kinetics/-dynamics /-economics,
- Assisted Reproductive Technology, Ethics & Medical Education

Example of List of clinical electives / disciplines(where it can be done):

- Cardiothoracic Surgery, Cardiology, Paediatric Surgery, Gastroenterology
- Infectious Disease, Geriatrics, Psychiatry, Radiodiagnosis
- Neurosurgery, Neurology, Accident & Emergency Medicine
- Rheumatology, Pulmonary Medicine
- Neonatology, Anaesthesia, Oncology
- Dermatology, Endocrinology, Nephrology
- Palliative care, Clinical pharmacology, Physical Medicine and Rehabilitation
- Clinical genetics, Biomedical waste management, Toxicology

Example of Community electives/Places where it can be done:

- District, taluka hospital or PHC
- Community hospital
- Community project
- National programmes

List of Laboratory Electives:

- Biochemistry, Pathology, Microbiology, Virology
- Pharmacology, Forensic Medicine, Molecular biology etc.

Assessment:

- Assessment will be in line with the general assessment pattern document of CBME.
- Electives are compulsory part of medical curriculum and 75% of attendance will be mandatory

- Student should maintain and submit a log book/ portfolio with all academic and non academic activities. For example; Cases seen, examined, investigated, test performed, case operated etc.
- Along with their stories and reflection about each event.
- Students will be assessed in between and at the end of each elective posting.
- Feedback, comments and /or grades about the student's performance by the faculty mentor can be documented with the help of a checklist where both professional and academic attributes can be included.
- Various points that are included in the checklist can be related to clinical skills like history taking/examination, motivation and interest, communication, team work, discipline, documentation etc
- The performance of the students in the electives will also contribute towards internal marks.
- Student's feedback about the elective also needs to be documented in a structured format. This will help in gathering student's perceptions about various aspects of elective posting and help in program evaluation.

List of resources :

Must read

- Lumb A, Murdoch-Eaton D. Electives in undergraduate medical education: AMEE Guide No. 88. Medical Teacher. 2014 Jul 1;36(7):557-72.
- Ankit Agarwal, Stephanie Wong, Suzanne Sarfaty, Anand Devaiah& Ariel E. Hirsch (2015) Elective courses for medical students during the preclinical curriculum: a systematic review and evaluation, Medical Education Online, 20:1, DOI:10.3402/meo.v20.26615
- Thompson MJ, Huntington MK, Hunt DD, Pinsky LE, Brodie JJ. Educational effects of international health electives on US and Canadian medical students and residents: a literature review. Academic medicine: journal of the Association of American Medical Colleges. 2003 Mar;78(3):342.

Additional reading

- Hastings, Adrian & Dowell, Jon &KalmusEliasz, Michael. (2013). Medical student electives and learning outcomes for global health: A commentary on behalf of the UK Medical Schools Elective Council. Medical teacher. 36. 10.3109/0142159X.2013.849330.
- Harth SC, Leonard NA, Fitzgerald SM, Thong YH. The educational value of clinical electives. Medical education. 1990 Jul;24(4):344-53.
- Dana Stys, Wilma Hopman& Jennifer Carpenter (2013) What is the value of global health electives during medical school?, Medical Teacher, 35:3, 209-218, DOI:10.3109/0142159X.2012.731107

Early Clinical Exposure

Introduction:

Students who enter the MBBS course, have little knowledge and experience of medicine as a practical field. Neither will they have insight into the inter-relatedness of its scientific, social, professional and interpersonal dimensions. They look forward to dealing with patients and learning how to take care of them. However, the experience their preclinical experience seems very far removed from the purpose for which they entered the medical field. Students find it difficult to correlate structure, function and metabolic processes without seeing patients and understanding the purpose of what they are learning.

Today it has become clear that the clinical context, which the pre-clinical phase would ultimately serve, should be introduced earlier. Curricula therefore became 'integrated' such that early clinical exposure was introduced alongside the basic and clinical sciences. Students learn both the basic and clinical sciences as such, alongside rich integrating learning activities, be these early clinical contact, clinical skills, communication skills, problem-based or task-based learning sessions and so on. So curricula are settling down with the strength of the scaffolding that the basic and clinical sciences *per se* bring to the student's trajectory of learning, accompanied by contextual development of clinical and communication skills, practice with clinical problems, attachments to primary care and particular patients or families and so on. Early clinical exposure, and the accompanying knowledge and skills development, does not replace the basic and clinical sciences, but rather enriches and contextualizes that learning and offers a wider variety of teaching and learning methods.

Relevant Extract from GMR:

9.1.1 Objectives: The objectives of early clinical exposure of the first-year medical learners are to enable the learner to:

(a) Recognize the relevance of basic sciences in diagnosis, patient care and treatment

(b) Provide a context that will enhance basic science learning

(c) Relate to experience of patients as a motivation to learn

(d) Recognize attitude, ethics and professionalism as integral to the doctor-patient relationship

(e) Understand the socio-cultural context of disease through the study of humanities

9.1.2 Elements

(a) **Basic science correlation:** i.e. apply and correlate principles of basic sciences as they relate to the care of the patient (this will be part of integrated modules).

(b) **Clinical skills**: to include basic skills in interviewing patients, doctor-patient communication, ethics and professionalism, critical thinking and analysis and self-learning (this training will be imparted in the time allotted for early clinical exposure).

(c) **Humanities:** To introduce learners to a broader understanding of the socio-economic framework and cultural context within which health is delivered through the study of humanities and social sciences.

Description of the curricular program:

Definition

Although there is no consensus on the definition of ECE in the literature, it can be defined as an ‘‘authentic human contact in a social or clinical context that enhances learning of health, illness and/ or disease, and the role of the health professional’’, occurring in the early or preclinical years of undergraduate education (taken from the hand-out reference)

Objectives:

1. Recognize the relevance of basic sciences in diagnosis, patient care and treatment·
2. Provide a context that will enhance basic science learning & relate to experience of patients as a motivation to learn
3. Provide an opportunity for observing basic skills in interviewing patients & doctor-patient communication.
4. Recognize attitude, ethics and professionalism as integral to the doctor-patient relationship
5. Understand the socio-cultural context of disease through the study of humanities

Intent:

Purpose for early clinical exposure to students in the 1st year is to:

- Learn basic clinical skills
- Enhance their *motivation* and prepare them towards the purpose for which they entered the profession
- Enable students to *correlate* what they are learning in basic sciences by learning basics clinical skills and observing relevant disease abnormalities
- Encourage students to learn the *professional behavior* of a doctor by observing and being mentored by a clinical teacher
- Provide the context for application of their learning in practice

Elements and components of the program:

Faculty Development:

While early clinical exposure is widely used, it is not a prominent feature of the existing MCI curriculum. Therefore in the new curriculum which emphasizes horizontal and vertical integration, faculty need to be reoriented to the principles and practice of early clinical exposure with commonly agreed guidelines.

Preclinical faculty need to coordinate and involve in the activities related to hospital visit with clinical faculty

Incorporation in the curriculum:

Some of the key issues in designing a clinically relevant basic science course are;

- Identifying clinically relevant core content and principles of understanding. Avoiding content that is likely to change in a short period of time.
- Developing critical thinking and reasoning skills by offering students opportunities to repeatedly apply their learning in the clinical context of patient care.
- Encouraging students to critically think about problems of health care, evaluate and incorporate new information which is a skill that they will use for the rest of their professional lives.
- Providing opportunities for students to be sensitised to the broader context of health and health care in India and encouraging them to reflect on their role in addressing issues of health care.

Planning of activities & its distribution:

ECE has to be done in practically each of the sessions of basic sciences, preferably for first 10-15 minutes as we do not want to happen it in silo, but want it as an integral part of the basic science curriculum.

Total allotted hours in first year (as per GMR, 2019) is 90 hours which has to be equally divided in the three preclinical subjects. So time available for each subject is 30 hours, which can be further divided as follows:

1. **Basic sciences Correlation** - 18 hours - 3 hour session per month for 6 months can take place with charts, graphics, videos, reports, field visits etc... in class rooms / hospital labs
2. **Clinical Skills** - 12 hours - one 3 hour session per month for four months per department- students in small groups to go with preclinical faculty equipped with observation guides to specified cases being demonstrated by clinicians and observed by first year students

3. Humanities - will be merged with AETCOM - no additional time.

Each 3 hour session of clinical skills will have:

- Introduction & instruction: 30 minutes
- Hospital visit: 1 hour 30 minutes
- Summary & conclusion: 30 minutes -
- Reflection: 30 minutes

Assessment: will be in line with the general assessment pattern document of CBME.

A) Internal Assessment:

Internal assessment shall be based on day-to-day assessment, internal examination & Preliminary examination. It shall relate to different ways in which learners participate during teaching-learning like preparation of clinical case for discussion, clinical case study/problem solving exercise, clinical assignments, clinical case presentation, active participation in group discussion for clinical case discussion, a written test related to CBL etc.

1. Regular periodic examinations shall be conducted throughout the course.
2. Day to day records, reflective writing and log book (which can be appropriately modified) will be given importance in internal assessment. Internal assessment should be based on competencies and skills. A model log book can be provided to medical colleges

B) University Examinations

Modified Essay Questions (Problem based long answer questions), Clinical vignette based Short Answers Questions (SAQ) and objective type questions (e.g. Multiple Choice Questions - MCQ).

Viva/oral examination should assess approach to clinical context in the concepts of basic sciences.

Principles of Competency Based Assessment

Introduction

Competency based medical education focuses on outcomes, competencies and learner centeredness in education. This shift has challenged medical educators to look for different ways to teach and assess. CBME does not entail a different type of teaching; what it entails differently is the ongoing assessment to help the teachers find the stage of the learner, need for further interventions and better learning. The International CBME Collaborators have defined competency as an observable activity of health professions integrating multiple components like knowledge, skills, attitudes and communication and used habitually for doing a patient care related task.

Competency is not an all or none phenomenon. Rather it is incremental. The role of teachers is to help the learner acquire and improve upon the competencies. CBME moves away from time bound education and looks at competency as the end point. Consequently, we are no longer interested in demonstration of discrete behaviors by the learners; rather we are interested in application of these in each patient context. Thus, it is more about integration of the required knowledge, skills and attitudes rather than anyone of them in isolation.

There are several misconcepts surrounding competency-based assessment (CBA). Some of those are listed below:

Myth	Reality
Assessment should be performance based	Competency denotes ability of a learner to perform – not weather he actually performs
Assessment of discreet domains can be taken as surrogate of competency	CBA should assess integration of domains in a clinical context
CBA should concentrate of technical skills	Non-technical skills are as important to be taught and assessed.
CBA can be a onetime process	CBA must be an ongoing process
CBA can be norm referenced	CBA must be criterion referenced.

The key approach for CBA is direct observation. It is not concerned with detecting incompetence but helps the learners to acquire competence.

While learning objectives can be straightforward and measurable, competencies are often complex and made up of more than one domain. Many a times, they may require a lot of expert subjective judgment and may show inter-assessor variation. The test of CBA however is more from the point of utility of assessment, mainly its educational impact. The variation can also be countered by increasing the sample size of assessment tasks and assessors.

There is a high context specificity of tasks in clinical area, meaning thereby that attaining one competency in say physical examination does not automatically mean competence in another area say counseling. Therefore, each competency has to be assessed. Internal assessment provides the best opportunity to assess and provide feedback about competencies. A blueprint may be needed to decide which competencies should be assessed during internal assessment and which should go to summative or University examinations. Since the purpose of ongoing assessment is improving the competencies, not all assessments should contribute to pass/fail decisions.

Objectives of the document:

- To enable the faculty to plan effective assessment for CBME
- To enable faculty to understand the changes in assessment proposed in GMER

Glossary of terms used

Assessment: A systematic process of documenting and using empirical data on the knowledge, skill, attitudes, and beliefs to refine programs and improve student learning

CBME: Outcome based education which uses competency framework to design, deliver, *assess* and *evaluate* the curriculum.

Curricular Element or Program Addressed:

Using assessment as a tool to help the learners acquire and improve competencies.

Relevant Extract from GMR

Included in the reading material

The key to success of CBME is the alignment between competencies, TL methods and assessment. Here are some examples of deriving appropriate assessment methods from competencies:

PA42.3*	**Identify** the etiology of meningitis based on given CSF parameters	K/S	SH	Y

Objective. Statement of what a learner should be able to do at the end of a specific learning experience

PA42.1*	At the end of the session the Phase II student must be able to enumerate the most common causes of meningitis correctly	Short note or part of structured essay: Enumerate 5 causes of meningitis based on their prevalence in India
PA42.2*	At the end of the session the **Phase II student** must be able to enumerate the components of a CSF analysis correctly	Short note or part of structured essay: Enumerate the components tested in a CSF analysis
PA42.3*	At the end of the session the **Phase II student** must be able to **describe** the CSF features for a given aetiology of meningitis **accurately**	Short note or part of structured essay Describe the CSF findings that are characteristic of tuberculous meningitis
PA42.4**	At the end of the session the **Phase II student** must the able to identify the aetiology of meningitis correctly from a **given set of CSF parameters**	Short note / part of the structured essay/ Skill station/ Viva voce Review the CSF findings in the following patient and identify (write or vocalise) the most likely etiology

* **Numbers given are for illustrative purposes only and should not be compared with numbers in the curriculum document**

MI2.1*	List the common microbial agents causing anemia. Describe the **morphology**, mode of infection and discuss the pathogenesis, clinical course, diagnosis and prevention and treatment of the common microbial agents causing Anemia.	K	KH	Y	Didactic Small group discussion	Written/ Viva voce	Medicine Pathology

Objective: Statement of what a learner should be able to do at the end of a specific learning experience

MI2.1*	Enumerate the common microbial agents causing anaemia
MI2.2*	Describe the **morphology** of agent (1,2 etc)
MI2.3*	Describe the mode of infection of agent in humans
MI2.4*	Discuss the pathogenesis of anemia caused by agent
MI2.5*	Describe the clinical course of infection by agent
MI2.6*	Enumerate the diagnostic tests to identify the aetiology of agent as a cause of anemia
MI2.7*	Discuss the methods to prevent infection by agent
MI2.8*	Describe the treatment of infection by agent

Integrate concept - not necessarily teachers
Plan session with teachers of both subjects teachers from both subjects usually not needed Ensure redundancy and duplication by reviewing both subjects

Horizontally aligned and integrated with pathology
Vertically integrated with General Medicine

Integrate concept - not necessarily teachers Plan session with teachers from both phases Make a decision on how much of the information needs to be brought down to this phase to make it relevant. Consider how a competency can ascend over phases: for eg. - can be at a KH -(know how) in phase II but becomes SH in phase III. For vertical integration with clinical subjects, use of a case to link the concept (a well written paper, case is sufficient) Using teachers from both phases is rarely required

Record keeping is an integral part of CBA. They help the students, teachers and administrators to understand the learning trajectory as well as enable them to take corrective action.

Internal Assessment:

Internal assessment shall be based on day-to-day assessment. It shall relate to different ways in which learners participate in learning process including assignments, preparation for seminar, clinical case presentation, preparation of clinical case for discussion, clinical case study/problem solving exercise, participation in project for health

care in the community, proficiency in carrying out a practical or a skill in small research project, a written test etc.

1. Regular periodic examinations shall be conducted throughout the course. There shall be no less than three internal assessment examinations in each Preclinical / Para-clinical subject and no less than two examinations in each clinical subject in a professional year. An end of posting clinical assessment shall be conducted for each clinical posting in each professional year.
2. In subjects that are taught at more than one phase, proportionate weightage must be given for internal assessment for each Phase. For example, General Medicine must be assessed in second Professional, third Professional Part I and third Professional Part II, independently.
3. Day to day records and log book should be given importance in internal assessment. Internal assessment should be based on competencies and skills. Learners must secure at least 50% marks of the total marks (combined in theory and practicals / clinicals) assigned for internal assessment in a particular subject in order to be declared successful at the final University examination of that subject. The learner should be made aware of the results of Internal Assessment. Each college can build its own mechanism and the calendar of the college should show the details regarding conduct of Internal assessment. Internal assessment marks will reflect as separate head of passing at the summative examination.
4. A candidate who has not secured requisite aggregate in the internal assessment may be provisionally permitted to appear for university examination. However, he/she has to successfully complete the remediation measures prescribed by the institution/ university as the case may be, prior to the declaration of his/her results in that particular phase. Failure to meet prescribed 50% marks in Internal assessment after availing remedial measures will lead to annulment of the results of the candidate in that particular subject(s) in the university examination.

University Examinations

11.2.1 University examinations are to be designed with a view to ascertain whether the candidate has acquired the necessary knowledge, minimal level of skills, ethical

and professional values with clear concepts of the fundamentals which are necessary for him/her to function effectively and appropriately as a physician of first contact. Assessment shall be carried out on an objective basis to the extent possible.

11.2.2 Nature of questions will include different types such as structured essays (Long Answer Questions - LAQ), Short Answers Questions (SAQ) and objective type questions (e.g. Multiple Choice Questions - MCQ). Marks for each part should be indicated separately. MCQs shall be accorded a weightage of not more than 20% of the total theory marks. In subjects that have two papers, the learner must secure at least 40% marks in each of the papers with minimum 50% of marks in aggregate (both papers together) to pass.

11.2.3 Practical/clinical examinations will be conducted in the laboratories or hospital wards. The objective will be to assess proficiency and skills to conduct experiments, interpret data and form logical conclusion. Clinical cases kept in the examination must be common conditions that the learner may encounter as a physician of first contact in the community. Selection of rare syndromes and disorders as examination cases is to be discouraged. Emphasis should be on candidate's capability to elicit history, demonstrate physical signs, write a case record, analyze the case and develop a management plan.

11.2.4 Viva/oral examination should assess approach to patient management, emergencies, attitudinal, ethical and professional values. Candidate's skill in interpretation of common investigative data, X rays, identification of specimens, ECG, etc. is to be also assessed.

11.2.5 There shall be one main examination in an academic year and a supplementary to be held not later than 90 days after the declaration of the results of the main examination.

Examinations schedule:

<table>
<tr><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Foundation Course</td><td colspan="4">I MBBS</td></tr>
<tr><td colspan="8">I MBBS</td><td>Exam I MBBS</td><td colspan="3">II MBBS</td></tr>
<tr><td colspan="8">II MBBS</td><td>Exam II MBBS</td><td colspan="3">III MBBS</td></tr>
<tr><td colspan="9">III MBBS Part I</td><td>Exam III MBBS Part I</td><td colspan="2">Electives & Skills</td></tr>
<tr><td colspan="11">III MBBS Part II</td></tr>
<tr><td>Exam III MBBS Part II</td><td></td><td colspan="9">Internship</td></tr>
<tr><td colspan="2">Internship</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Marks distribution is given below:

Phase of Course	Written-Theory – Total	Practicals/ Orals/ Clinicals	Pass Criteria
First Professional			Internal Assessment: 35% separately in theory and practical for eligibility to appear for University Examinations University Examination Mandatory 50% marks in theory and practical (practical = practical/ clinical + viva)
Human Anatomy - 2 papers	200	100	
Physiology - 2 papers	200	100	
Biochemistry - 2 papers	200	100	
Second Professional			
Pharmacology - 2 Papers	200	100	
Pathology - 2 papers	200	100	
Microbiology - 2 papers	200	100	
Third Professional Part – I			
Forensic Medicine & Toxicology - 1 paper	100	100	
Ophthalmology – 1 paper	100	100	
Otorhinolaryngology – 1 paper	100	100	
Community Medicine - 2 papers	200	100	
Third Professional Part – II			
General Medicine - 2 papers	200	200	
General Surgery - 2 papers	200	200	
Pediatrics – 1 paper	100	100	
Obstetrics & Gynaecology - 2 papers	200	200	

List of resources:

a. http://www.jgme.org/doi/10.4300/JGME-D-17-00365.1 Accessed 13.12.2018

b. https://med.ucf.edu/comfacultycouncil/files/2018/08/Core-principles-of-assessment-in-competency-based-medical-education.pdf Accessed 13.12.18

c. http://medind.nic.in/ibv/t15/i5/ibvt15i5p413.pdf Accessed 13.12.18

Additional reading

a. https://www.indianpediatrics.net/june2013/553.pdf Accessed 13.12.2018

b. https://amee.org/getattachment/AMEE-Initiatives/MedEdWorld/38074-Outcome_Competency-Med-Ed-WEB.PDF Accessed 13.12.2018

c. https://www.innohealthed.com/video/assessment-needs-for-individualized-competency-%C2%ADbased-medical-education-dr-donald-melnick/Accessed 13.12.2018

Skills Training and Assessment

Introduction

The new Curriculum focuses on Competencies and Outcome and gives lot of emphasis to skill development in all phases. The competencies where 'Shows How' (SH) or 'P' (Perform) (under supervision or independently) is listed, are related to the skills to be developed by IMG. In case of P, the number required to be performed is also specified. The skill labs pertaining to psychomotor, affective and communications domains thus serves a very important purpose in the new curriculum.

Curricular Element or Program Addressed:

- Development of various skills at different levels and utilization of Skills lab in UG training.
- Implement program for skills training and assessment.

Relevant Extract from GMR

The undergraduate medical education Programme is designed with a goal to create an "Indian Medical Graduate" (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that he or she may function appropriately and effectively as a physician of first contact of the community while being globally relevant.

3.1. Clinician, who understands and provides preventive, promotive, curative, palliative and holistic care with compassion

3.1.7 Demonstrate ability to perform a physical examination that is complete and relevant to disease identification, disease prevention and health promotion.

3.1.8 Demonstrate ability to perform a physical examination that is contextual to gender, social and economic status, patient preferences and values.

3.1.9 Demonstrate effective clinical problem solving, judgment and ability to interpret and integrate available data in order to address patient problems, generate differential diagnoses and develop individualized management plans that include preventive, promotive and therapeutic goals.

3.3. ***Communicator with patients, families, colleagues and community***

3.3.1 Demonstrate ability to communicate adequately, sensitively, effectively and respectfully with patients in a language that the patient understands and in a manner that will improve patient satisfaction and health care outcomes.

3.3.2 Demonstrate ability to establish professional relationships with patients and families that are positive, understanding, humane, ethical, empathetic, and trustworthy.

3.4. Lifelong learner committed to continuous improvement of skills and knowledge

Description of the curricular program:

Definition

Skill was the term used traditionally to denote procedural skill. However, there has been a paradigm shift and the term is now used (in the present context) to represent any action by the health professional during a clinical encounter, which can result in a change in the health outcome. Thus, in addition to procedural skills, the term now also includes clinical reasoning skills, decision making, team work, task management and Communication skills.

Skill, Competency and Competence

Skill is ability to perform a specialized task with defined expertise.

Competency is the acquisition of skills by repeated practice, under a planned, observable environment, which can also be assessed by standard tools. Competence is doing a task effortlessly with accuracy.

Types of skills:

Following are the types of skills expected to be developed during the medical course:

a. Technical skills, which include

. Psychomotor skills

Manual abilities needed towards diagnosing and treating patients.

e.g. - Ability to obtain a blood sample by Venipuncture

. Communication skills

Ability to communicate with others in a given situation

e.g. - Ability to motivate relatives for blood donation

b. Non-technical skills, which include

.Team skills

Ability to work together in a team

e.g. Ability to work towards implementing a project/ operating on a patient with the team.

. Intellectual skills

To think in a desirable way- underlining component of knowledge

e.g. - Ability to interpret liver function test results of a patient with jaundice

Objectives:

At the end of the session participants will be able to:

- Understand the concept of skills and competence
- Enumerate general principles, different methods and steps of skills teaching and learning (skill cycle)
- Apply the principles and steps of teaching and learning of skills in the undergraduate medical curriculum at different levels of UG training
- Develop an outline of a skills module in the given framework for a scenario in Cognitive skills, Procedural skills, Communication skills.
- Develop a draft plan for implementation of skills enhancement program in the undergraduate curriculum at their own institution
- Review principles of skills assessment, incorporate these principles into assessment design
- Reflect on and discuss about the processes used in this workshop for skill training and assessment.

Theories of skill learning and application:

Intellectual skills

(from Teaching and assessing clinical reasoning skills. Jyoti Nathmodi, Anshu, Piyush gupta and Tejinder Singh: Indian Pediatrics, vol 52 sept 2015.)

Clinical reasoning is best taught during the course of a clinical encounter either conducted by the physician-teacher (for demonstration), or preferably during observation of a clinical encounter being carried out by the student. Clinical case presentations, case based discussions/ chart stimulated recall, clinical problem solving exercises and

structured case presentation models like SNAPPS and One Minute Preceptor are good settings for teaching clinical reasoning skills.

SNAPPS model can help learners build illness scripts essentially by way of comparing differential diagnoses and clarifications of uncertainties. This method encourages expression of intuitive as well as analytical thinking and promotes self-reflection by the student.

The One Minute Preceptor (OMP) model is another useful model of structured clinical case discussion. In this model, the student presents a case, he/she is then asked to commit to a diagnosis, and is probed for reasoning for the same. The preceptor, now aware of patient as well as student's diagnosis, teaches general rules (e.g. key features, principles of management, effective communication). The final two steps are to reinforce what was done well by the student and to correct the mistakes made. Usually it takes about 10 minutes (arbitrary division of time could be: 6 minutes for case presentation, 3 minutes for questioning and 1 minute for teaching the general rule and feedback). Despite being a teacher initiated model, it drives the student to propose and justify the diagnosis, employing appropriate clinical reasoning skills by the learner.

Reflection and metacognition: Students must be encouraged and provided an opportunity to reflect on their diagnostic approach, and think about what they could be missing.

Deliberate practice (Ericsson) includes finding opportunities for repeated practice, requesting honest feedback on performance at frequent intervals, maximizing learning from each case, reflecting on feedback and errors to improve performance and using mental practice to support clinical experiences. This can be done during regular clinical activities such as, asking students to report back during the morning rounds or after an emergency floor/ call duty.

According to Ericsson these skills are not innate or unchangeable but the result of lifelong and especially deliberate, as in systematic and goal-oriented, practice of an activity. DP involves (a) repetitive practice of the intended skill, combined with (b) the thorough assessment of the skill so that the learner (c) can receive specific, informative feedback, which results in an increasingly (d) better performance of skill. So, according to Ericsson et al., the improved performance of an activity largely depends on how much time one spends actively practicing it – time alone does not suffice to achieve expert

status. Even for skills of little complexity, repetitive practice seems very important and is even indispensable for medium or highly-complex skills.

Performance:

Peyton's Four-Step Approach has proven to be most helpful. The Four-Step Approach consists of the following four clearly defined steps:

1. The trainer demonstrates the skill in real time without giving instructions or explanatory words ("Demonstration").
2. The trainer repeats the procedure, this time describing all necessary sub- steps ("Deconstruction").
3. The trainer performs the skill for a third time, this time following the sub- steps only as described to him by the trainee ("Comprehension"). This step has been identified as the most important step of the Four-Step Approach in the past as deeper processing mechanisms reflecting what was observed in the first two steps are necessary for the trainees' to be able to give instructions.
4. The trainee performs the skill on his/her own ("Performance").

STEPS model

S Set the foundation, importance of skill, context

T Tutor demonstration without commentary

E Explanation with repeat demonstration

P Practice under supervision and feedback

S Subsequent deliberate practice

SISFR model

S Set the context, identify roles and outcome

I Immerse in roles and practice for agreed time

S Summarize progress

F Feedback from tutor

R Refine practice

Organizational set up

It requires:

1. **Communication skill lab:** where students will be taught regarding the development of the communication skills like developing the knowledge about

the language of the region, communication with the patients in their own language, patients relatives.

Doctor – Patient, Doctor – doctors, doctor – other health professionals.

2. **Clinical skill lab:** where students will learn the clinical skills before performing the procedures on the patients.

Clinical skills laboratories may consist of a space for seminars, clinical settings, emergency room, outpatient setting, intensive care setting, consulting rooms, procedural skill rooms, operating rooms, different types of simulators. This facility need to simulate the real setting as close as possible.

Simulators can be classified into four types:

1. **A part-time trainer:** training model which represents part of the body or structure that can be used alone or can be attached to simulated patients for simultaneous technical and communication skills development.
2. **A computer-based system** which can be in the form of: (a) multimedia program using audio and video systems; (b) interactive systems which provide the users with clinical variables that can be manipulated to provide feedback on the decisions and actions; (c) virtual reality that creates environments or objects such as computer-generated imaging that replicate kinesthetic and tactile perception.
3. **Simulated patients and environments:** Simulated patients can be professional actors trained to present history and -sometimes mimic physical signs or can be trained patients. Both can be used as standardized patients. Creation of simulated environment is common in CSLs.
4. **Integrated simulators:** These simulators combine manikins with advanced computer controls that can be adjusted to provide various physiological parameter outputs.

The GMR, 2019 clearly states that the aim of teaching the undergraduate student in all pre-clinical, para-clinical and clinical specialties is to impart such knowledge and

skills that may enable him to manage common medical problems in day to day practice. This is reflected in the various sections in GMR related to each subject. Acquisition of such skills is to be ensured in each subject.

Certifiable Procedural Skills: (ref. GMR 2019)

Comprehensive list of skills recommended as desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) – Indian Medical Graduate

Specialty	***Procedure***
General Medicine	· ***Venipuncture (I)*** · ***Intramuscular injection(I)*** · ***Intradermal injection (D)*** · ***Subcutaneous injection(I)*** · ***IV injection (I)*** · ***Setting up IV and calculating drip rate (I)*** · ***Blood transfusion (O)*** · ***Urinary catheterization (D)*** · ***Basic life support (D)*** · ***Oxygen therapy (I)*** · ***Aerosol therapy / nebulization (I)*** · ***Ryle's tube insertion (D)*** · ***Lumbar puncture (O)*** · ***Pleural and ascitic aspiration (O)*** · ***Cardiac resuscitation (D)*** · ***Peripheral blood smear (I)*** · ***Bedside urine analysis (D)***

General Surgery	· ***Basic suturing (I)*** · ***Basic wound care (I)*** · ***Basic bandaging (I)*** · ***Incision and drainage of superficial abscess (I)*** · ***Early management of trauma (I) and trauma life support (D)***
Orthopedics	· ***Application of basic splints and slings (I)*** · ***Basic fracture and dislocation management (O)*** · ***Compression bandage (I)***
Gynecology	· ***Per Speculum (PS) and Per Vaginal (PV) examination (I)*** · ***Visual Inspection of Cervix with Acetic Acid (VIA) (O)*** · ***Pap Smear (I)*** · ***Intra- Uterine Contraceptive Device (IUCD) insertion & removal (I)***
Obstetrics	· ***Obstetrics examination (I)*** · ***Episiotomy (I)*** · ***Normal labor and delivery (including partogram) (I)***
Pediatrics	· ***Neonatal resuscitation (D)*** · ***Pediatric IV line (I)*** · ***Intraosseous line (O)***
Forensic Medicine	· ***Documentation and certification of trauma (I)*** · ***Diagnosis and certification of death (D)*** · ***Legal formalities related to emergency cases (D)*** · ***Certification of medical-legal cases e.g. Age estimation, sexual assault etc. (D)*** · ***Establishing communication in medico-legal cases with police, public health authorities, other concerned***

	departments, etc (D)
Otorhinolaryngology	· ***Anterior nasal packing (D)*** · ***Otoscopy (I)***
Ophthalmology	· ***Visual acuity testing (I)*** · ***Digital tonometry (D)*** · ***Indirect ophthalmoscopy (O)*** · ***Epilation (O)*** · ***Eye irrigation (I)*** · ***Instillation of eye medication (I)*** · ***Ocular bandaging (I)***
Dermatology	· ***Slit skin smear for leprosy (O)*** · ***Skin biopsy (O)*** · ***Gram's stained smear (I)*** · ***Gram's stain smear (D)*** · ***KOH examination (D)*** · ***Dark ground illumination (O)*** · ***Tissue smear (O)*** · ***Cautery - Chemical and electrical (O)*** · ***Lasers (O)*** · ***Chemical (O).***

I-Independently performed on patients,
O-Observed in patients or on simulations,
D- Demonstration on patients or simulations and performance under supervision in *patients*

Certification of Skills: Any faculty member of concerned department can certify skills. For common procedures, the certifying faculty may be decided locally.

Logistics of skills training and assessment:

Responsibilities of Dean of the medical college:

1. To arrange for the necessary logistics for establishment/ maintenance of Skill Labs with focus on psychomotor, affective and communication skills
2. To arrange technical manpower for the above in addition to the faculty.

Responsibilities of the Curriculum Committee:

1. To schedule the usage of skill labs by students of each phases and interns
2. To monitor the smooth conduct of the program
3. To coordinate with the administration and clinical faculty
4. To monitor and submit reports to the Dean

Responsibilities of the MEU:

1. To arrange the sensitization programs for all faculty members (including the Dean & HODs)
2. To train and orient the resource persons
3. To collect the reports and coordinate with NC / RC.
4. To ensure that at least one MEU faculty be monitoring the use of skill labs.

Evaluation: Program effectiveness questionnaire from faculty and students

Reporting: The Curriculum Committee will submit the schedule and report with inputs from students, resource persons, MEU faculty and the MEU coordinator shall forward the same to NC/RC on a quarterly basis. The NC/RC Convener shall forward a consolidated report in the prescribed proforma to the MCI on annual basis.

Assessment planning blueprint process and method

Intellectual skills

Multiple Choice Questions (MCQ)

MCQ-based examination has the potential of assessing wide content areas across different contexts in a short time. Simple recall type MCQs contribute little to assessment of medical decision making. Clinical problem-solving ability can be assessed by inserting clinical scenarios.

Extended matching questions (EMQs) learners have to pick the answers to context-specific clinical scenarios around a single theme from a list of options.

Assessment of the 'Shows how' in Miller's Pyramid

- **The Long Case**

  Integrated, in-depth assessment of clinical competence in a realistic setting

  Poor inter-case reliability is more of an issue than inter-rater reliability

- **OSCE**

  Objective structured clinical examination

  Make stations as authentic as possible

- **Mini Clinical Examination (Mini CEX)**

  Short observation during clinical patient contact (10-20 minutes)

  Oral evaluation

  Generic evaluation forms completed

  Repeated at least 4 times by different examiners

Assessment of the 'Does' of Miller's Pyramid

This assessment is done during the performance of the student in the actual set up where the procedure is performed independently. It is done mainly by two methods: DOPS, MSF

DOPS (Direct Observation of Procedural Skills)

Trainee observed by faculty while performing procedure independently in the hospital set up

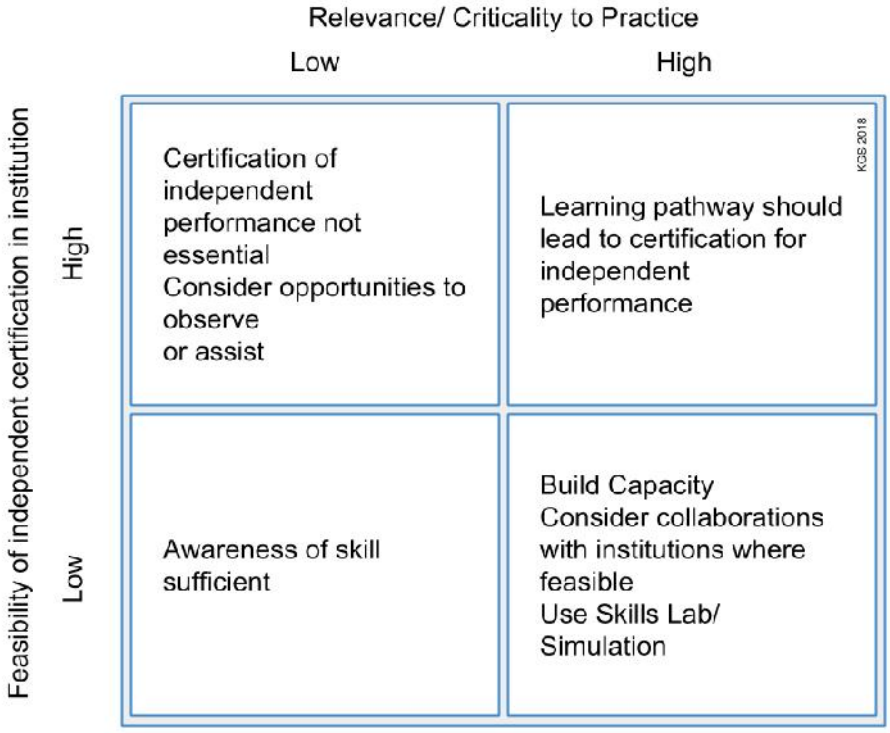
Receives feedback on essential procedural skills

Likely to be more reliable and valid than log book system

MSF (Multi-Source Feedback)

It uses questionnaire data from 8-10 colleagues, medical and non-medical, assessing aspects of performance. The feedback is obtained from teachers, paramedical staff, fellow students, patients, non clinical staff and the relatives of the patients. The feedback is obtained regarding the sincerely, communication skills and the procedural skills.

It is important to bear in mind that not all skills may be assessable at the final examination. Rather, many are better assessed during training. The grid below will help to decide which skills are to be assessed locally and which should be included in the final assessment.



Curricular governance and evaluation of the program:

All teaching Faculty under the leadership of the Dean / Principal; CC and MEU - to be reported in a format to NCs/ RCs to be carried forward to a National Monitoring Team

Evaluation: periodicity, methods, reporting - preferably every two months by the CC, every six months by NC/ RC and six months initially and later annually at the national level.

List of resources:

Must read

1. Daniela Vogel, Sigrid Harendza. Basic practical skills teaching and learning in undergraduate medical education – a review on methodological evidence. GMS Journal for Medical Education 2016,vol 33(4). Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5003143/pdf/JME-33-64.pdf accessed on 26.12.2018
2. Jyoti Nath Modi, Anshu, Piyush Gupta and Tejinder singh Teaching and assessing clinical reasoning skills. Indian Pediatrics, vol 52 sept 2015. Available at https://indianpediatrics.net/sep2015/787.pdf accessed on 26.12.2018

3. T. J. Bugaj C. Nikendei, Practical Clinical Training in Skills Labs: Theory and Practice. GMS Journal for Medical Education 2016, Vol. 33(4) Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5003146/pdf/JME-33-63.pdf accesse4d 26.12.2018

Additional reading

1. Upreet Dhaliwal, Piyush Gupta and Tejinder singh, Entrustable professional activities: teaching and assessing clinical competence, Indian Pediatrics vol 52__july 15, 2015 Available at https://indianpediatrics.net/july2015/591.pdf accessed on 26.12.2018

2. Reznick RK, MacRaeHc (2006). Teaching surgical skills- changes in the wind. *N Eng J Med.* 355, 2664-69.

3. Abdulmohsen H. Al-Elq, Medicine and clinical skills laboratories, J Family Community Med. 2007 May-Aug; 14(2): 59–63. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3410147/ Accessed on 26.12.2018

Suggested reading

• Miller GE (1990) The assessment of clinical skills/competence/performance. *Academic Medicine,* 65(9) (Suppe), S63-S67. Available at http://winbev.pbworks.com/f/Assessment.pdf Accessed 26.12.2018

• SyndneySmee ABC of Skill Learning BMJ, 2003: 326 :703-6. Available at https://www.bmj.com/content/326/7391/703 Accessed 26.12.2018

• Ericson Deliberate Practice and acquisition and maintenance of expert performance in Medicine and Related domain. Academic Medicine; 2004: 7: October Suppl. S70. Available here Accessed 26.12.2018

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• Epstein RM (2007). Assessment in medical education. *NEJM* 356, 387-96.

• Furney SL, Orsini AL, Orsetti KE, et al. Teaching the one minute preceptor. A randomized controlled trial. J Gen Intern Med 2001; 16: 620- 624. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1495264/pdf/jgi_00924.pdf Accessed 26.12.2018

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- http://www.rcsed.ac.uk/eselect/Select_modules.htm , Surgical organization and surgical education (Samuel J Leinster).
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Curricular Governance

Introduction

The development and roll out of the competency driven integrated curriculum marks an important milestone in the evolution of medical education in India. The 2019 Graduate Medical Regulations builds on the previous regulations published in 1997 incorporating newer concepts and addressing the changes in health, illness, societal economic and technology changes that have occurred over a decade and a half.

The ability of the new curriculum to help the students achieve their potential will largely depend on converting the intent enshrined in the document into tangible curricular delivery mechanism. We believe that creating processes which will ensure that the curriculum is delivered appropriately to the stakeholder is crucial. We outline a curricular governance process that will enable this.

Glossary of Terms used in this document

Curriculum: a designed learning experience (learning and assessment) which facilitates the learner to achieve the prescribed outcome of a course

Curricular Governance: a process established to design, deliver, evaluate and improve curriculum

Curriculum committee: an institutional body that comprises of faculty and constituted based on the norms prescribed by the MCI that oversees the medical education program as a whole and has responsibility for the overall design, integration, coordination, delivery and improvement of the curriculum

Curricular Governance

Addressing the following questions will help us understand the organisation and processes required in curricular governance

1. Who is accountable for the delivery of the curriculum?
2. Who is responsible for the oversight of the curriculum?
3. Who will support enable and facilitate the faculty to deliver the curriculum?

4. Who will evaluate and provide necessary inputs that will enable course corrections and continuous improvements?

The proposed governance organogram is summarised in figure 1.

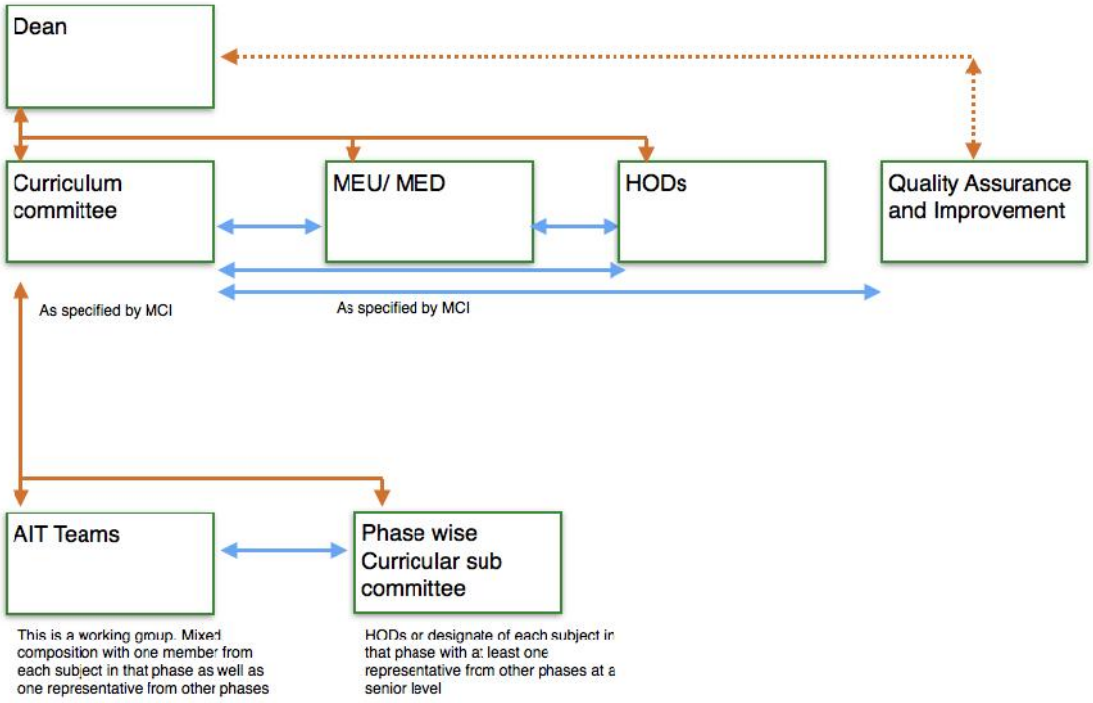


Figure 1. Organogram for curricular governance

Who is accountable for the delivery of the curriculum?

The Dean, Heads of Departments (HOD), faculty and the clinical administrative set up of the institution are responsible for the ultimate delivery of the curriculum. The role of the heads of department in this is regard is especially crucial.

The role of the HOD in the process is summarised:

- Responsible for curricular implementation in the department
- Identifies training needs for faculty in the department
- Liaises with other HOD s and ensures smooth delivery of the curriculum
- Ensures that departmental responsibility is aligned and integrated topics (AITo) are completed
- Escalates issues to the appropriate teams

- Provides faculty and student support

Who is responsible for the oversight of the curriculum?

The curriculum committee (CC) as constituted in compliance to the terms of reference provided by the MCI (circular date) is responsible. The curriculum committee ensures that the institutional curricular plan and its delivery are aligned to and in accordance to the principles and requirements enshrined in the GMR document.

The role of the curriculum committee in this process is summarised:

a. Overall in-charge of the curricular delivery
b. Meets at least 6 times a year
c. Provides oversight and support of the curricular program
d. Creates the timetable with the help of the CSC and AIT and approves them
e. Provides necessary authority and support for the work of the curriculum
f. Responsible for preparation reports etc as required by the medical council

A mechanism of phase-wise sub-committees and topic specific alignment and integration teams that will help the curriculum committee in its task has been envisaged.

The phase wise C**urriculum Subcommittee (CSC)**: should consist of heads of departments/ key faculty from each specialty teaching in that phase and with representation from members of other phases and reporting to the CC. Its functions are summarised below:

a. Responsible for the implementation of the curriculum in each phase
b. Meets as often as needed
c. Reviews competencies for each phase and converts them into learning objectives
d. Works in aligning the curriculum as much as possible and enlisting help from other phases in creating necessary vertical integration and links
e. Reduces redundancy across the phase by integrating overlapping teaching elements
f. Develops learning and assessment methods for each phase
g. Prepares the timetable for the phase and presents it to the CC for approval
h. Collects feedback and provides student support

The Alignment and Integration team (AIT): is a group of faculty that will ensure that a Aligned and Integrated Topic (AITo) is delivered. Each team will have at least one member from each department across phases and is responsible for delivery of the topics. The AIT reports to the curriculum committee. The functions of the AIT include the following:

a. Responsible for the creating learning and assessment sessions of the Aligned and Integrated Topics (AITo) identified across phases
b. Each AIT will have a team with adequate representation from the subjects involved in that topic
c. A team leader from each AIT represents the Aligned and Integrated Topic (AITo) to the CSC and/or CC
d. Reviews competencies and develops learning objectives for the topic
e. Assigns learning objectives to each phase and teaching session
f. Develops learning and assessment methods for the (AITo)
g. Helps faculty with delivering session appropriately and in a collaborative manner across phases
h. Collects feedback for the AITo
i. Provides student support

Who will support, enable and facilitate the faculty to deliver the curriculum?

The Medical Education Unit or Department (MEU) as established in compliance with the terms of reference established by the MCI is responsible for enabling and facilitating the faculty in the delivery of the curriculum. The roles of the MEU in the context of the curricular process include the following :

a. Provides faculty education and support
b. Helps develop teaching and assessment methods and trains faculty for each
c. May be involved in program evaluation and quality improvement of the curriculum
d. Liaises with the Regional / Nodal centres of the MCI

Who will monitor and provide necessary inputs that will enable course corrections and continuous improvements?

The existing internal quality assurance (IQA) program or mechanism in the medical college is responsible for the reviewing, evaluating and advising authorities of the institution on the performance of the curriculum and improvements required thereof. In institutions where an internal quality assurance process is not established, a Quality Assurance and Insurance QAI program may be set up initially under the aegis of the MEU with a plan to create an autonomous QI program when the institution is ready.

Reporting

In order to ensure appropriate and adequate compliance to the regulations and the curriculum a proactive reporting system is envisaged. This includes reporting of compliance to milestones created training and program evaluations in a half yearly basis. The network of RC and NCs of the MCI will facilitate gathering and processing the data collected. In addition compliance to the curricular requirements will be reviewed during inspections of the institution by the Medical Council of India.

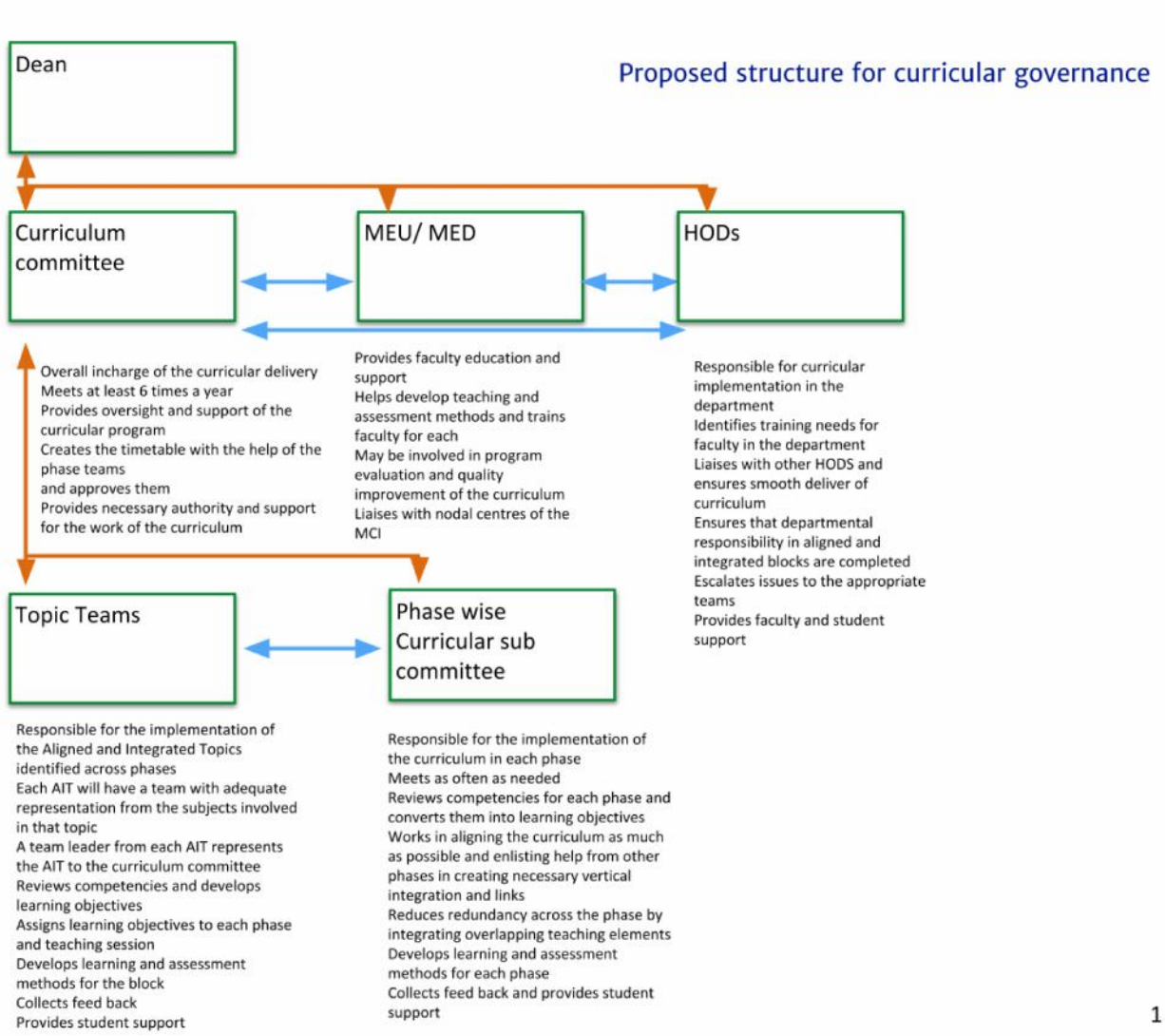
Support

Ongoing support for the curriculum will be provided by the MCI through its national experts nodal and regional centres. A library of resources, videos, case studies, best practices etc will be available for institutions through the website. A collaborative support network of institutions and teachers will also be created that will allow institutions to work and grow together and help fulfill the aspirations of the new regulations.

ROLL OUT PLAN OF COMPETENCY BASED UG CURRICULUM

Milestone	Dates of Workshop	Location of workshop
First CISP at MCI for Conveners & Co-Conveners of Regional & Nodal Centres at Kerala, Tamil Nadu, Puducherry, Karnataka, Andhra Pradesh, Madhya Pradesh & UP	January 16-17, 2019	Medical Council of India
Second CISP at MCI for Conveners & Co-Conveners of Regional & Nodal Centres at Maharashtra, Odisha, Punjab, Assam, Uttarakhand & Gujarat	January 23-24, 2019	Medical Council of India
CISP training program for in-house faculty of department of Medical Education at Nodal & Regional Centres	To be completed by February 7, 2019	Nodal & Regional Centre ME Departments
CISP training program for Curriculum Committee members of colleges allotted to each Nodal & Regional Centre	From second week of February, 2019 to end of April, 2019	
CISP workshops to train medical college faculty supervised by Observer from respective Nodal & Regional Centres	May 2019 (or even earlier as per schedule fixed by medical colleges in consultation with corresponding Nodal or Regional centres) – a continuing process until all college faculty are trained.	Medical colleges
Submission of first compliance report	March, 2019 for in-house workshops	Nodal & Regional centre faculty in charge of CISP
Submission of second compliance report	March 2019 – May 2019	
Submission of third compliance report	May 2019 onwards	By Observer to the workshop through Nodal & Regional centre faculty- in - charge of CISP
Completion of skill labs and other requisite infrastructure	March 2019 to December 2019	Dean of institution

Figure 2 : Governance structure for curriculum with functions and responsibilities



Further Reading

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Foundation course

Introduction:

Medical education today is characterized by vast knowledge base, from cutting-edge biomedical science to the professional artistry, and the high level of technical proficiency that students must acquire for practice. Clinical education, recognized as very strenuous training, involves far more than imparting students with scientific knowledge and technical skills.

The clinical work and the other tasks of physicians are social practices and therefore physicians need to be prepared to work in relation with their patients, other professionals and nonprofessionals in varied settings like clinics, hospitals and communities. Care of patients is an interpersonal pursuit, involving interactions between clinicians and patients, which even in a simple situation involves many people, let alone in more complex settings where a number of specialists from different fields are engaged.

The selection of students to medical colleges in India is based on merit of the candidate at competitive entrance examinations. The selection criteria do not take care of non-cognitive abilities of the students. The entry level students are in the age group of 17-19 years. At this stage of the transition from high school to a professional course, these students may also face possible maladjustment to hostel life and food, and instruction in foreign language. Many students who might have pursued rote learning in high school find it difficult to cope with the different learning environment in a medical college.

Therefore, it is necessary to develop and implement students' orientation program at the entry level of MBBS program to acclimatize them to campus environment, familiarize with teaching programs, help adapt to the academic challenges as they move from high school into undergraduate programs. Such structured foundation course would help students coming from a very different learning environment to cope with the vast body of knowledge and skills required in the dynamic and rapidly changing health care system. Besides the development of essential knowledge and skills, the emphasis on training the undergraduate students in techniques of learning will motivate them to develop the habits of self-directed learning.

The overall objective of foundation course would be to sensitize the learners with essential knowledge and skills which will lay a sound foundation for their pursuit of learning across the subjects in MBBS course and later on a career in medicine. Foundation course at entry level and the longitudinal program envisaged GMR 2017 in AETCOM module will help students acquire necessary non-cognitive competencies.

Relevant Extract from GMR

New teaching / learning elements

9.1. Foundation Course

Goal: The goal of the Foundation Course is to prepare a learner to study Medicine effectively. It will be of one month duration after admission (see Table)

9.1.1 **Objectives:** The objectives are to:

(a) Orient the learner to:

(i) The medical profession and the physician's role in society
(ii) The MBBS programme
(iii) Alternate health systems in the country and history of medicine
(iv) Medical ethics, attitudes and professionalism
(v) Health care system and its delivery
(vi) National health priorities and policies
(vii) Universal precautions and vaccinations
(viii) Patient safety and biohazard safety
(ix) Principles of primary care (general and community based care)
(x) The academic ambience

(b) Enable the learner to acquire enhanced skills in:

(i) Language
(ii) Interpersonal relationships
(iii) Communication
(iv) Learning including self-directed learning
(v) Time management
(vi) Stress management
(vii) Use of information technology

(c) Train the learner to provide:

(i) First-aid
(ii) Basic life support

9.1.2 In addition to the above, learners may be enrolled in one of the following programmes which will be run concurrently:

(a) Local language programme

(b) English language programme

(c) Computer skills

(d) These may be done in the last two hours of the day for the duration of the Foundation Course.

9.1.3 These sessions must be as interactive as possible.

9.1.4 Sports (to be used through the Foundation Course as protected 04 hours / week).

9.1.5 Leisure and extracurricular activity (to be used through the Foundation Course as protected 02 hours per week).

9.1.6 Institutions shall develop learning modules and identify the appropriate resource persons for their delivery.

9.1.7 The time committed for the Foundation Course may not be used for any other curricular activity.

9.1.8 The Foundation Course will have compulsory 75% attendance. This will be certified by the Dean of the college.

9.1.9 The Foundation Course will be organized by the Coordinator appointed by the Dean of the college and will be under supervision of the heads of the preclinical departments.

9.1.10 Every college must arrange for a meeting with parents and their wards.

Table : Foundation Course (one month)

Subjects/ Contents	Teaching hours	Total hours
Orientation [1]	30	30
Skills Module [2]	35	35
Field visit to community health center	8	8
Professional Development including ethics		40
Sports and Extracurricular activities	22	22
Enhancement of language/ computer skills[3]	40	40
		175

1. Orientation course will be completed as single block in first week and will contain elements outlined in 9.1.
2. Skills modules will contain elements outlined in 9.1
3. Based on perceived need of students, may choose language enhancement (English or local spoken or both) and computer skills. This should be provided longitudinally through the duration of the Foundation Course.
4. **Teaching of Foundation Course will be in preclinical departments.**

Intent

To provide a bridge course for students from different boards, language of instructions, backgrounds and cultures and adequately prepare them for learning and a career in medicine

Elements and components of the program

1) Doctor's role in Society
    a) Expectations of society from doctors
    b) Expectations of patients from doctors
    c) Expectation of the profession from its members
    d) Roles and responsibilities of doctors
    e) Gender sensitivity
2) What can the student expect
    a) From the society and nation
    b) From the institution
    c) From teachers
    d) From peers and colleagues
    e) From patients
3) Orientation of the student to:
    a) Rules and regulation
    b) Facilities
    c) Faculty
    d) Facility visits – library, hostels , sports ground, common rooms
    e) Library visits and facility orientation
    f) Hospital visit
4) Overview of the MBBS program
    a) Curriculum description
    b) Career pathways & personal growth
    c) Role at various levels of heath care delivery system
    d) Skill requirements and certifications
    e) Examinations
    f) University rules regarding examinations and attendance
5) Learning skills
    a) Learning pedagogy
    b) Self directed learning
    c) Learning strategies
    d) Community based learning

e) Peer assisted learning
f) Self directed learning
g) Use of online resources
h) Group learning
i) Assessment driven learning
j) Simulation based learning
k) Learning from patients and other members of the health care team

6) Language and Communication skills
7) Group dynamics
8) Working within a health care team
9) Documentation and the medical record
10) Interpersonal communication
11) Relating to patients experience of the disease
12) Communication with patients and families
13) Need based access to learning English and/ or local language of communication
14) Professionalism attitude and ethical behaviour
    a) Concept of professionalism and ethics
    b) Consequences of unethical and unprofessional behavior
    c) Value of integrity honesty and respect during interaction with peers, seniors and faculty other health care workers and patients
    d) Functioning as part of a health care team
15) Safety
    a) Handwashing
    b) Needle /scalpel stick injuries
    c) Immunisation requirements of health care professionals
    d) Concept of biosafety
    e) Handling biomaterial/ biowaste management
16) Orientation to community
    a) Visit a community health center
    b) Introduction to health care workers and their role
    c) Introduction to and interaction with patients
17) Skills program

a) BLS
b) First aid

18) Introduction to alternate health care systems and their relevance and relationship to the practice of modern medicine

Curricular governance and evaluation of the program

(Person responsible, evaluation periodicity, methods, reporting)

The program will be owned and conducted by the pre-clinical departments with appropriate input and faculty support by other departments

Responsibilities of Dean of the medical college:

a. To head a committee for Foundation Course implementation with one pre-clinical HOD as Convener and the other three and MEU Coordinator / co-Coordinator as members
b. To allocate a venue for the foundation course (preferably other than the Lecture class rooms)
c. To allocate the resources for the conduct of the foundation course (including those related to community visits, external resource persons etc.)
d. To conduct at least two meetings with Curriculum Committee and the committee mentioned above in the month preceding the Foundation Course
e. To arrange the meeting with parents and faculty.

Responsibilities of the Curriculum Committee

a. To schedule the sessions for one month and allocate the sessions to the resource persons (including external resource persons from outside the college, if necessary)
b. To monitor the smooth conduct of the program
c. To coordinate with the administration and clinical faculty
d. To monitor and submit reports to the Dean

Responsibilities of the MEU

a. To arrange the sensitisation programs for all faculty members (including the Dean & HODs)
b. To ensure the coordination between the above two committees
c. To train and orient the resource persons

d. To collect the reports and coordinate with NC / RC.

e. To ensure that at least one MEU faculty should be present in all sessions.

Evaluation: Program effectiveness questionnaire from faculty and students

Reporting: The Curriculum Committee will submit the schedule and report with inputs from students, resource persons, MEU faculty and the MEU coordinator shall forward the same to NC/RC within two weeks of the last day of the Foundation Course. The NC/RC Convener shall forward a consolidated report in the prescribed proforma to the MCI within four weeks.

Attitude, Ethics & Communication (AETCOM)

Introduction

In order to be able to function appropriately ethically and effectively in her/his roles as clinician, leader and member of the health care team and system, communicator, lifelong learner and as a professional, there need to be a structured training program. Medical Council of India has proposed new teaching learning approaches including a structured longitudinal program on attitude, communication and ethics.

Role modelling and mentoring associated with classical approach to professional apprenticeship has long been a powerful tool. This approach alone is no longer sufficient for the development of a medical professional. The domains of attitude and communications with emphasis on ethics therefore need to be taught directly and explicitly throughout the undergraduate curriculum. The two major aspects of teaching professionalism include explicit teaching of cognitive base and stage appropriate opportunities for experiential learning and reflection throughout the curriculum.

AETCOM module has been prepared as a guide to facilitate institutions and faculty in implementing a longitudinal program that will help students acquire necessary competence in the attitudinal, ethical and communication domains. It offers framework of competencies that students must achieve. It also offers approaches to teaching learning methods. However, it is a suggested format and institutions can develop their own approaches to impart these competencies.

Objectives of the document:

To facilitate institutions and faculty in implementing a longitudinal program that will help students acquire necessary competence in the attitude, ethics and communication domains. This shall enable the graduate to function effectively in the four roles of leader and member of the health care team, communicator, life-long learner and professional as envisaged in the revised Graduate Medical Education Regulations.

Curricular Element or Program Addressed:

Professional development including Attitude, Ethics & Communication (AETCOM)

Relevant Extract from GMR:

2. Indian Medical Graduate Training Programme

The undergraduate medical education programme is designed with a goal to create an "Indian Medical Graduate" (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that she or he may function appropriately and effectively as a physician of first contact of the community while being globally relevant.

2.3. Goals and Roles for the Learner

In order to fulfil the goal of the IMG training programme, the medical graduate must be able to function in the following roles appropriately and effectively:-

2.3.1. Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion.

2.3.2. Leader and member of the health care team and system with capabilities to collect analyze, synthesize and communicate health data appropriately.

2.3.3. Communicator with patients, families, colleagues and community.

2.3.4. Lifelong learner committed to continuous improvement of skills and knowledge.

2.3.5. Professional, who is committed to excellence, is ethical, responsive and accountable to patients, community and profession.

7.4.1 **Pre-Clinical Phase -** Professional development including Attitude, Ethics & Communication (AETCOM) module

7.4.2 **Para-clinical phase** - Professional development including Attitude, Ethics & Communication (AETCOM) module

7.4.3 **Clinical Phase** - Professional development including Attitude, Ethics & Communication (AETCOM) module

9.4 Professional Development including Attitude, Ethics and Communication Module (AETCOM).

Objectives of the programme: At the end of the programme, the learner must demonstrate ability to:

(a) understand and apply principles of bioethics and law as they apply to medical practice and research,

(b) understand and apply the principles of clinical reasoning as they apply to the care of the patients,

(c) understand and apply the principles of system based care as they relate to the care of the patient,

(d) understand and apply empathy and other human values to the care of the patient,

(e) communicate effectively with patients, families, colleagues and other health care professionals,

(f) understand the strengths and limitations of alternative systems of medicine,

(g) respond to events and issues in a professional, considerate and humane fashion,

(h) translate learning from the humanities in order to further his / her professional and personal growth

Teaching Learning Methods recommended

Guidelines for Case Discussion

A hybrid problem-oriented approach is one of the most effective ways for students to explore the various facets of "real life issues" that will confront them in their careers. In addition to problem solving skills, case discussions promote collaborative learning, team work, reflection and self-directed learning. The cases presented in the AETCOM booklet represent competencies that lend themselves best to this form of learning.

1. Two or more learning sessions are recommended for each session with ample time for self-directed learning and other learning activities between each session.

2. A case is introduced into a small group and the facilitator facilitates a small group discussion where,

    a. initial reactions of the group to the case is obtained,

    b. the underlying ethical, legal and societal principles of the case are elicited,

c. learning objectives for the case are developed,

d. Learning tasks are assigned for members of the learning groups,

e. Learning resources are identified.

The suggested location for such a session is a small group discussion area which requires a small table with seating for 8 - 10 students. Suggested duration for such a session is 1 hour.

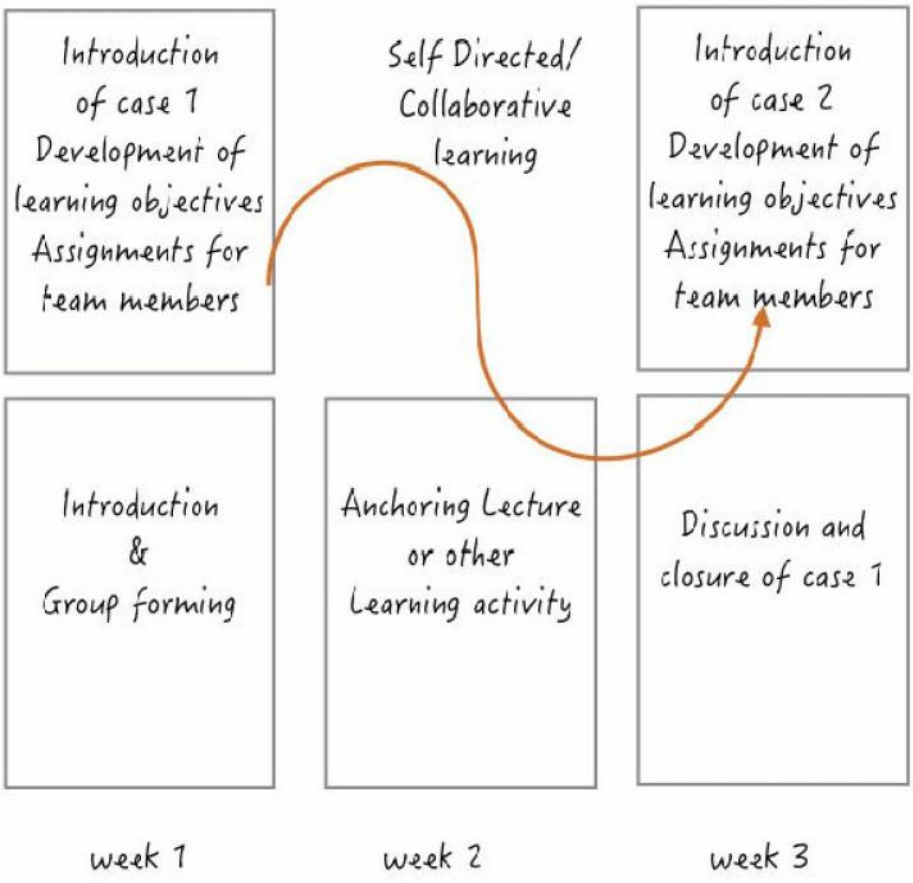
A board with chalk or marker is also required.

3. Learning occurs in between sessions by the learners through following:

- Self-directed learning by study of identified learning resources,
- Self-directed learning through study of online learning resources,
- Identification of legal, ethical and social precedents for the given settings,
- Obtaining opinion from seniors in the profession on their impressions on the setting

4. Reinforcement of the fundamental concepts underlying the case can be done through a large group learning session (lecture or equivalent) in between the small group sessions.

5. In the second session, the small group discussion is focussed on closure of the case (or the part of the case) for which learning objectives were identified for in the first session. The facilitators may guide the discussion based on the ethical, legal, societal and communication aspects of the case. The group discusses the case, based on the learning done in between the session and provides suggestions and alternatives on the approach for doctors to follow. It must be reiterated that there may not be one correct way to resolve a case. The approach will be to allow students to reflect, make a choice and defend their choice, based on their values and learning.



The Hybrid PBL model suggested for ATCOM Cases

Student narrative

The student narrative is a learning method that focuses on the following skills:

a. Elicit, observe and record data,

b. Reflect on the data at a higher level of thinking and derive opinions and conclusions,

c. Communicate the observations and conclusions in a written and verbal form and expand on and defend the conclusions with colleagues and teachers,

d. Form new experiences and conclusions based on this discussion.

Communication Skill:

Doctor patient encounters

1. Building the doctor patient relationship - Body Language, Introduction.

2. Opening the discussion – Gaining Confidence.

3. Gathering information – Re alignment

4. Understanding the patient's perspective – Physical / Emotional / Social - Pts perspective

5. Sharing information – Medical Advice.

6. Reaching agreement on problems and plans – Discuss treatment options.

7. Providing closure – Future course / Follow up

Breaking a bad news: Bad News: Definition: "Any information which adversely and seriously affects an individual's view of his or her future"

SPIKES- Six- Step Protocol for Delivering Bad News

Step 1: **S**- Setting Up The Interview
Step 2: **P**- Assessing The Patient's Perception
Step 3: **I**- Obtaining The Patient's Invitation
Step 4: **K**- Giving Knowledge And Information To The Patient
Step 5: **E**- Addressing The Patient's Emotions With Empathic Responses
Step 6: **S**- Strategy and Summary

Medicine and humanities

Curriculum

Different approaches would be used to help students to understand the broader socio-economic framework and cultural context within which health care is delivered. Students would also learn about the humanities through art, literature and cinema.

Objective

To provide knowledge, understanding and critical perspective in areas outside conventional biomedicine that are required for a doctor. The training should offer the ability to reflect on problems and understand the milieu of practice in India.

Suggested themes may include:

- The history and culture of diseases
- The history of modern medicine in the western world and in India.
- The political economy of medicine in India
- Representing the doctor. A study of selected fiction, artworks and films.
- Questions of gender, caste, minority, sexuality

- Patient issues
- Death and Dying in India
- The art of practice
- Sociology
- Family structure
- Socio-economic aspects, poverty
- Health seeking behaviour
- Health beliefs

Methodology

a) Sociology training through practical exercises, experiential learning and discussion, local art forms etc..
b) Experience of urban and village life
c) A group of students adopts a set of families. Each student has responsibility for one family.
d) Students conduct a set of surveys regarding family structure, socio-economic status, common health problems, and health seeking behaviour and health beliefs
e) Students are involved in health education and health clinics

This may be suitably modified according to the facilities of each medical college.

Assessment of skills related to Attitude, Ethics and Communication

Assessment is a vital component of competency based education. In addition to making the pass/fail decisions, a very important role of assessment is to provide feedback to the learner and help him/her to improve learning. The assessment in AETCOM nodule has been designed with this purpose. The teachers should use this opportunity to observe the performance and provide feedback based on their observations. In case a student has demonstrated a performance, which is considered below expectation, corrective action including counseling should be initiated. Many of the tools in this module may appear subjective but coupled with the experience of the assessor, they will serve a very useful purpose

List of resources :

Must read :

1. Attitude, Ethics and Communication (AETCOM) Competencies for the Indian Medical Graduate - Medical Council of India
2. Jonathan Martin, Margaret Lloyd and Surinder Singh. Professional attitudes: can they be taught and assessed in medical education. Clinical Medicine Vol 2 No 3 May/June 2002 217
3. Walter f. Baile, Robert buckman, Renato lenzi, Gary glober, Estela a. Beale, Andrzej p. Kudelkab. Spikes—a six-step protocol for delivering bad news: Application to the patient with cancer *the oncologist* 2000;5:302-311

Additional reading

1. Herbert M.Swick, Teaching Professionalism in undergraduate Medical Education, JAMA, September 1, 199-vol282. No 9.
2. Antje Lumma-Sellenthin Learning professional skills and attitudes medical students attitudes towards communication skills and group learning. Linkoping University, Department of Medical and Health Sciences, 2013.

Humanities

Music and Healing

Background

Music is an integral part of human life from birth to death, through happiness and joy. For many of us it is part of our wellness quotient. Does music heal? Does it help patients cope with illness? Does it improve outcomes? Should medicine embrace music as part of its armamentarium? This module allows the learner to explore the interface between music health and healing

Competency addressed

The learner must explore and appreciate the relationship between music and healing and demonstrate an understanding as to how music is used as an adjunct to the healing process

Learning Session

Year of Study: 1st year
Hours: 8 hours
Exploratory session : 2 hours
Self Directed Learning: 4 hours
Research / Task / Report
Discussion and closure: 2 hours

Description:

1. An exploratory session is created where either in small groups or an interactive large group students are allowed to explore their personal relationship with music. Discuss particularly about music during time of illness and depression. Faculty /Clinicians share patient related experiences. If there is access to live experts if not, a curated selection of healing music may be played. Regional music traditions linked to healing can be explored. If available, a documentary such as *Alive Inside* can be screened. The task as enumerated in item 2 is given to individuals or groups

2. Students individually or in groups are asked to research evidentiary and other links to music and healing. They may be requested to talk to local musicians, experts, clinicians and patients and compile a narrative. Audio samples of local music traditions used to heal can be part of the report.

3. Discussion ad closure: A closure session where students share their reflection based on their tasks and learnings and their implications.

Assessment

Submitted Narrative and reflections

Resources

1. https://www.the-scientist.com/features/exploring-the-mechanisms-of-music-therapy-31936
2. http://www.allsciencejournal.com/download/3/1-1-18.1.pdf

PRESENTATIONS

Curriculum Implementation

Expert Group / Academic Cell
Medical Council of India

Introduction

- Name
- Center
- Previous experience in CISP

Gratitude

Academic cell appreciates your hard work and commitment

Thank you for your time

2010

- The Medical Council of India proposed curricular reforms in MBBS curriculum for Undergraduate Education.
- These reforms focus on enhancing integration, clinical competency, flexibility and improvement in quality of training

Theme

- Global Trends
- Indian context
- Locally relevant and feasible changes

Recommendations of UG group

- Foundation Course
- Early Clinical Exposure
- Integration – Vertical and Horizontal
- Skill Training / Competency based Training
- Electives
- Student doctor method of Clinical Training
- Secondary Hospital Exposure
- Newer teaching techniques – skill labs etc
- Community Oriented Education

Recommendations of UG group

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- Newer teaching techniques – skill labs etc
- Community Oriented Education

Status

- Published – AETCOM, Competency driven UG Curriculum
- To Be Published – GMR 2019
- Time line – 2019 onwards

Tasks ahead

- Curricular Governance and Program Evaluation
- Action Plan
- Assessment tools for CBME
- Internship
- Learning Resource materials

Curriculum Implementation Support Program (CISP) MCI - Expert Group

Plan for Implementation

2019

Curriculum Implementation Support Program (CISP)

The purpose of the CISP is to prepare and support faculty and medical colleges in planning, implementing and evaluating the curriculum 2019 through a multi tiered approach.

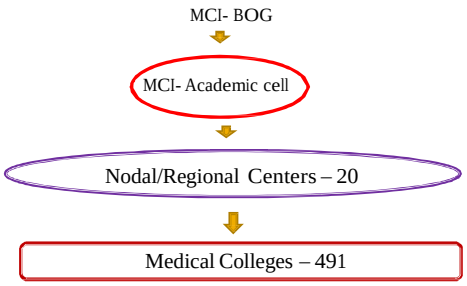
Challenges of Implementation

- Multiple level – Change,
- Multiple Stakeholders
- Variability in ability of NC/ RC/ MEU/ trainers
- Develop materials in context to reforms
- Motivation of MEU/ Faculty for change
- Faculty Development
- Making change happen at departmental level

Force Field Analysis

Factors For	Factors Against
MCI Initiative	New Concepts
Step wise implementation	Variability in capacity
Selected areas	Short time
RTC/ MEU/ CC	491 colleges
	Poorly developed educational units

Existing Network



Each Medical College has

- Medical Education Unit/ Department
- Curriculum Committee
- Faculty Trained in Basic and Advance course

Curricular Committee

- Dean/ Principal of medical College to constitute as "Curriculum committee" with following representations:
  - One Professor/ Associate Professor from Clinical (Medical) discipline
  - One Professor/ Associate Professor from Clinical (Surgical) discipline
  - One Professor/ Associate Professor from Para- Clinical discipline
  - One Professor/ Associate Professor from Preclinical discipline
  - MEU coordinators
  - Student and Interns representative

Curricular Committee

- The curricular committee will assist Dean for developing the curricular modules and implement the same at their institution.
- Curricular Committee will see oversee implementation of CISP in their institution.

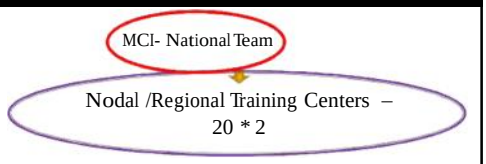
Action Plan

- National team of experts to develop action plan and resource materials
- Develop special groups for specific tasks
- Rolling out Curriculum 2019 onwards
- Advocacy meetings with Key stake holders (VC/ DME /Dean

Task Groups

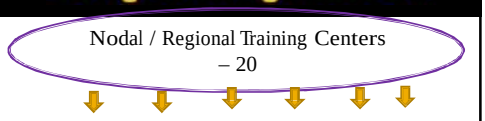
- Foundation Course
- Early Clinical Exposure
- Integration
- Skills Orientation / Training
- Electives

Using Existing Network



Jan 2019

Using Existing Network



Medical Education Unit Teams/ CC Coordinators – 491*5

- Each NC/ RC – Conduct workshops for MEU Teams/ CC Coordinators
- 5 MEU/CC coordinators from Each College
- 2 days workshop

February - March – April 2019

This workshop provides Conceptual Frameworks for each of topic Use

these to develop your workshops

Share with ME Unit Coordinators

Support them to Implement in their respective colleges

Using Existing Network

Medical Education Unit Teams/CC Coordinators 491*5

Faculty Members from Each college

- Each MEU /CC – Conduct workshops for Faculty
- 5 members from Each Department – Include Clinicians
- 2 days workshop

Before June 2019

Purpose of this workshop

- Reorient/ Refresh CISP for NC/RC coordinators
- Action Plan and Curriculum Implementation
- Share session details and LRM
- Sharing of practices

Two days Program

- Principles of CBME
- Integration and alignment
- Assessment of CBME
- Skills training and assessment
- Foundation course
- Electives
- Early clinical exposure
- Curricular Governance Two day Program
- LRM sharing

Commitment from NC/RC

- Time commitment for Faculty/ Teachers
- RCs will do 2 or more workshops
  - One or more for MEU teams of affiliated colleges
  - One for faculty of their own college
- Mentoring of Affiliated Colleges for implementing curricular reforms
- Advocacy in the region

Implementation approach

- Many Stake holders- University, DMER, Deans
- Sensitize all colleges on reforms
- Foundation Course to be implemented by 2019 (Full or Condensed)
- Other areas to be implemented throughout the year – "Phase in"
- Take feedback

Taxonomy of new skills

Skill	Current status	Additional inputs
Foundation course	-Being used in a variety of ways	-Standardization of the program -Training of faculty to make best use of course
Integrated teaching	-Good awareness -Fairly good acceptance	-Standardization -Moving beyond departments
Early clinical exposure	-Scattered use in way of CBL -Less common in community	-More use in real life and community settings -Better pedagogical management
Teaching of clinical skills	-Basic orientation being given in basic sciences -Fair acceptance	-Pedagogy of skill learning -Clinical perspective

Thank You

- BOG – MCI
- Academic Council
- Dr Rajlakshmi
- All Resource persons
- All RTC Conveners / members
- MCI Staff
- All Deans of RTCS

Principles of competency based medical education

Competency

An observable activity of a health professional, integrating multiple components like knowledge, skills, attitudes and values.

International CBME Collaborators (2009)

What (CBME)

CBME is an outcomes-based approach to the design, implementation, assessment and evaluation of a medical education program using an organising framework of competencies!

3

Examples

Term	Example
Objective	Able to correctly elicit immunization history of an infant
Learning outcome	Able to identify deficiencies in immunization and provide remedial doses
Competency	Competent to run a well baby clinic

Term	Example
Competency	What needs to be done
Competent	One who can do it
Competence	What he does

Traditional curricula

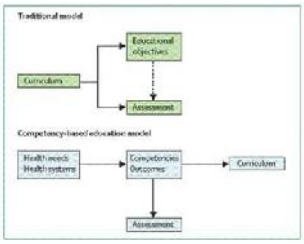
- Variable and undefined outcome
- Not aligned with societal needs
- Emphasis on knowledge only
- No formal training for attitudes and communication

Traditional vs CBME

	Structure / Process	Competency Based
Driving force for curriculum	Content: Knowledge acquisition	Outcome: Knowledge application
Driving force for process	Teacher	Student
Responsibility for content	Teacher	Student and teacher
Goal	Knowledge acquisition	Knowledge application
Typical assessment tool	Objective; One tool one objective	Subjective and Objective
Assessment tool	Proxy	Authentic
Setting for assessment	Removed (gestalt)	Direct observation
Assessment	Norm referenced	Criterion referenced
Timing of assessment	Emphasis on summative	Emphasis on formative
Program completion	Fixed time	Variable time

7

Traditional VS CBME



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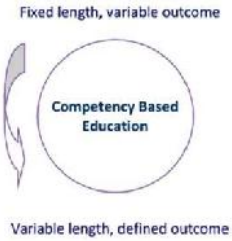
A different paradigm



Key feature

Stages of competence

Dreyfus and Dreyfus, 1980

- CBME and traditional model not mutually exclusive
- Does not prescribe different teaching methods
- Multiple routes to a competency possible

Competencies

- Observable ability of a health care professional
- Reflects a spectrum
- Integrates multiple domains
- The complexity can be varied and acquired over time
- Measurable with respect to a defined outcome

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Spectrum of domains

Knowledge Skill Attitude Communication

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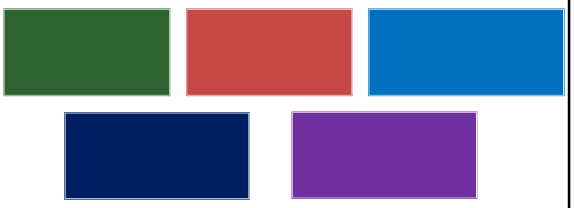
Proposed GMR

"Indian Medical Graduate" (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that he or she may function appropriately and effectively as a physician of first contact of the community while being globally relevant.

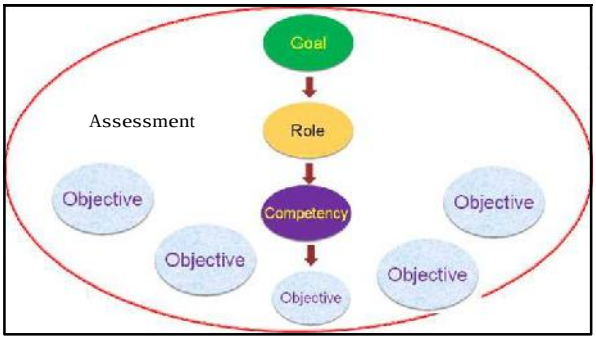
Roles of IMG



Paradigm of CBME

- Health care delivery has a GOAL
- To meet that goal, graduates have to perform many ROLES
- To perform those roles, they need certain COMPETENCIES
- To attain those competencies, they need to meet certain OBJECTIVES
- Need ongoing monitoring ASSESSMENT

Step	Example
Goal	Reduction in IMR
Roles	Good antenatal care, Institutional delivery Postnatal care, Neonatal care Feeding, immunization, Curative services
Competencies	Able to provide ANC Able to conduct a normal delivery
Objectives	Enumerate components of ANC Take appropriate history and perform physical examination



Strengths

- Transparency
- Curriculum management
- Good blueprinting for assessment

Weaknesses

- Oversimplification of complex tasks
- Time free courses may not be acceptable
- Relation between competence and performance not clear
- Prescriptive

Task ahead

Aligning Competencies to Learning

Objectives

- At the end of the presentation the learner will be able to derive appropriate learning sessions from a given competency

Terms used

A competency is an observable ability of a learner that includes multiple components including knowledge skills values and attitude.

An objective is a statement of what a learner should be able to do at the end of a specific learning session (or experience)

Core: A competency that is necessary in order to complete the requirements of the subject (traditional must know)

None Core: A competency that is optional in order to complete the requirements of the subject (traditional nice (good) to know/ desirable to know)

Terms Used

Lecture: Any instructional large group method including traditional lecture and interactive lecture
Small Group Discussion: Any instructional method involving small groups of students in an appropriate learning context

Skill Assessment: A session that assesses the skill of the student including those in the practical laboratory, skills lab, skills station that uses mannequins/ paper case/simulated patients/real patients as the context demands

DOAP (Demonstrate Observe Assist Perform Session) A practical session that allows the student to observe a demonstration, assist the performer, perform (demonstrate) in a simulated environment, perform under supervision or perform independently

Salient features of GMR as relevant

- Learner centric methods
- Didactic less than 1/3
- Skill acquisition
- Emphasis on communication skills

Competencies

- Observable ability of a health care professional
- Reflects a spectrum
- Integrates multiple domains such as knowledge skill and attitude and values
- The complexity can be varied and acquired over time
- Measurable with respect to a defined outcome

6

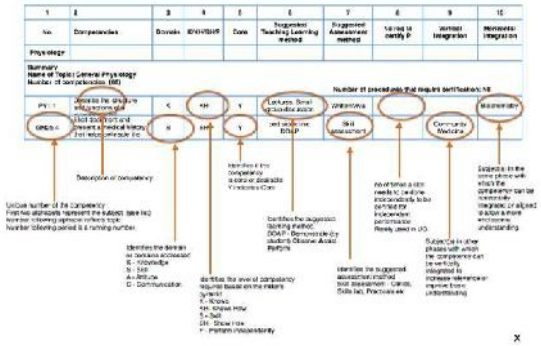
Learning in a CBME program

	Structure / Process	Competency Based
Driving force for curriculum	Content: Knowledge acquisition	Outcome: Knowledge application
Driving force for process	Teacher	Student
Responsibility for content	Teacher	Student and teacher
Goal of educational encounter	Knowledge acquisition	Knowledge application
Typical assessment tool	Single subjective	Multiple objective
Assessment tool	Proxy	Authentic
Setting for assessment	Removed (gestalt)	Direct observation
Assessment	normative referenced	criterion referenced
Timing of assessment	Emphasis on summative	Emphasis on formative
Program completion	Fixed time	Variable time

Change in focus

- shared responsibility in the learning process
- self directed and collaborative learning
- use of learner centric approaches
- skill acquisition and certification
- formative assessment as integral to the learning process
- progressive increase in the complexity of learning (ascendancy in competencies)

The Competency Table



Spectrum of domains

Knowledge Skill Attitude Communication

10

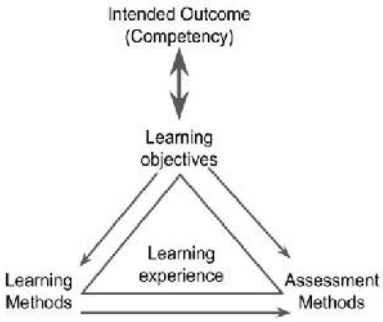
Proficiency Levels

K	Knows	A knowledge attribute – Usually enumerates or describes
KH	Knows how	A higher level of knowledge – is able to discuss or analyse
S	Shows	A skill attribute: is able to identify or demonstrate the steps
SH	Shows how	A skill attribute:is able to interpret / demonstrate a complex procedure requiring thought, knowledge and behaviour
P	Performs (under supervision or independently)	Mastery for the level of competence - When done independently under supervision a pre specified number of times - certification or capacity to perform independently results

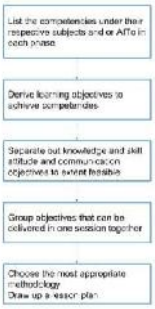
Core vs Non Core

	Core	Non Core
Taught	Yes	Yes
% of curriculum	Not < 80%	Not > 20%
Summative assessment	Y	N
Formative assessment	Y	Y

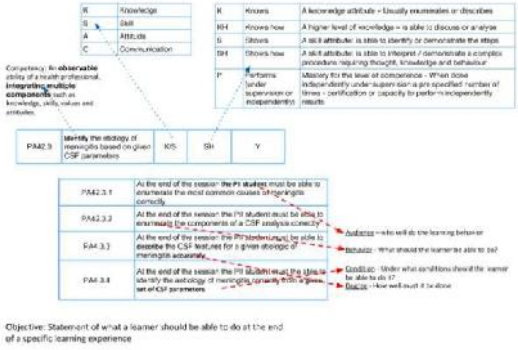
From Competency to Learning Methods



Deriving Learning Methods from Competencies



Deriving Objectives from Competencies



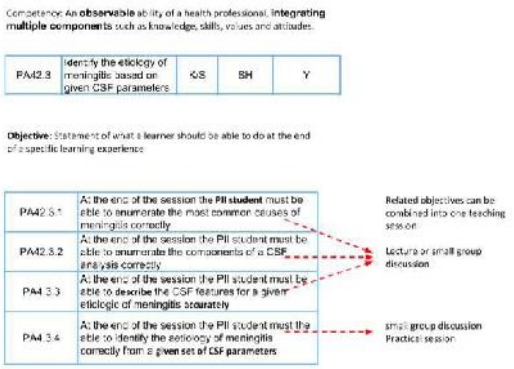
Deriving Objectives

No.	Audience	Behaviour	Condition	Degree

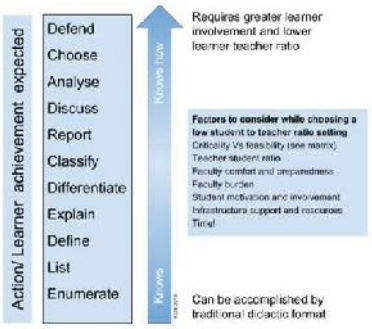
Working with objectives

No	Objective	Domain K/S/A/C	Level (K/KH/ S/SH)	Departments(s)	A/I (Y/N) (H/V))

From objectives to Learning Methods



Choosing the right learning method based on action verbs



From Objectives to Learning Method

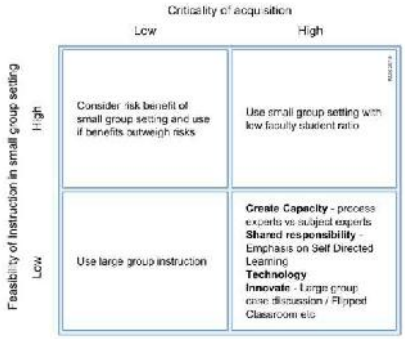
Objective(S) Target

Audience: Number of students:

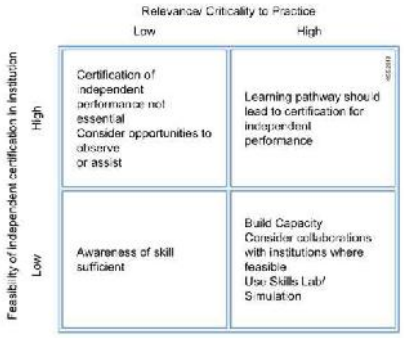
Method Chosen:

Parameter	Method 1	Method 2	Method 3
Advantages			
Disadvantages			
Infrastructure/Aids required			
Faculty preparation required			
Other Issues			

Criticality VS feasibility - Knowledge domain



Criticality Matrix -Skill Domain



Focus on 360 degree learning and different learning styles

Pediatrics

9	Describe the components of safe vaccine practice – including patient education/ counseling, adverse events following immunization, safe injection practices, documentation and Medico-legal implications	K	KH	Y	Lecture, Small group	Written , Viva
16	Explain the term implied consent in Immunization services	K	K	Y	Small group Discussion	Written , Viva
7	Educate and counsel a patient for immunization	AC	SH	Y	DAOP	Document in Log Book, skill station

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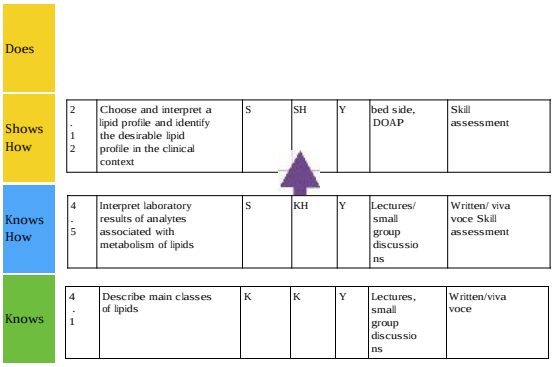
Focus on 360 degree learning and different learning styles

Pediatrics

10	Observes the Handling and storing of vaccines	S	KH	Y	DAOP, Bedside	Log book
11	Observes the Administration the UIP vaccines in patients	KH	SH	Y	Bedside	Document in Log Book
12	Document Immunization in an immunization record	S	SH	Y	DOAP, Bed side	Skill assessment
13	Demonstrates the correct administration of different vaccines in a mannequin	S	SH	Y	DAOP	Skill assessment
15	Demonstrate correct infection control measures and appropriate handling of the sharps	S	SH	Y	DAOP	Document in Log Book

Ascendancy of competence



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Choosing a learning method

Parameter	Description
Name of the Lesson	
Number of learners	
Objectives of the session	
Primary Teaching Method chosen	
Advantages of the Teaching method chosen	
Possible disadvantages	
Faculty preparation required	

Learning Plan

Parameter	Description
Name of the Lesson	
Breakup of the session	Step 1 Step 2 Step 3 Step 4
Teaching Aids required	
Infrastructure required	
Student preparation required	
Instant assessment method Chosen	
Other comments	

Creating Aligned and Integrated Learning

What do you mean by integration?

2

Definition

Systematic organization of curriculum content and parts into a meaningful pattern

Definition

Systematic organization of curriculum content and parts into a meaningful pattern

broadly explore knowledge in various subjects related to certain aspects of their environment

Humphreys 1981

Definition

Systematic organization of curriculum content and parts into a meaningful pattern

broadly explore knowledge in various subj envir

...education that is organized in such a way that it cuts across subject-matter lines, bringing together various aspects of the curriculum into meaningful association to focus upon broad areas of study. It views learning and teaching in a holistic way and reflects the real world, which is interactive.

Shoemaker 1989

Definition

Systematic organization of curriculum content and parts into a meaningful pattern

broadly explore knowledge in various subj envir

...education that is organized in such a way that it cuts across subject-matter lines, bringing together various aspects of the curriculum into meaningful association to f and worl

the planned learning experiences not only provide the learners with a unified view of commonly held knowledge (by learning the models, systems, and structures of the culture) but also motivate and develop learners' power to perceive new relationships and thus to create new models, systems, and structures.

Dressel 1958

Why integrate?

It is taken for granted, apparently, that in time students will see for themselves how things fit together. Unfortunately, the reality of the situation is that they tend to learn what we teach. If we teach connectedness and integration, they learn that. If we teach separation and discontinuity, that is what they learn. To suppose otherwise would be incongruous.

(Humphreys 1981, p. xi).

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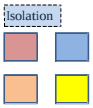
What gets integrated?

8

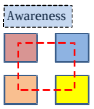
The progression of integration



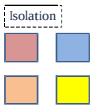
organize teaching in silos without consideration of other subjects or disciplines

Harden R Med Edu 2000. 34; 551

The progression of integration

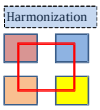


the teacher in one subject is made aware of what is covered in other subjects in the curriculum



Harden R Med Edu 2000. 34; 551

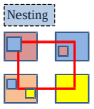
The progression of integration



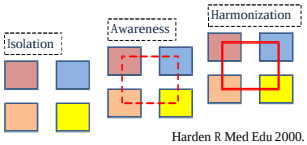
"is the effort to deliberately relate curricula within the discipline rather than assuming that students will understand the connections automatically"
Fogarty 1991

Harden R Med Edu 2000. 34; 551

The progression of integration



the teacher targets, within a subject-based course, skills relating to other subjects

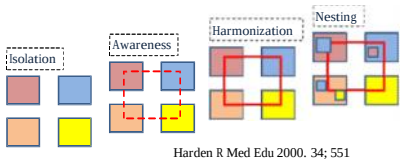


Harden R Med Edu 2000. 34; 551

The progression of integration

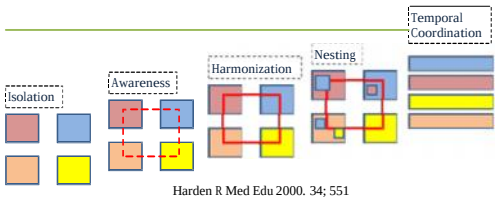
Temporal Coordination

The timetable is adjusted so that topics within the subjects or disciplines which are related, are scheduled at the same time.



Harden R Med Edu 2000. 34; 551

The progression of integration

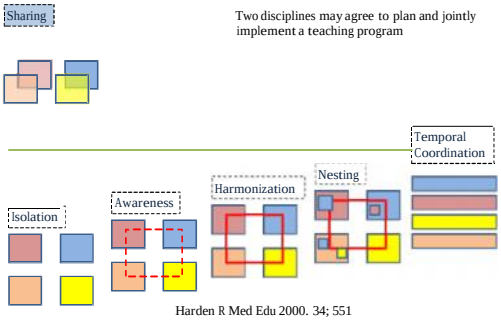


Harden R Med Edu 2000. 34; 551

The progression of integration

Sharing

Two disciplines may agree to plan and jointly implement a teaching program



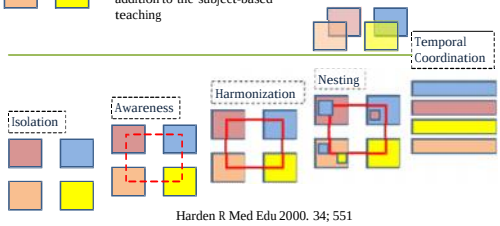
Harden R Med Edu 2000. 34; 551

The progression of integration

Correlation

the emphasis remains on disciplines or subjects with subject-based courses taking up most of the curriculum time. Within this framework, an integrated teaching session or course is introduced in addition to the subject-based teaching

Sharing

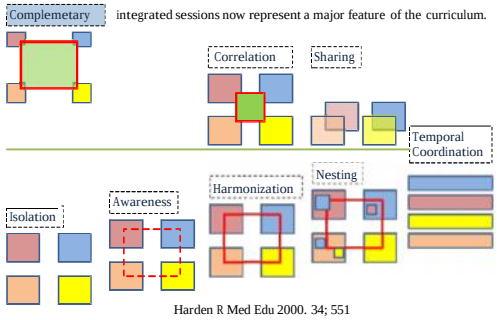


Harden R Med Edu 2000. 34; 551

The progression of integration

Complemetary

integrated sessions now represent a major feature of the curriculum.

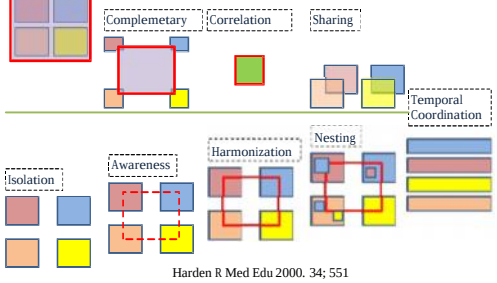


Harden R Med Edu 2000. 34; 551

The progression of integration

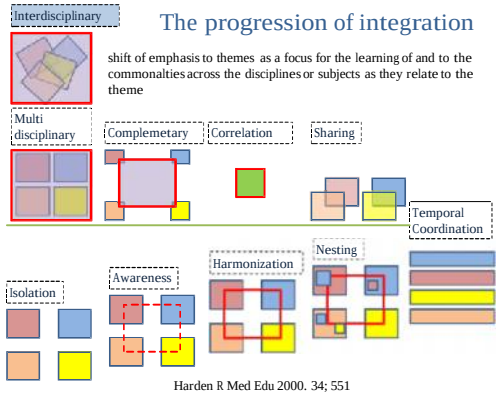
Multi disciplinary

brings together a number of subject areas in a single course with themes, problems, topics or issues as the focus for learning



Harden R Med Edu 2000. 34; 551

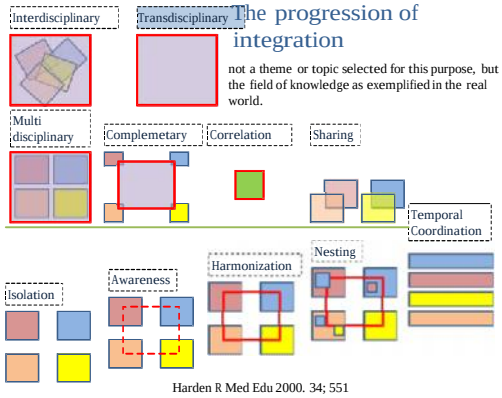
The progression of integration



shift of emphasis to themes as a focus for the learning of and to the commonalties across the disciplines or subjects as they relate to the theme

Harden R Med Edu 2000. 34; 551

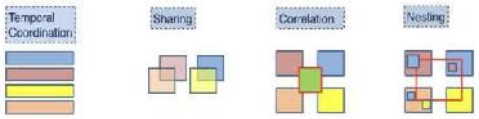
The progression of integration

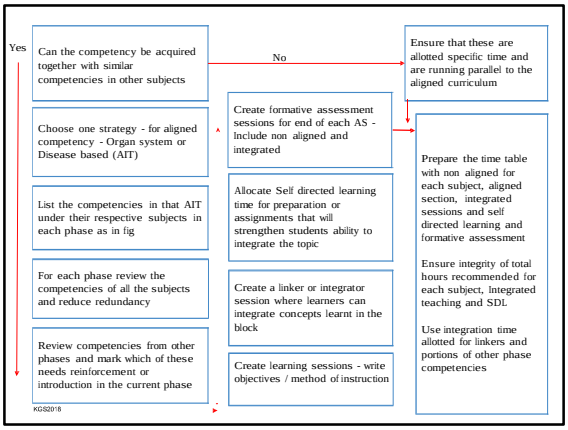


not a theme or topic selected for this purpose, but the field of knowledge as exemplified in the real world.

Harden R Med Edu 2000. 34; 551

Integration as it relates to the GMR

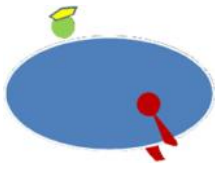




Alignment and integration

Competency /Objective	Same Phase	Different Phase
Cannot be taught in a particular topic	Teach separately	-
Can be taught together in different sessions in the same topic	Align	Align From earlier phase to reinforce a concept From later phase to introduce a concept or create relevance
Can be taught in the same session in the same topic	Integrate	Integrate From earlier phase to reinforce a concept From later phase to introduce a concept or create relevance
Can be used to link concepts taught in a particular topic	Linker (Usually Linkers are from a higher phase)	Linker (Usually a clinical condition problem or case)

Putting integration to work

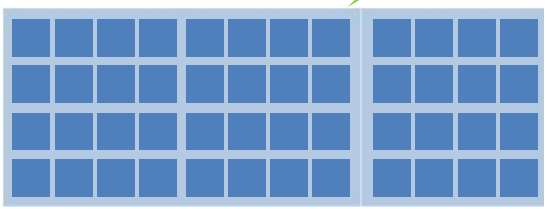


Get leadership buy in!

Putting integration to work

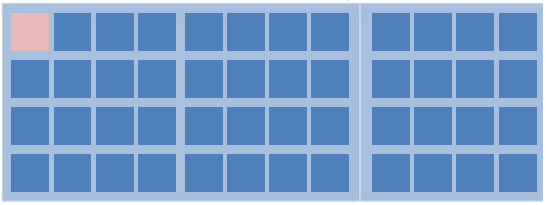
Get the stakeholders together
The stake holders should own the process

Putting integration to work



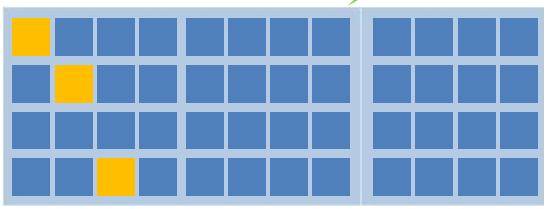
Putting integration to work

Competency – narrow discipline based cannot be integrated



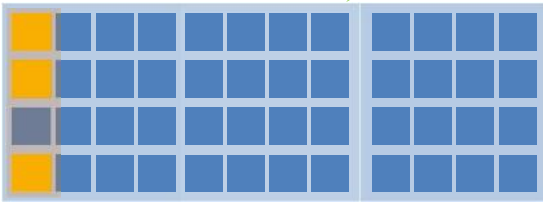
Putting integration to work

Competency – can be taught in more than one discipline in a single phase – mark for horizontal integration



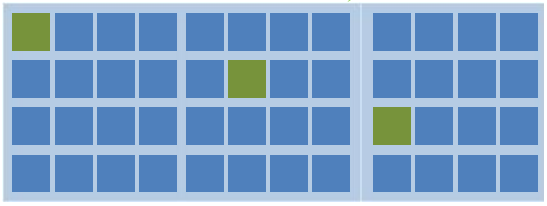
Putting integration to work

Competency – can be thought in more than one discipline in a single phase – mark for horizontal integration



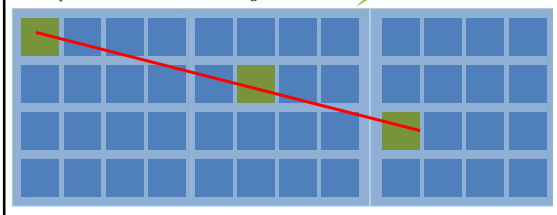
Putting integration to work

Competency – can be taught in more than one discipline in across phases– mark for horizontal integration



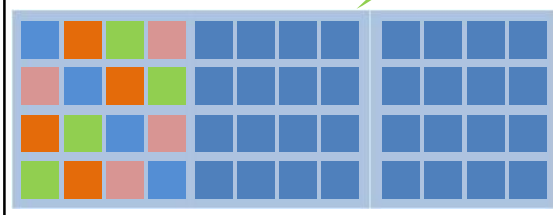
Putting integration to work

Competency – can be taught in more than one discipline in across phases– mark for verticall integration



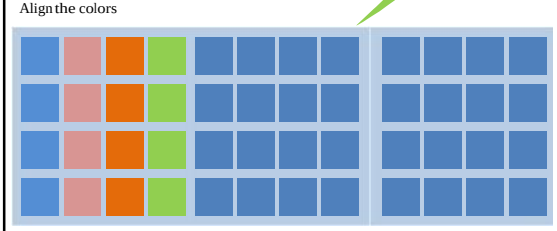
Putting integration to work

Align the colors



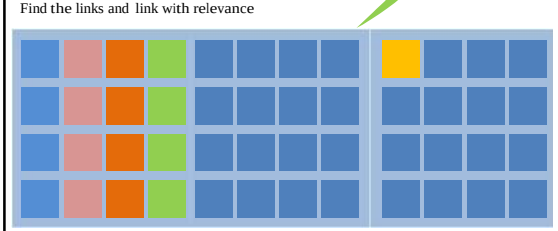
Putting integration to work

Align the colors



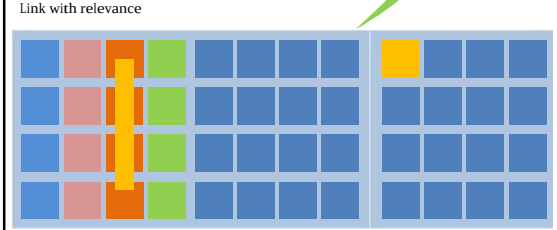
Putting integration to work

Find the links and link with relevance



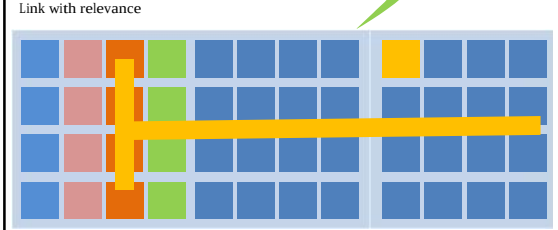
Putting integration to work

Link with relevance

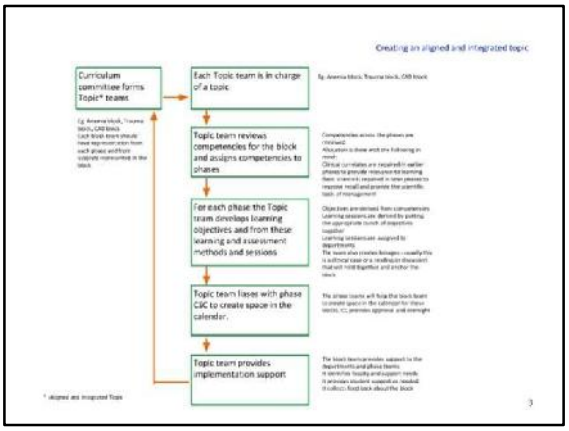


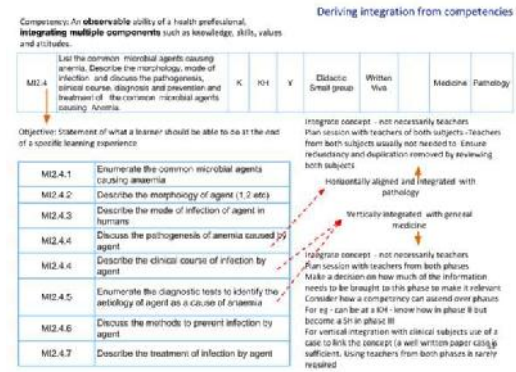
Putting integration to work

Link with relevance



Putting integration to work





Aligning in a phase

Sample Aligned Timetable

Electives

- Explain the rationale of Electives
- Enumerate pedagogical advantages of Electives
- Plan their incorporation in the curriculum
- Curricular governance of Electives
- Types and example of Electives
- Assessment of Electives

Introduction

Opportunity for a wide spectrum of flexible learning experiences to carry hospital / community based research projects which stimulate enquiry, self-directed, experiential learning and lateral thinking

What is Elective?

Brief course made available to learner during undergraduate study period, where students can choose from available options depending upon their interest and career preferences

Advantages of Electives

- Allow flexibility and choice during study period
- Opportunity to explore areas of interest to supplement their future studies
- Develop self directed learning skills
- Have direct experience of working in their interest areas
- Develop ability of deeper learning and critical thinking through reflection
- Have a student centric component in curriculum
- Identify future career path by direct experiences in diverse areas

Share your experiences

- Two months designated for elective rotations
  - after completion of the examination at end of the third MBBS Part I and before commencement of third MBBS Part II
- Compulsory for learners to do an elective
- Time for electives not to be used to make up for
  - missed clinical postings
  - shortage of attendance or
  - any other purposes

- The learner shall rotate through two elective blocks of 04 weeks each
- During electives regular clinical postings shall continue
- Block 1
  - In a pre-selected preclinical or para-clinical or other basic sciences laboratory OR under a faculty researcher in an ongoing research project
- Block 2
  - In a clinical department (including specialties, super-specialties, ICUs, blood bank and casualty) from a list of electives developed and available in the institution OR as a supervised learning experience at a rural or urban community clinic

Curricular governance

- Each college responsible for elective postings
- Dean's office, all administrative responsibilities for elective postings
  - identify possible electives within and outside institution that can be offered
  - to be specified and communicated to students at beginning of academic year
- Department/ faculty who will guide/ supervise/mentor students during electives need to be identified and trained
- If required students may be permitted to do electives in other medical colleges or institutions within/ outside the country

Example of General Electives

- Bio Informatics, Tissue Engineering/ Processing,
- Computer & Computer Applications, Immunology,
- Genetics, Human Nutrition, Sports Medicine,
- Laboratory Sciences, Research Methodology,
- Ethics, Accident and Emergencies (A&E),
- Community Projects, HIV Medicine, Tissue Culture,
- Pharmaco Kinetics/dynamics / economics,
- Assisted Reproductive Technology, Ethics & ME

Example of Clinical Electives

- Cardiothoracic Surgery, Cardiology, Paediatric surgery,
- Gastroenterology, Infectious Disease, Geriatrics,
- Psychiatry, Radiodiagnosis, Neurosurgery, Neurology,
- Accident & Emergency Medicine, Rheumatology,
- Pulmonary Medicine, Neonatology, Anaesthesia, Oncology,
- Dermatology, Endocrinology, Nephrology, Palliative care,
- Clinical pharmacology, Physical medicine and rehabilitation
- Clinical genetics, Biomedical waste management, Toxicology

- Example of Community electives/Places where it can be done:
  - District, taluka hospital or PHC
  - Community hospital
  - Community project
  - National programmes
- List of Laboratory Electives:
  - Biochemistry, Pathology, Microbiology, Virology
  - Pharmacology, Forensic Medicine, Molecular biology etc

- Electives compulsory, 75% attendance mandatory
- Student log book/ portfolio with academic/ non academic activities. For eg;
  - Cases seen, examined, investigated, test performed, case operated etc
  - Along with stories, reflection about each event
- Various points included in checklist related to clinical skills like
  - History taking/examination, motivation, communication, team work, discipline
- Students to be assessed in between and at end of elective posting
- Feedback, comments and /or grades by faculty mentor
- Performance of students in electives to contribute towards internal marks
- Student's feedback also needs to be documented in a structured format

Responsibilities of Dean of the medical college

- To Head a committee for implementation of Electives with MEU Coordinator, Curriculum committee members & respective heads of electives department as members
- To hold regular meetings for the effective implementation of electives
- Dean's office in each medical college will identify a person/office/department in the college who will be assigned the task of identifying, organizing and taking all administrative responsibilities for the elective postings

Responsibilities of Dean of the medical college

- The responsible person/office/department will identify possible electives within and outside institution that can be offered to the students
- List of Electives need to be specified and communicated to the students at the beginning of the academic year
- The departments and/ or faculty who will guide/ supervise/mentor the students during their elective posting also need to be identified and trained in various requirements of electives
- To conduct meetings at regular interval for monitoring, smooth handing & implementation

Responsibilities of the Curriculum Committee

- To help in sensitizing faculties & students for Electives & its scheduling
- To monitor the smooth conduct of the program
- To coordinate with the Dean, faculty & students for various activities enlisted before
- To monitor and submit reports to the Dean

Responsibilities of the MEU

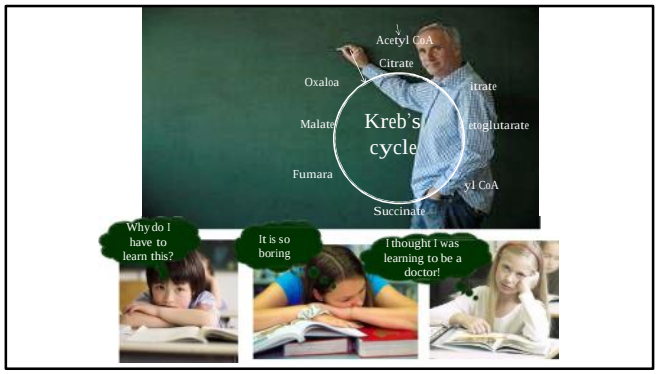
- To arrange the sensitisation programs for all related faculty members
- To ensure the coordination between faculty & students
- To train and orient the resource persons
- To collect the reports and coordinate with NC / RC
- To ensure that at least one MEU faculty should be present in the monitoring of sessions on electives

Monitoring

- Evaluation: Program effectiveness questionnaire from faculty and students
- Reporting: The Curriculum Committee will submit the schedule and report with inputs from students, resource persons, MEU faculty and the MEU coordinator shall forward the same to NC/RC at 3 monthly interval.

1. Lumb A, Murdoch-Eaton D. Electives in undergraduate medical education: AMEE Guide No. 88. Medical Teacher. 2014 Jul 1;36(7):557-72.
2. Ankit Agarwal, Stephanie Wong, Suzanne Sarfaty, Anand Devaiah & Ariel E. Hirsch (2015) Elective courses for medical students during the preclinical curriculum: a systematic review and evaluation, Medical Education Online, 20:1, DOI: 10.3402/meo.v20.26615
3. Thompson MJ, Huntington MK, Hunt DD, Pinsky LE, Brodie JJ. Educational effects of international health electives on US and Canadian medical students and residents: a literature review. Academic medicine: journal of the Association of American Medical Colleges. 2003 Mar;78(3):342.
4. Hastings, Adrian & Dowell, Jon & Kalmus Eliasz, Michael. (2013). Medical student electives and learning outcomes for global health: A commentary on behalf of the UK Medical Schools Elective Council. Medical teacher. 36. 10.3109/0142159X.2013.849330.
5. Harth SC, Leonard NA, Fitzgerald SM, Thong YH. The educational value of clinical electives. Medical education. 1990 Jul;24(4):344-53.
6. Dana Stys, Wilma Hopman & Jennifer Carpenter (2013) What is the value of global health electives during medical school?, Medical Teacher, 35:3, 209-218, DOI: 10.3109/0142159X.2012.731107

Early clinical exposure (ECE)



Objectives

- Explain the rationale of ECE
- Enumerate the pedagogical advantages of ECE
- Plan their teaching-learning methods around clinical scenarios
- Optimally use ECE to orient students to basic clinical methods and 'soft' clinical skills (communication, professionalism, ethics etc.)

Introduction

- What is early clinical exposure?

Exposure:

"Authentic human contact in a social or clinical context that enhances learning of health, illness and/or disease, and the role of a health professional"

Early:

"What would have traditionally been regarded as the pre-clinical phase, usually the first two years"

Dornan et al. Med Teacher 2006; 28: 3-18

Concept and definitions

Early Clinical Exposure (ECE) is a teaching learning methodology, which fosters exposure of the medical students to the patients as early as the first year of medical college.

Elizabeth K. Medical Education. 2003, 37: 88-89.

The goals of ECE are to provide context and relevance to basic science teaching some gain in medical knowledge few basic clinical skills and wide range of attitudes.

Share your best practices

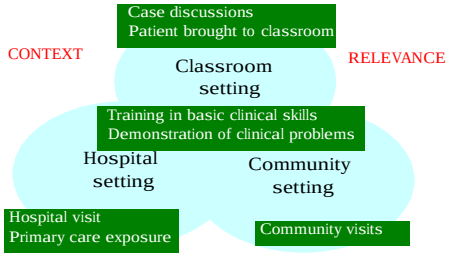
Task

- Divide into 4 groups
- Form dyads within groups
- Share your experiences with ECE:
  - Who, when, where
  - What was the setting
  - What was good about the practice
  - How it could have been even better
- Identify salient points in your group

Where to use ECE

RSK

Where to use ECE?



- Paper cases
- Photographs
- X-rays
- Laboratory reports
- ECG

- Cases provide a focus for learning
- A case is a framework for a discussion
- A well constructed case functions as a "surrogate teacher"
- A case is not a textbook or a syllabus
- Use of a case match the goals, objectives, of the curriculum

University of New Mexico, 2002

Creating cases

- Planning the case
- Constructing the case
- Formatting the case
- Preparing the use of case

Designing ECE module

- What is the setting?
- State overall goal , learning objectives and expected competency
- Plan Learning experiences
- How will you implement it? What are the challenges/ How will you overcome them?
- Plan evaluation of the ECE curriculum/module

Observation

- Observe the personentering the room now.
- Write your observations on a piece of paper.
- Pass on the paper to the person next to you. Keep on doing so till the bell rings.
- Each one reads out what was written on the slip.
- What are your 'observations'?

You are sitting in on an outpatient clinic and have been told that the next patient to be seen is Mr. Jagan, a 24-year-old man who has signs and symptoms of thyrotoxicosis. Your clinical teacher has asked you to observe.

Take a few minutes to jot down the kinds of things you might look for.

- There are different ways of looking at same situation.
- Students may observe everything superficially or look at totally unintended things.
- Observation is not neutral.

- " Clearly the instruction "observe" is absurd. Observation is always selective. It needs a chosen object, a definite task, an interest, a point of view, a problem ." (Popper, 1972)

Spectrum of observation

- Who
- What
- How
- For what

What does pedagogy tell us?

- Use advance organizers as pegs, which the students can use to hang new knowledge on (Ausubel, 1960)
- Structure the learners' observations, using their existing knowledge and demonstrate the connection between basic and clinical science
- Observation guides

Return to example

- What is the student being asked to observe?
- What prior knowledge does he have?
- What might he learn from these observations?

- Watch Mr Jagan as I examine him and see if you can identify any typical features of thyrotoxicosis. Think about the correlation between his presenting symptoms and signs.

During this consultation with Mr Jagan I am going to demonstrate how to palpate the thyroid. Correlate the method of palpation with the anatomy of thyroid that you have learnt.

Observation guide 3

You have heard the history from Mr. Jagan. Try to correlate his symptoms with physiologic changes in his body.
Which other conditions might present with similar symptoms?

Why to use

- Meet intended learning outcomes
- Develop an understanding of how symptoms can be explained by the underlying physiologic changes.
- Move students from 'knows' to 'knows how'.

Why to use..

- Allow students to correlate anatomy and physiology with the signs and symptoms.
- Have the feel of utility of basic sciences in patient care
- Look at the person having the disease rather than the disease itself.

How can we use

- Can be used in a variety of ways:
  - Two students observing same aspect & comparing notes
  - Students observing different aspects and sharing ideas
  - Focusing on communication, data gathering etc.
  - Communication and differences in different patients.

Group activity

RSK

- Write a clinical case which can be used as a tool for Early Clinical Exposure
- Reflect how it will be different from a case for III MBBS students

Group task 2

- Develop a session for incorporating ECE in hospital settings to incorporate utility of knowledge of basic sciences

(Hint: Include wards, OPDs, investigative facilities. Suggest ways to include situations with ethical dilemmas)

Group task 3

- Develop a session for incorporating ECE in community setting.
- List cases/ situations useful in the community

Group task 4

- Identify a common clinical condition to be shown to students
- List objectives of clinical demonstration
- Develop an observation guide
- Try to include all domains of learning
- Think of different ways of using them

Let us sum it up

- Core approach to clinical teaching
- Generally a passive process causing anxiety or 'shut down' of the learner
- Students need to be told what they should observe
- Can make the teaching contextual and interesting
- Can be used in a variety of ways

Assessment for competency based medical education

—

What is CBME?

Competency Based Medical Education (CBME) is an outcome based education which uses competency framework to design, deliver, assess and evaluate the curriculum.

How does assessment differ

Conventional curricula	Competency based curricula
Fragmented, mostly summative, norm-references	Integrated, mostly formative, criterion-referenced

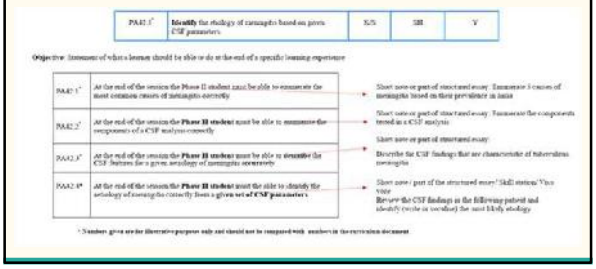
Common misconceptions

Myth	Reality
Assessment should be performance based	Competency denotes ability of a learner to perform – not performance
Assessment of discrete domains can be taken as surrogate of competency	CBA should assess integration of domains in a clinical context
CBA should concentrate of technical skills	Non-technical skills are as important to be taught and assessed.
CBA can be a one-time process	CBA must be an ongoing process
CBA can be norm referenced	CBA must be criterion referenced.

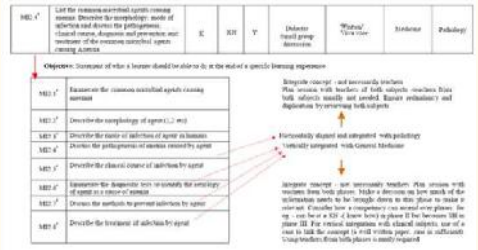
Key features

- Helps the learners to acquire and develop competencies
- Direct observation plays a major role (specially for skill based)
- All competencies have to be assessed

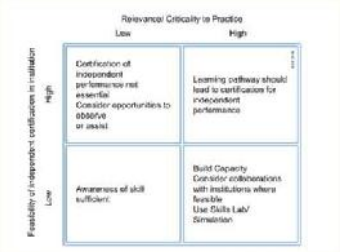
Aligning assessment with competencies



Aligning assessment with competencies..



Blueprinting



Group work

Link assessment methods to the competencies and objectives that you have worked.

Opportunities for assessment

A. Informal
B. Formal
- Internal assessment
- University examinations

Blueprinting needed

Informal opportunities

- Provide the much needed feedback to the learner, helping her to improve
- Dissociate assessment and decision making, allowing students to 'open up'
- Help to take away the stress of assessment

Formal opportunities

- Internal assessment: How she learnt
- University examinations: How much she learnt

Fall out:

- Both test different aspects
- One is not a replacement for other

Internal assessment: Extract from GMER

Regular periodic examinations shall be conducted throughout the course. There shall be no less than three internal assessment examinations in each Preclinical / Paraclinical subject and no less than two examinations in each clinical subject in a professional year. An end of posting clinical assessment shall be conducted for each clinical posting in each professional year.

In subjects that are taught at more than one phase, proportionate weightage must be given for internal assessment for each Phase. For example, General Medicine must be assessed in second Professional, third Professional Part I and third Professional Part II, independently.

Day to day records and log book should be given importance in internal assessment. Internal assessment should be based on competencies and skills.

Internal assessment: Eligibility

- Made mandatory before a student is allowed to appear for the final university examination
- Need at least 35% separately in theory and practicals
- However, need 50% in theory and practical combined before being declared pass
- Those who appear in University exams with <50%, will need to make up before the result is declared
- Passing in internal assessment will be separately shown in the final result

University examinations

University examinations are to be designed with a view to ascertain whether the candidate has acquired the necessary knowledge, minimal level of skills, ethical and professional values with clear concepts of the fundamentals which are necessary for him/her to function effectively and appropriately as a physician of first contact.

Theory examinations

- Use multiple tools like long answer, short answer and multiple choice questions
- MCQs not more than 20%

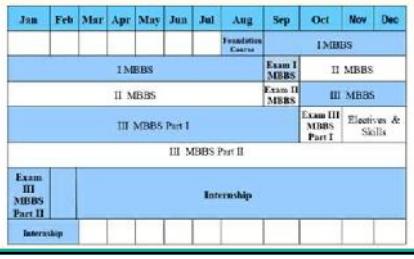
Practical/Clinical examinations

- To assess proficiency in skills, data interpretation and logical conclusions
- Clinical cases should match what a practitioner is likely to see in actual practice
- Avoid rare cases/syndromes
- Focus on data gathering, physical examination, writing records and management plans.

Viva-voce

- Assess approach to patient management, emergencies, attitudinal, ethical and professional values
- Skill in interpretation of common investigative data, X-rays, identification of specimens, ECG, etc. is to be also assessed.
- Viva marks to be added to practicals

Examination schedule



Marks allotment

Phase of Course	Written-Theory – Total	Practicals/ Orals/ Clinicals	Pass Criteria
First Professional			
Human Anatomy - 2 papers	200	100	
Physiology - 2 papers	200	100	
Biochemistry - 2 papers	200	100	
Second Professional			
Pharmacology - 2 Papers	200	100	Internal Assessment: 35% separately in theory and practical for eligibility to appear for University Examinations
Pathology - 2 papers	200	100	
Microbiology - 2 papers	200	100	
Third Professional Part – I			
Forensic Medicine & Toxicology - 1 paper	100	100	
Ophthalmology - 1 paper	100	100	University Examination Mandatory 50% marks in theory and practical (practical + practical/ clinical + viva)
Otorhinolaryngology - 1 paper	100	100	
Community Medicine - 2 papers	200	100	
Third Professional Part – II			
General Medicine - 2 papers	200	200	
General Surgery - 2 papers	200	200	
Pediatrics - 1 paper	100	100	
Obstetrics & Gynaecology - 2 papers	200	200	

Skills teaching

TS

?

What do you understand by 'skills'?

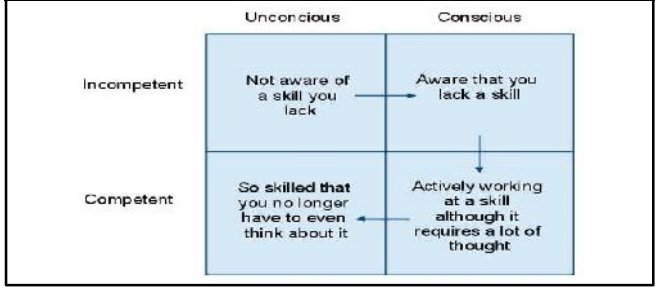
Activity: Think- Pair- Share

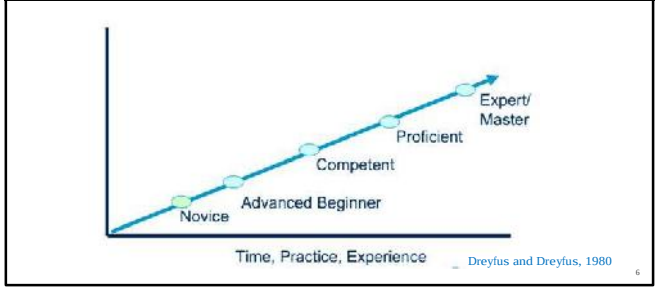
- Conventionally taken as psychomotor domain
- "Any action by a health care practitioner, involved in direct patient care which has a measurable impact on clinical outcome". (Scottish clinical skills strategy, 2007)
- Can be classifies as 'technical' and 'non-technical'.

TS

Technical	Non-technical
History taking	Situational awareness
Physical examination	Task management
Communication (patients)	Communication (team)
Procedural skills	Decision making
Information management	Prioritization skills

TS





- Rehearsing skills in preparation for practice reduces adverse events. (Leonard et al, 2004)
- Behaviors during simulated training predict actual practice (Weller et al, 2003)
- Changing educational trends e.g. CBME
- Changing healthcare scenarios e.g. teams

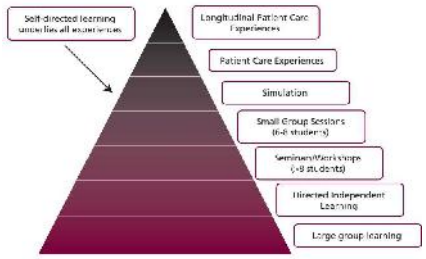
TS

- Number of students, time constraints
- Different levels of learners
- Mismatched learner priorities
- Patient safety concerns
- Awkwardness in pointing errors
- Inability to provide developmental feedback

TS

- How do you teach clinical skills?
- What changes can be made in the way clinical skills are taught?

TS



TS

AAMC, 2008

- Different approaches needed for two types of skills
- Non-technical skills often first sign of impeding trouble
- Non-technical skills enhance the learning of technical skills (Salas, 2005)

TS

- One of the oldest apprenticeship model
- Poorly structured and supervised
- Wrong practices transmitted over generations
- Assessment difficult
- Patients may be exposed to iatrogenic harm

TS

STEPS model

S	Set the foundation, importance of skill, context
T	Tutor demonstration without commentary
E	Explanation with repeat demonstration
P	Practice under supervision and feedback
S	Subsequent deliberate practice

SISFR model

S	Set the context, identify roles and outcome
I	Immerse in roles and practice for agreed time
S	Summarize progress
F	Feedback from tutor
R	Refine practice

T	Think aloud	W	Wear gloves
A	Activate the learner	A	Adapt enthusiastically
L	Listen smart	L	Link learning and caring
K	Keep it simple	K	Kindle kindness

- Peer assisted learning
- Clinical skills laboratories
- Simulations
- Simulated patients

- Laboratory process to mimic a clinical encounter
- Not a replacement for clinical environment
- Rehearsal and subsequent practice

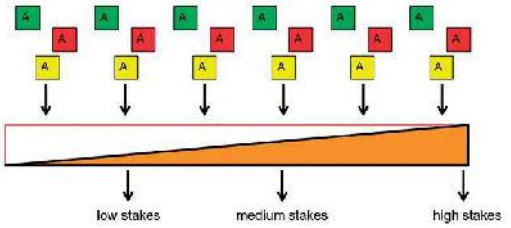
Semester	Fidelity	Example
3-4	Low to medium	Anatomy and physiology, anthropometry, BP recording
6-7	Low to medium	Pharmacological principles
	Medium to high	Eliciting clinical signs, making a diagnosis
8-9	Medium to high	Initiate treatment, observe effect of treatment, resuscitation

Patient care setting	Learning opportunities
Primary care, Outpatients	Focused patient history Establishing rapport Building longitudinal relationships (student-patient)
Community based	Limitations of healthcare; Barriers to care
Inpatients	Problem focused history Physical examination Building rapport
Emergencies	Focused histories; Focused physical examination Basic clinical procedures; Diagnostic reasoning; Test interpretation

- Formative, focused on specific competencies required for a physician
- Measure the full scope of professional characteristics from very specific procedures to skills involving a synthesis of component abilities
- Specific evaluative techniques chosen to match the skill being assessed

- Programmed to believe that objective and standardized is best
- Reductionist practices
- Strong connect between assessment and decision moments
- Competence viewed only dichotomously

- No assessment can be completely summative, especially in CBME
- Purely summative accelerate test taking behaviors
- Purely formative has no serious takers
- Give teeth to assessment!
- Can we combine the formative and summative aspects?



Schuwirth, 2015

- Greater emphasis on formative assessment
  - Supported by educational theory (Hodge, 2007)
  - Develops expertise through deliberate practice (Ericsson, 2006)
  - Needs effective coaching, mentoring and feedback (Eva and Regher, 2008)

- Must be criterion referenced with developmental perspective
- Based on authentic encounters and direct frequent observations (Norcini, 2003)
- Faculty observation skills need improvement (Govaertis, 2007)
- Use quality assessment tools

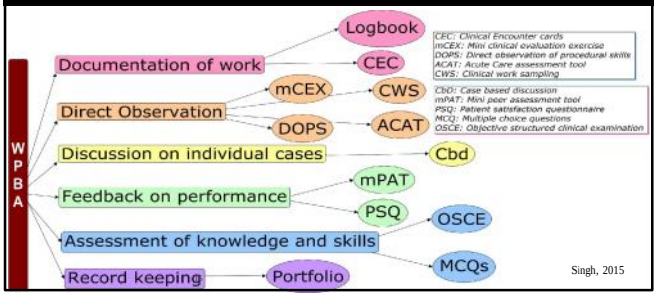
- More qualitative tools are needed to inform trainee
  - A number e.g. 3/5
  - A word on a scale e.g. satisfactory
  - A narrative e.g. appropriately began the interview with open ended questions and collected the necessary information

- Competency difficult to assess using only objective tools
- Narratives carry more weight than numbers
- Skills assessment should be criterion based
- Don't ignore assessment of knowledge related to that skill

TS

- No single method useful
- Use multiple methods from Assessment Toolbox to compliment and compensate
- Basic principle is direct standardized observation (checklist based/ global rating) and focused feedback

TS



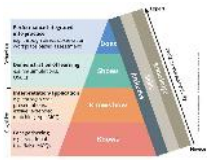
Singh, 2015

Knows	Knows how	Shows	Does
-MCQs -Multiple T/F	-SAQ -LAQ -Viva voce	-OSCE -Standardized patients -Simulations with models	-Mini-CEX -DOPS -360 evaluation -Chart simulated recall -Portfolios with reflection -WPBA

TS

AAMC, 2008

- Key concept is to activate prior knowledge and link it to the current problem.
- One Minute Preceptor (OMP)
- SNAPPS
- Mini-CEX



TS

- Application oriented MCQs
- Extended matching questions (EMQs)
- Key feature test (KFT)
- Script concordance test (SCT)
- Oral examinations
- Mini-CEX
- Portfolios

TS

- Reflect on the challenges in teaching and assessing clinical skills.
- Think of an implementation plan.
- Think of developing the capability of teachers in this area.

TS

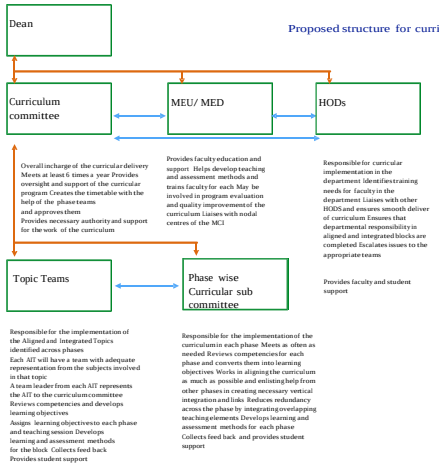
Curricular Governance

Glossary

Curriculum: a designed learning experience (learning and assessment) which facilitates the learner to achieve the prescribed outcome of a course
Curricular Governance: a process established to design, deliver, evaluate and improve curriculum
Curriculum committee: an institutional body that comprises of faculty and constituted based on the norms prescribed by the MCI that oversees the medical education program as a whole and has responsibility for the overall design, integration, coordination, delivery and improvement of the curriculum

Curricular Governance

1. Who is accountable for the delivery of the curriculum?
2. Who is responsible for the oversight of the curriculum?
3. Who will support enable and facilitate the faculty to deliver the curriculum?
4. Who will evaluate and provide necessary inputs that will enable course corrections and continuous improvements?



Curriculum Committee

- Constituted in compliance to the terms of reference provided by the MCI (circular date) is responsible.
- The curriculum committee ensures that the institutional curricular plan and its delivery are aligned to and in accordance to the principles and requirements enshrined in the GMR document.

Curriculum Committee

a) Overall incharge of the curricular delivery
b) Meets at least 6 times a year
c) Provides oversight and support of the curricular program
d) Creates the timetable with the help of the CSC and AIT and approves them
e) Provides necessary authority and support for the work of the curriculum
f) Responsible for preparation reports etc as required by the medical council

Curricular Sub Committee

consist of heads of departments/ key faculty from each specialty teaching in that phase and with representation from members of other phases and reporting to the CC.

Curricular Sub Committee

a. Responsible for the implementation of the curriculum in each phase
b. Meets as often as needed
c. Reviews competencies for each phase and converts them into learning objectives
d. Works in aligning the curriculum as much as possible and enlisting help from other phases in creating necessary vertical integration and links
e. Reduces redundancy across the phase by integrating overlapping teaching elements
f. Develops learning and assessment methods for each phase
g. Prepares the timetable for the phase and presents it to the CC for approval
h. Collects feedback and provides student support

Alignment and Integration Team

Group of faculty that will ensure that a Aligned and Integrated Topic (AITo) is delivered.
Each team will have at least one member from each department across phases and is responsible for delivery of the topics.
The AIT reports to the curriculum committee.

Alignment and Integration Team

a. Responsible for the creating learning and assessment sessions of the Aligned and Integrated Topics (AITo) identified across phases
b. Each AIT will have a team with adequate representation from the subjects involved in that topic
c. A team leader from each AIT represents the Aligned and Integrated Topic (AITo) to the CSC and/or CC
d. Reviews competencies and develops learning objectives for the topic
e. Assigns learning objectives to each phase and teaching session
f. Develops learning and assessment methods for the (AITo)
g. Helps faculty with delivering session appropriately and in a collaborative manner across phases
h. Collects feedback for the AITo
i. Provides student support

Who will support enable and facilitate the faculty to deliver the curriculum?

The Medical Education Unit

- Provides faculty education and support
- Helps develop teaching and assessment methods and trains faculty for each
- May be involved in program evaluation and quality improvement of the curriculum
- Liaises with the Regional / Nodal Centres of the MCI

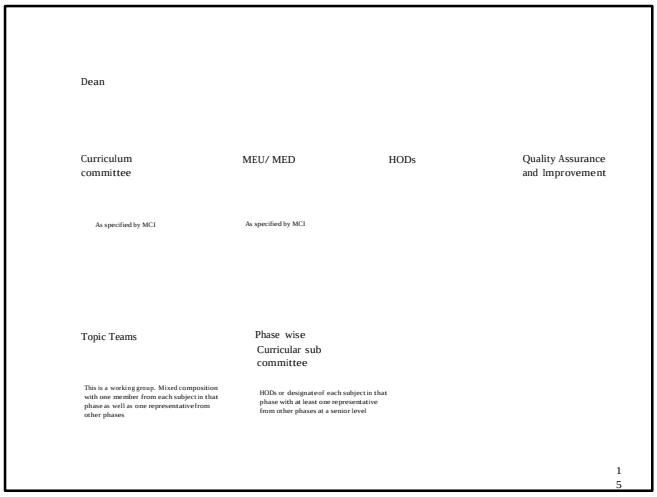
Curricular oversight

Institutional Quality Assurance program

Mile stones

Milestone	Dates of Workshop	Location
First CISP at MCI for Conveners & Co-Conveners of Regional & Nodal Centres	January 16-17, 2019	Medical Council of India
Second CISP at MCI for Conveners & Co-Conveners of Regional & Nodal Centres	January 23-24, 2019	
CISP training program for in-house faculty of department of Medical Education at Nodal & Regional Centres	To be completed by February 7, 2019	Nodal & Regional Centre ME Departments
CISP training program for Curriculum Committee members of colleges allotted to each Nodal & Regional Centre	From second week of February, 2019 to end of April, 2019	
CISP workshops to train medical college faculty supervised by Observer from respective Nodal & Regional Centres	May 2019 - a continuing process until all college faculty are trained.	Medical colleges

Milestone	Dates	Person responsible
Submission of first compliance report	March, 2019 for in-house workshops	Nodal & Regional Centre faculty in charge of CISP
Submission of second compliance report	March 2019 – May 2019	
Submission of third compliance report	May 2019 onwards	By Observer to the workshop through Nodal & Regional Centre faculty- in - charge of CISP
Completion of skill labs and other requisite infrastructure	March 2019 to December 2019	Dean of institution



Foundation Course Orientation

Objectives

- At the end of this presentation the trainers will be able to sensitize and guide faculty to design an effective program for learners on the foundation course

Faculty Guide
Session on "Orientation on Foundation course"
Total Time : 45 min.s

Time	Agenda/Activity	Materials
15 min	Introduction to Foundation course Scope and need	PPT
10 min	Discussion in small groups on 1. Orientation to medical profession & college w.r.t GMR 9.1.2(a) 2. Professional Development & Ethics (w.r.t AETCOM module) 3. Language & Computer skills w.r.t GMR 9.1.2(b) 4. Basic Skills Training w.r.t GMR 9.1.2(c)	
20 min	Plenary on the above (3 min presentation and 2 minutes discussion from each group)	

Foundation Course

Session outline

- GMR as it applies to the foundation course
- Proposed components and time lines

Objective

The overall objective of foundation course would be to sensitize the learners with essential knowledge and skills which will lay a sound foundation for their pursuit of learning across the subjects in MBBS course and later on a career in medicine.

GMR 9.1.2 to 9.1.3

Orientation

Orient the student to

- The medical profession and the physician's role in society
- The MBBS programme
- Alternate health systems in the country
- Medical ethics, attitudes and professionalism
- Health care system and its delivery
- National health priorities and policies
- Universal precautions and vaccinations
- Patient safety and biohazard safety
- Principles of family practice
- Documents pertaining to MBBS Course from the Medical Council of India
- The medical college and hospital

Foundation Course (one month)

Subjects/ Contents	Total hours
Orientation	30
Skills Module	35
Field visit to community health center	8
Professional Development including ethics (AETCOM)	40
Language/ computer skills	40
Sports and Extracurricular activities	22
25 days of seven hours (8-4 with a lunch break of one hour)	175

Source: GMR

Language & IT Skills

- Enable the student to acquire enhanced skills in:
  - Language
  - Interpersonal relationships
  - Communication
  - Learning including self-directed learning
  - Time management
  - Stress management
  - Use of information technology

Skills module

- Train the student on :
  - First-aid
  - Infection Control & Biomedical Waste Management practices
  - Basic life support

Elements

- These sessions must be as interactive as possible.
- Sports and Leisure and extracurricular activity (to be used through the Foundation Course as protected 22 hours in one month).
- Students may be enrolled in one of the following programmes which will be run concurrently: (40 hours in one month)
  - Local language programme
  - English language programme
  - Computer skills
  - These may be done in the last two hours of the day for the duration of the Foundation Course

Further learning & Resources

- Appropriate sections from GMR

Sample Session 1 – About the profession

- At the end of the session (s) the participant will be able to facilitate a small group discussion on the profession with novice students where
  - The student is introduced to the profession, its privileges and responsibilities and its role in society
  - His/her expectations are elicited
  - His/her fears as assuaged
  - Relate his/ her learning to the care of the patient
  - Opportunities for professional and personal growth are explored

Points for consideration

- Expectations – self, family, society
- Losing out on "youth" vs hard work
- Work load
- Learning vs memorizing
  - Contextual learning
- Balancing personal and professional needs
- Under vs overacheiving
- Help support and grievance redressal
- Safety

Sample Session 2 – Experiential Learning

- At the end of the session the participant will be able to provide the novice student with
  - An experience of being in a clinical care or a community situation
  - Reflect and describe the situation

Required skill sets

- Creating a learning experience
- Promoting reflection
- Promoting self directed learning

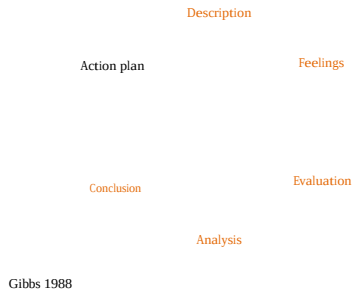
Reflection

Reflection

intellectual and affective activities in which individuals engage to explore their experiences in order to lead to a new understanding and appreciation

Boud, D., Keogh, R., Walker, D. (1985). Reflection: turning experience into learning. London: Kogan Page.

Reflection



Further learning & Resources

- Movies
- Novels

Skills required

- Creating task based exercise
- Promote reflection
- Facilitate discussion

Sample Session 3- Time Management

- At the end of the session (s) the participant will be able to develop and deliver exercises and experiences for the novice student in
  - Prioritization
  - Time management
  - Stress Management

Facilitator guide

- Create a task where participants have to chose among different time constrained but equally important things in different spheres
- Ask participants to discuss their choices and why
- Initiate a discussion on how help students prioritize, manage time, to conflicting needs and perform better.

Points to consider

- Example
- Student has exam next week, brother's wedding day after exam. Every one in family is having fun; want him to come home; feels frustrated and left out..
- Reinforce importance of transparent calendar
- Students must know that teachers will be willing to discuss an issue

Sample Session 4 – Language Skills

- At the end of the session (s) the participant will be able to identify and address perceived difficulty in English and the local language, communication, use of technology etc. in students; creating awareness and provide appropriate resources and remediation

Skills required from faculty

- Recognizing verbal and non verbal cues
- Non threatening communication skills

Program

- Role play interview with a student with difficulty in English
- Have participants react to demo and have a small group discussion on student support

Points to consider

- Spoken language
- Complex
- Time lag from listening to communication
- Absenteeism because of language
- Discrimination and sexual appropriateness
- Appropriate presentation of self
- Safety

Professional Development including Ethics

Introduction to AETCOM Module

Session

- GMR regulations as it applies to professional development including ethics
- AETCOM Module with stress on T/L Methods

AETCOM

- Competencies
- Objectives
- Modules

Learning Experiences

- This will be a longitudinal programme spread across the continuum of the MBBS programme including internship.
- Learning experiences may include – small group discussions, patient care scenarios, workshop, seminars, role plays, lectures etc

- The Foundation Course will have compulsory 75% attendance. This will be certified by the Dean of the college.
- Assessment : To be decided

Responsibilities of Dean of the medical college

- To head a committee for Foundation Course implementation with one preclinical HOD as Convener and the other three and MEU Coordinator / co-Coordinator as members
- To allocate a venue for the foundation course (preferably other than the Lecture class rooms)
- To allocate the resources for the conduct of the foundation course (including those related to community visits, external resource persons etc..)
- To conduct at least two meetings with Curriculum Committee and the committee mentioned above in the month preceding the foundation course
- To arrange the meeting with parents and faculty.

Responsibilities of the Curriculum Committee

- To schedule the sessions for one month and allocate the sessions to the resource persons (including external resource persons from outside the college, if necessary)
- To monitor the smooth conduct of the program
- To coordinate with the administration and clinical faculty
- To monitor and submit reports to the Dean

Responsibilities of the MEU

- To arrange the sensitisation programs for all faculty members (including the Dean & HODs)
- To ensure the coordination between the above two committees
- To train and orient the resource persons
- To collect the reports and coordinate with NC / RC.
- To ensure that at least one MEU faculty should be present in all sessions.

Monitoring

- Evaluation: Program effectiveness questionnaire from faculty and students
- Reporting: The Curriculum Committee will submit the schedule and report with inputs from students, resource persons, MEU faculty and the MEU coordinator shall forward the same to NC/RC within two weeks of the last day of the Foundation Course.
- The NC/RC Convenor shall forward a consolidated report in the prescribed proforma to the MCI within four weeks.

Attitude Ethics and Communication
AETCOM

Graduate Medical Regulations

"Indian Medical Graduate" (IMG) possessing requisite knowledge, skills, attitudes, values and responsiveness, so that he or she may function appropriately and effectively as a physician of first contact of the community while being globally relevant.

Revised Regulations on Graduate Medical Education,
"Indian Medical Graduate" ROLES

- Clinician - preventive, promotive, curative, palliative and holistic care with compassion.
- Leader and member of the health care team - collect analyze, synthesize and communicate health data
- Communicator - patients, families, colleagues and community.
- Lifelong learner - continuous improvement.
- Professional - ethical, responsive and accountable.

How it is being learnt now?

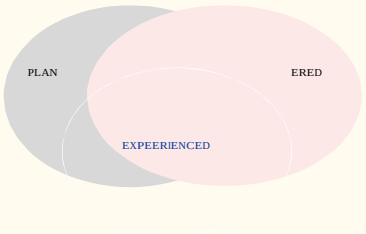
My Teacher

Through

Hidden curriculum

The hidden curriculum

The hidden curriculum consists of those things the students learn through the experience of attending college rather than the stated educational objectives of such institutions.



explicit part →

Implicit part

Teach by example

Attitude - Teaching ?

- Modules
- Role play
- Feed Back
- Project work
- Field trips
- Medical camps
- Voluntary services
- NCC NSS

Movie clips
If we could see

Attitude, communication

Classical approach
Vs
Direct and explicit teaching

What and How to teach?
Deriving from participants

Attitude and Communication (AT-COM) Module

Section I: Extract of goals, roles and universal competencies as envisaged by I MG document.

Section II: Suggested teaching modules for each professional year , resources cases and method to teach

Section III: List of additional non-core competencies that form a desirable set of learning

Section IV: Competency log - in a simulated setting .
- progressing in complexity over time.

Attitude and Communication (AT-COM) Module

Section V: Formative elements that are observable by guides and marked over time.

Appendix 1: Set of competencies as approved by the Academic Committee of the Medical Council of India

Appendix 2: Modified communication skill rating tool adapted from the Kalamazoo consensus

Learning modules for Professional year I

Number of Modules: 5 Number of hours: 34

1. What does it mean to be a doctor?

BACKGROUND

It is important for new entrants to get a holistic view of their profession, its ups and downs, its responsibilities and its privileges.
It is important to start this discussion early in their careers when their minds are still fresh with the thrill of joining medical school.
Such a discussion will help them remember the big picture through the program and remind them why they have chosen to be doctors.

LEARNING EXPERIENCE

When: Professional year 1
Hours: 8 (6 hours + 2 hours self directed learning) This session can be delivered by 4 inter-dependent learning experiences

Learning modules for Professional year I

1. An exploratory session with the students enquiring from them
Why they chose to become doctors and what do they think are the privileges and the responsibilities of the profession.
What do they expect from society and what do they think society expects from them?
What will they have to do and give up in order to meet their own and society's expectations.

This is preferably done in a small group discussion.

2. A facilitated panel discussion involving doctors who are at various stages of their careers (senior, midlevel, young) where doctors share their experiences and also answer questions from students.

Learning modules for Professional year I

3. Self directed learning where students write a report from reflection based on sessions 1 & 2 and on other readings, TV series movies etc that they have chosen from the lay press about doctor experiences.

4. Introductory visit to the hospital / community medical centres

5. A closure session with students to share their reflections based on 1, 2, 3 and 4 that includes what they plan to do in the next 5 years in order to fulfill their professional and personal roles as doctors.

6. A white coat ceremony in the Foundation Course.

RESOURCES

Whitcomb ME. Academic Medicine 2007 82: 917

Communication skill
Doctor – Patient / Attendants

Applications in Medical Education

List the communication skills required to be taught to a UG

Derive from participants

Doctor – Patient encounter

1. Building the doctor patient relationship
2. Opening the discussion
3. Gathering information
4. Understanding the patient's perspective
5. Sharing information
6. Reaching agreement on problems and plans

Breaking a bad news

Goals of the Bad News Interview

- To provide intelligible information and educate the pt / attendents regarding the disease process.
- To support the patient by employing skills to reduce the emotional impact
- To develop a strategy in the form of a treatment plan with the input and cooperation of the patient.
- To support the relatives / attendents in accepting the event.

SPIKES- Six- Step Protocol for Delivering Bad News

Step 1: S- Setting Up The Interview

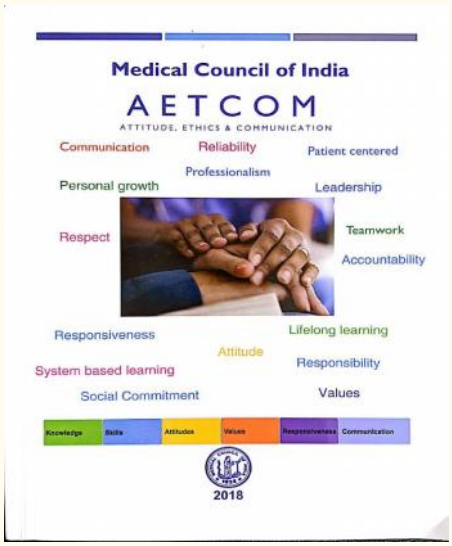
Step 2: P- Assessing The Patient's Perception

Step 3: I- Obtaining The Patient's Invitation

Step 4: K- Giving Knowledge And Information To The Patient

Step 5: E- Addressing The Patient's Emotions With Empathic Responses

Step 6: S- Strategy and Summary



Presentations
CISP.pdf