

Tuning

India

**Degree Programme DMIMS
Research and Publication
model for Undergraduate
Competency Based Medical
Education (Bachelor's Degree
Program in Medicine)**

**Datta Meghe Institute
of Medical Sciences**



Degree Programme DMIMS Research and Publication model for Undergraduate Competency Based Medical Education. Datta Meghe Institute of Medical Sciences

The degree programme deals with the length, level and definition of the programme in terms of competences and learning outcomes; it also analyses the methodologies for developing the appropriate strategy of teaching, learning and assessing those competences as well as setting up the internal systems for assuring programme quality.

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Name and level of the programme

Name of the Program

DMIMS Research and Publication model for Undergraduate Competency Based Medical Education

Level of the program: Bachelor's Degree Programme in Medicine

The Undergraduate competency based medical curriculum is oriented towards training students to undertake the responsibilities of a physician of first contact who is capable of looking after the **preventive, promotive, curative & rehabilitative aspect of medicine**. It is a Bachelor's level program.

Eligibility

Students who have completed 17 years of age, passed higher secondary examination with physics, chemistry, biology and English and qualified National Eligibility-cum-Entrance Test are eligible to apply for the course.

The program equips an Indian medical graduate (IMG) to function as a first contact physician. The emphasis is to enable an (IMG) to recognize «Health for all» as a National goal and fulfill his/her societal obligations.

An IMG can pursue further training in Masters/Post Graduate Diploma programs in various medical and surgical specialties by taking up National Eligibility cum Entrance test (NEET) for PG programs across the country. Post doctoral programs , DM (Doctorate in Medicine)/ Mch (Magister Chirurgiae) can be done after completing the Masters degree.

The social needs of the programme

The UG CBME envisages an IMG who can cater to five roles viz, Clinician, Leader & Member of Health care team, Professional, Communicator and a Life long learner. Every role requires building up of few core competencies. Out of the five roles, the role of Clinician, Life long learner and Professional comprise of global competencies that necessitate the inclusion of knowledge and experience of generating and utilizing and evidence for better patient outcomes as stated below (table 1);

Table 1

Global competencies against three roles of IMG that necessitate inclusion of Research in UG curriculum

Roles Global competency	
Clinician	Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient
Life long Learner	Demonstrate ability to search (including through electronic means), and critically evaluate the medical literature and apply the information in the care of the patient
Professional	Demonstrate a commitment to the growth of the medical profession as a whole
Critical Thinker	New Theme emerged in Medicine Metaprofile

As depicted in the table above, an IMG must be able to DEMONSTRATE these global competencies. The above mentioned competencies do not find place within the syllabi while dealing with the curriculum of respective subjects areas and hence they remain unaddressed or inadequately addressed. Therefore, there is a perceived need to introduce **undergraduate research and scientific publication** within the CBME curriculum and accord it with due credence in academic progression of the learner.

Future fields, sectors of employment/ occupation of graduates

Training in research methodology and scientific publications will enable students to not only to generate evidence but also practice Evidence Based Medicine and thus carve a niche in their profession. Medical Graduates with research and publication skills can contribute to overall development of Medical profession. Scientific publications are a mandatory criteria for promotions in Indian Medical Schools as specified by medical regulatory council – NMC, India. It can also pave way for career opportunities in research dominant fields of health care viz. ICMR, DST, WHO etc.

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Description of the degree profile in terms of generic and subject-specific competences

4.1. Generic competences and their learning outcomes

	Generic
Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion	Ability to apply knowledge in practical situations
	Ability to make reasoned decisions
Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession	Adhere to ethical principles
	Be socially responsible and humane
	Practice professionalism
Leader and member of the health care team and system	Ability to manage crisis effectively
	Ability to communicate effectively
	Ability to work as a team
	Ability to manage stress and maintain emotional stability
	Ability to plan and manage time efficiently
Communicator: with patients, families, colleagues and community	Ability to communicate effectively
Life Long Learner	Be a life-long learner
	Be motivated for self-learning

4.2. Specific competences and their learning outcomes

	Specific
Clinician who understands and provides preventive, promotive, curative, palliative and holistic care with compassion	Differentiate between normal and abnormal structure and function of the human body
	Elicit, evaluate and interpret a patient's history and medical records
	Perform a relevant physical examination 10. Critically appraise history, examination and diagnostic test findings for differential diagnosis and (...)
	Perform basic clinical procedures independently
	Practice Evidence-Based Medicine
	Identify and refer patients for specialized and/or advanced care
Professional who is committed to excellence, is ethical, responsive and accountable to patients, community and the profession	Apply ethical and humanitarian principles that influence health care
	Apply medico-legal principles in health care practice
	Integrate health care policies and guidelines into the routine clinical practice
	Choose and interpret appropriate diagnostic tests based on scientific validity, cost effectiveness (...)
	Prescribe and safely administer appropriate therapies
	Maintain confidentiality and privacy of patients
	Ensure and maintain patient safety
	Respect patient autonomy
Leader and member of the health care team and system	Communicate compassionately with patients and care givers
	Recognize the role of traditional systems of medicine in health care
Communicator: with patients, families, colleagues and community	Communicate compassionately with patients and care givers
Life Long Learner	Contribute towards the growth of the medical profession

Link of competences (degree profile) to the agreed meta-profile

The degree profile of the University is much in consonance with the Metaprofile of Medicine as the five roles of IMG (Clinician, Leader & member of Health care team, Communicator, Professional and Life long learner) are similar to the five out of six themes that emerged in the meta-profile namely Competent Medical Practitioner, Professional, Leader, Communicator, Life long learner. The sixth theme that emerged out of metaprofile was '**Critical Thinker**' that is unique to metaprofile – Medicine.

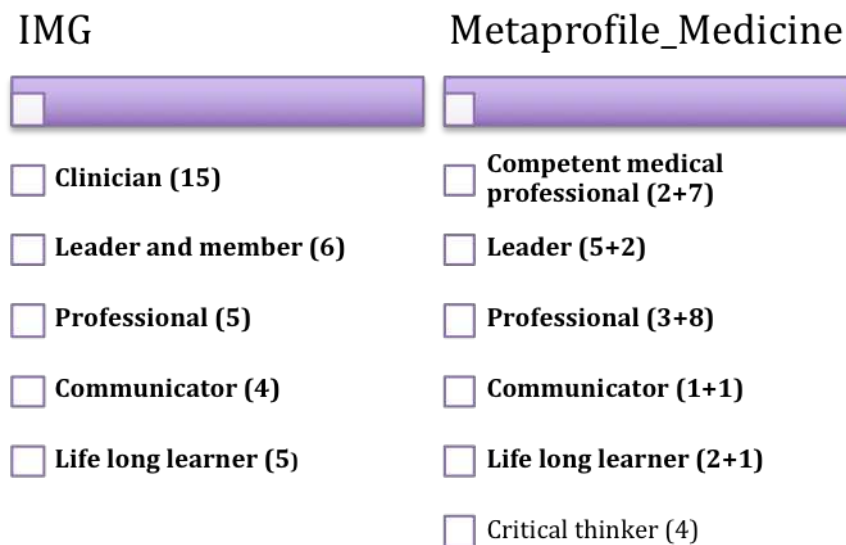


Fig 1

Matching of Degree profile with Meta-profile (number in brackets indicate number of competencies, Global in IMG , Generic & Subject specific in Meta-profile)

A. Differences with Meta-profile

The differences were regarding the number and nature of competencies in roles of IMG and themes in meta-profile. The major competencies which were unique to a either IMG roles or in meta-profile themes are depicted in Annexure 1. A unique difference is a **sixth thematic area in meta-profile i.e 'Critical Thinker' for a medical graduate**. In degree profile of the University, this feature is reflected partially within the role of 'Clinician' and 'Professional'.

Competence / Meta-profile element and the competences it comprises	Generic or Subject-Specific?	Definition of the competence / the meta-profile element – how is it understood in your programme?	Programme-Level Learning Outcomes (minimum 1 - maximum 3 per competence/ meta-profile element)
Critical Thinker	Generic	Ability to do research	
		Acquire problem solving capacity	
		Demonstrate higher order thinking skills	
		Be a reflective practitioner	

Programme-Level Learning Outcomes (minimum 1 - maximum 3 per competence/ meta-profile element)

Structure of the programme: units/courses/modules with their learning outcomes and learning, teaching and assessment strategies

Undergraduate Research and Publication model

1st professional	Second Professional	Third Professional	Electives (between third and final prof)	Final year	Internship
Sensitisation: Foundation course Hands - on : i. Research : STS , Intramural research ii. Publication in the form of review article / STS/Case reports	Hands - on : i. Research : STS , Intramural research ii. Publication in the form of review article / STS/Intramural research article	Hands - on : i. Research : STS , Intramural research ii. Publication in the form of Case report/ STS/Intramural research article	1st Block elective on research methodology with hands on in any ongoing research project.	Hands - on : i. Research : STS , Intramural research ii. Publication in the form of Case report/ STS/Intramural research article	Hands - on : i. Research : Community based research project ii. Publication in the form of article of Community project

Unit/module/course	Learning outcomes (unit/module/course- level)	Teaching-learning activities	Assessment activities
1st Professional Year Foundation course	Sensitization 1. Basics of research skills 2. Literature search 3. Writing a research proposal 4. Computer skills – Excel Hands on : 1. ICMR – STS projects 2. Scientific paper writing – Review articles/ Case reports	Lecture Discussion Hands-on : writing a project proposal for ICMR-STs, review article & case reports	Internal assessment Log book (depicting research and publication milestones)
II nd Professional Year	Sensitization : Research Methodology Part I – Need analysis, Research question, writing objectives & hypothesis, Study designs Hands on : 1. ICMR – STS projects 2. Scientific paper writing – Review articles / Case reports/ original articles	Lecture Discussion Narrate steps of research process followed from examples of published studies Hands-on : writing a project proposal for ICMR-STs, review article, case reports and original articles	Internal assessment Log book (depicting research and publication milestones)
III rd Professional	Sensitization : Research methodology Part II – Sampling, Data collection & Analysis, Writing a research protocol Hands on : 1. ICMR – STS projects 2. Scientific paper writing – Review articles / Case reports/ original articles	Lecture Discussion Hands-on : writing a project proposal for ICMR-STs, review article, case reports and original articles	Internal assessment Log book (depicting research and publication milestones)
	Electives in Biostatistics and Data Analysis (Quantitative & Qualitative Studies)	Blended mode of onsite and recorded lectured with embedded exercises. Experiential learning by including in any ongoing funded project.	Log book (depicting research and publication milestones)
IV Professional	Sensitization : Critical review of published research Evidence Based Medicine Hands on : 1. ICMR – STS projects 2. Scientific paper writing – Review articles / Case reports/ original articles	Journal club Hands-on : writing a project proposal for ICMR-STs, review article, case reports and original articles	Internal assessment Log book (depicting research and publication milestones)
Internship	Community Based research project Publication of the project		Log book (depicting research and publication milestones)

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Length of the programme and student workload

Total length of 'Research and Publication model for Undergraduate Competency Based Medical Education' course : 192 hours (Electives : 40hrs in Class + 60 hrs outside classroom)

Course/paper: MBBS Programme	Number of contact hours	Number of hours students need to work on this course/paper outside the classroom in order to successfully meet the course/paper requirements (revision of notes, completion of assignments, preparation of presentations, work in the library, preparation for intermediate and final assessments, etc.)
Phase I		
1. Anatomy	675	440
2. Physiology	495	300
3. Biochemistry	250	160
4. Community Medicine	52	10
Phase II		
5. Pathology	230	160
6. Pharmacology	230	160
7. Microbiology	190	140
8. Community Medicine	60	40
Phase III		
9. Forensic Medicine	125	80
10. Gen-Medicine	300	240
11. Gen. Surgery	300	240
12. Paediatrics	110	80
13. Orthopedics	90	70
14. T.B. and Chest	20	20
15. Ophthalmology	100	60
16. Psychiatry	40	50

Course/paper: MBBS Programme	Number of contact hours	Number of hours students need to work on this course/paper outside the classroom in order to successfully meet the course/paper requirements (revision of notes, completion of assignments, preparation of presentations, work in the library, preparation for intermediate and final assessments, etc.)
17. ENT	70	50
18. Skin and STD	30	40
19. Radiology	20	20
20. Community Medicine	105	80
21. Dentistry	10	2
22. Anaesthesia	20	15
23. Obstetrics and Gynaecology	300	240
24. AETCOM	140	150
25. Early Clinical Exposure	90	30
26. Medical humanities	40	56

Research Methodology course within MBBS Programme

Professional year	In class	Experiential (outside classroom)
1st Professional Year Foundation course	4 hours	5 - 6 hours
II nd Professional Year	4 hours	6-10 hours
III rd Professional Year	4 hours	10 - 15 hours
Electives	One month 40 Hrs	One month 60 hours
IV th Professional Year	4 hours	10 - 15 hours
Internship		30 hours

DMIMS Research and Publication model for Undergraduate Competency Based Medical Education

Year	Semester	Course Code	Course	Students' Workload, hours			Total Students' Workload (F+G+H), hours	ECTS Credits (I / 30)
				Contact hours (Guided Learning, face to face activities, lectures, labs, tutorials, etc)	Independent work (self-learning, non face-to-face activities, revision, homework, etc)	Others: Continuous Assessment (Test, Quiz, Final Exam)		
I	1st		Foundation course	4	5	1	10	8
II	IIIrd		Research Methodology I	4	8	2	14	14,4
III	Vth		Research Methodology II	4	12	3	19	15,2
	VIth		Electives	40	50	10	100	72
IV	VIIth		Evidence Based Medicine	4	12	3	19	15,2
Internship	NA		Community based Research & Publication		25	5	30	24

Overall consistency of the programme

Each course contributes to the one or more program level outcomes in Undergraduate competency based Medical Education through respective subjects, AETCOM (Attitude, Ethics and Communication) module, ECE (Early Clinical Exposure Module) and Alignment and Integration. The Competencies of 'Life Long Learner' is, however, not addressed in any course outcomes.

The module on Research and publication is specifically designed to address competencies pertaining to the new theme 'Critical thinker' that has emerged in Medicine Meta-profile and to some extent the competencies of 'Life long Learner' already existing in degree profile.

Internal Quality Control/Enhancement

Evaluation Indicators :

1. Student attendance and feedback in sensitization sessions.
2. Number of STS and intramural UG projects.
3. Logbook inclusions and related attestations.
4. Number and quality of UG scientific publications.
5. Interaction logs of student preceptor (preceptor diary & discussion on virtual platforms).
6. Number of students opted for Research - Electives in block 1.

Three level Monitoring mechanism :

1. College Curriculum committee
2. Research & development cell of the University
4. Internal Quality Assurance cell of the University

(The capacity building and hand holding for scientific publications will be done be 1:10 mentor: Mentee ration and closely monitored by R&D cell of the University)

Other relevant aspects

- Recommendations of IQAC
- Approval by Academic Council & Board of Management

Example of Students' Learning Guide

Research and Publication module for Undergraduate Competency Based Medical Education

Students' Learning Guide Template

I. Introduction to the Subject

1.1. *Lecturer's contact details*

Dr Sonali Choudhary (sonali27@yahoo.com)

1.2. *Contribution to the degree profile*

With the advent of Competency based Medical Education (GMER amendment 2019), the undergraduate curriculum need to be strategized towards attainment of 36 global competencies for realization of five roles of an Indian Medical Graduate (IMG) viz Clinician, Leader and member of Health care team, Professional, Communicator and Life long learner. Out of the five roles, the role of Clinician, Life long learner and Professional comprise of global competencies that necessitate the inclusion of knowledge and experience of generating and utilizing and evidence for better patient outcomes. Also , the new theme that has emerged in medicine metaprofile 'Critical Thinker' requires inculcation of research skills.

1.3. Competences to be developed

- Specific Competences
- Generic Competences

Roles	Global competency	Generic/Specific
Clinician	Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient	Specific
Life long Learner	Demonstrate ability to search (including through electronic means), and critically evaluate the medical literature and apply the information in the care of the patient	Specific
Professional	Demonstrate a commitment to the growth of the medical profession as a whole	Generic
Critical Thinker	Ability to do research	Generic
	Acquire problem solving capacity	Generic
	Demonstrate higher order thinking skills	Generic
	Be a reflective practitioner	Generic

II. Student Work Plan

2.1 Distribution of activities and workload

Competence	Contents	Activities-Resources-Documentation	Estimated work time		Completion and/or submission deadlines
			Contact hours	Independent work	
Generic : Demonstrate a commitment to the growth of the medical profession as a whole	Hands-on : writing a project proposal for IC-MR-STS, review article, case reports and original articles	Publications	16 hours Electives : 40 hrs	60 hrs Electives : 60 hrs	IA Log Books
Generic : Ability to do research	Various sensitization sessions in all professional years	Student attendance Calculation of Learning gain, Community based research projects, ICMR-STS			
Generic : Acquire problem solving capacity	Hands on in research practice of EBM	Participation in journal clubs			
Generic : Generic : Generic : Demonstrate higher order thinking skills	EBM	Participation in Ward rounds			
Generic : Be a reflective practitioner	Critical Appraisal of research articles , EBM	Participation in journal clubs Participation in Ward rounds			
Specific : Demonstrate familiarity with basic, clinical and translational research as it applies to the care of the patient Demonstrate ability to search (including through electronic means), and critically evaluate the medical literature and apply the information in the care of the patient	Hands-on : writing a project proposal for IC-MR-STS, review article , case reports and original articles Various sensitization sessions in all professional years Literature search	Student attendance Calculation of Learning gain, Community based research projects, IC-MR-STS Participation in journal clubs, Participation in Ward rounds			

2.2. *Summary*

Professional year	In class	Experiential (outside classroom)
1st Professional Year Foundation course	4 hours	5 - 6 hours
II nd Professional Year	4 hours	6-10 hours
III rd Professional Year	4 hours	10 - 15 hours
Electives	One month 40 Hrs	One month 60 hours
IV th Professional Year	4 hours	10 - 15 hours
Internship		30 hours

III. Assessment System

3.1. Table of assessment

Unit/module/course	Competence	Learning outcomes (unit/module/course- level)	Assessment activities
1st Professional Year Foundation course	Generic: Demonstrate a commitment to the growth of the medical profession as a whole	Sensitization 1. Basics of research skills 2. Literature search 3. Writing a research proposal 4. Computer skills – Excel Hands on : 1. ICMR – STS projects 2. Scientific paper writing – Review articles/ Case reports	Internal assessment Log book (depicting research and publication milestones)
2nd Professional Year	Generic: Demonstrate a commitment to the growth of the medical profession as a whole Generic: Ability to do research Demonstrate ability to search (including through electronic means), and critically evaluate the medical literature and apply the information in the care of the patient	Sensitization : Research Methodology Part I – Need analysis, Research question, writing objectives & hypothesis, Study designs Hands on : 1. ICMR – STS projects 2. Scientific paper writing – Review articles / Case reports/ original articles	Internal assessment Log book (depicting research and publication milestones)
3rd Professional	Generic: Demonstrate a commitment to the growth of the medical profession as a whole Generic: Ability to do research Generic: Acquire problem solving capacity	Sensitization : Research methodology Part II – Sampling, Data collection & Analysis, Writing a research protocol Hands on : 1. ICMR – STS projects 2. Scientific paper writing – Review articles / Case reports/ original articles	Internal assessment Log book (depicting research and publication milestones)
	Generic: Demonstrate a commitment to the growth of the medical profession as a whole Generic: Ability to do research	Electives in Biostatistics and Data Analysis (Quantitative & Qualitative Studies)	Log book (depicting research and publication milestones)
4th Professional	Generic: Ability to do research Generic: Acquire problem solving capacity Generic: Demonstrate higher order thinking skills Generic: Be a reflective practitioner	Sensitization : Critical review of published research Evidence Based Medicine Hands on : 1. ICMR – STS projects 2. Scientific paper writing – Review articles / Case reports/ original articles	Internal assessment Log book (depicting research and publication milestones)
Internship	Generic: Ability to do research	Community Based research project Publication of the project	Log book (depicting research and publication milestones)

3.2. *Observations of assessment*

1. Attendance : 80% in all research methodology sensitisation programs.
2. One Scientific Publication in every Professional year.
3. Extra 5 marks in IA for ICMR-STs projects
4. Mandatory research milestones record in Log books – Credence in IA

3.3. *Summary of assessment*

Competence	Continuous assessment	Final assessment	Total
Generic competence 1			
Generic competence 2			
Specific competence 1			
Specific competence 2			
Total	%	%	100%

