




SRI BALAJI VIDYAPEETH (SBV)

(Deemed to be University)
U/S 3 of UGC Act 1956
Puducherry-607402

This document contains the details of the
PG orientation course on Teaching Learning methods, conducted by
Shri Sathya Sai Medical College & Research Institute,
Sri Balaji Vidyapeeth, Deemed to be University.


REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry - 607 402.

(This document is attested from pages 1- 32)



SRI BALAJI VIDYAPEETH (SBV)

(Deemed to be University)

U/S 3 of UGC Act 1956

Puducherry-607402

Criteria 1

Metrix 1.3 : Curriculum Enrichment

1.3.2

Index Page

Details of PG orientation course on Teaching Learning methods

Links to documents (Click on the links to navigate to the page)

1. [Link to Prospectus](#)
2. [Course content](#)
3. [Program Schedule](#)
4. [Sample Certificate](#)
5. [Enrolled List of students](#)

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry - 607 402.



SHRI SATHYA SAI MEDICAL COLLEGE & RESEARCH INSTITUTE

OFF CAMPUS OF SRI BALAJI VIDYAPEETH

(DEEMED TO BE UNIVERSITY DECLARED UNDER SECTION 3 OF THE UGC ACT, 1956)
ACCREDITED BY NAAC WITH 'A' GRADE



POST GRADUATE ORIENTATION COURSE ON TEACHING LEARNING METHOD

Course Content





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

Introduction to PG medical education (PGME) & Training:

- State the fundamentals of PGME
- Recognize the characteristics of PGME
- Explain essential components of curriculum including assessments

How to do an effective seminar:

- Define seminar & name the different types of seminars.
- Differentiate between seminar & symposium.
- Understand the components of seminar.
- Analyze the importance in relation to self directed learning.

Critical appraisal of scientific literature:

- Comprehend the meaning of Journal Club.
- Select a journal article appropriate to their subject.
- List the various steps of conducting a Journal club.
- Appraise critically the chosen article.

Overview of Synopsis writing:

- Define Synopsis.





- The different purpose for writing a synopsis.
- Enumerate the component of synopsis.

Documentation and written communication:

- Understand the importance of documentation.
- Recognize the role of resident in documentation.
- Appreciate the components of ideal written communication.

Doctor patient communication:

- Be able to appreciate the importance of communication in medical practice.
- Be able to apply the principles of effective communication in patient care.

Ethics in Medical practice:

- Define medical ethics.
- Explain the principles of ethics.
- Implement the principles of ethics in patient care.

Outcome based education:

- Recognize the need OBE.
- Differentiate between competence, EPA and Outcome.





Competency based residency program:

- Understand the basis of CBME.
- Understand the benefits of a clearly framed competency framework.

Effective use of EPA's as a learning tool:

- Enumerate the differences between EPA and competencies.
- Describe the components and domains of EPA.
- Explain the grading of EPA.
- Elaborate the uses of EPA.

Workplace based assessment techniques:

- Define workplace based assessment techniques (WPBA).
- Relate to the purpose of WPBA.
- Enumerate various methods of WPBA.
- Use this knowledge for achieving the intended learning competencies/outcomes.

Reflective writing:

- Able to identify the characteristics of reflective writing.
- Able to reflect effectively on a given event.
- Able to write a structural reflection.





Patient safety norms & role of a resident in patient safety:

- Show Awareness & understanding about the factors which are responsible for the decline in patient safety in the hospital setting.
- Show understanding about precautionary measures which can be put in practice to prevent or mitigate the hazards encountered during health care delivery to patients & thereby embolden patient safety.
- Demonstrate a positive attitude towards practicing safe patient care.

Professionalism & humanism in medical Practice:

- Appreciate the principles of professional behaviour.
- Demonstrate a positive attitude towards practicing humane approach towards patients.

Hands on training in creating and maintain E-portfolio:

- Able to design & maintain his E-portfolio effectively





**SRI BALAJI
VIDYAPEETH**
DEEMED UNIVERSITY
ACCREDITED WITH 'A' GRADE BY NAAC



**SHRI SATHYA SAI
MEDICAL COLLEGE
& RESEARCH INSTITUTE**
Ammapettai Village, Nellikuppam, - 603 108.

Medical Education Unit

Post Graduate Orientation Programme: Part II

8th to 10th July, 2019

Course Resource Material

Email: meu@sssmcri.ac.in

Ph: 9448651848, 9080390605, 9884227224



This document is attested from page 1-100

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry - 607 402.



Medical Education Unit
Shri Sathya Sai Medical College & Research Institute
 Ammapettai, Chennai 603108
 (A constituent of Sri Balaji Vidyapeeth Deemed University)



Post Graduate Orientation Programme: Part II

Program Schedule

Day I: 08.07.2019 (8:15 AM - 4 PM) Venue: MEU HALL, 3rd floor, College Block

Time	Topic	Resource Persons	Session Objectives
8:15-8:30am	Registration	MEU Team	
8:30-8:45am	Pretest, Computer literacy questionnaire, and selection of Rapporteurs	MEU Team	
8:45-9:15am	Ice Breaking and Group Dynamics	Dr. Kafeel Hussain	
9:15-9:30am	Inauguration	Dean & MEU Team	
9:30-10:00 am	Introduction to PG Medical Education (Training) and Outcome (Competency) Based Education	Dr. P F Kotur	At the end of the session the participants should be able to: 1. State the fundamentals of PGME. 2. Recognize the characteristics of PGME. 3. Explain essential components of PG Curriculum including assessment. 4. Recognize the need for OBE.
10:00-10:15 am	Tea Break		
10:15-11:15am	How to do an effective PG Seminar.(MK)* (Followed by Group Activity)	Dr. Karthika Jayakumar & Dr. Abilash	At the end of the session the participants should be able to: a) Define seminar & Name the different types of seminar b) Differentiate between seminar & symposium c) Understand the components of seminar d) Interpret the advantage of seminar e) Analyze the importance in relation to self directed learning
11:15-12:15 am	Critical Appraisal of Scientific Literature(Journal club). (Followed by Group Activity) (SBP, PC, IPS)*	Dr. Shruti Hegde & Dr. Prateek Bobhate	At the end of the session the participants should be able to: 1. Comprehend the meaning of journal club 2. Select a journal article appropriate to their subject 3. List the various steps of conducting a journal club 4. Appraise critically the chosen article
12:15-1:15pm	An Overview of Preparing the Synopsis of a PG Dissertation. (Followed by Group Activity). (SBP)*	Dr. Jaishree Vasudevan & Dr. Shreelakshmi Devi	At the end of the session the participants should be able to: 1. Define synopsis. 2. The different purpose for writing a synopsis. 3. Enumerate the component of synopsis.
1:15-2:00pm	Lunch Break		
2:00-2:30pm	Documentation and Written Communication in a Hospital Set up	MS / Dr Vishwambar	At the end of the session the participants should be able to: 1. Understand the importance of documentation. 2. Recognize the role of a resident in documentation. 3. Appreciate the components of ideal written communication.
2:30-3:15pm	Doctor - Patient communication Followed by Group Activity Activity. (Profe)*.	Dr. Valli & Dr. Anusha	At the end of the session the participants should: 1. Be able to appreciate the importance of communication in medical practice. 2. Be able to apply the principles of effective communication in patient care.
3:15-4:00pm	Ethics in Medical Practice Followed by Group Activity.(Profe)*	Dr. Latha & Dr. Dipayan Deb Barman	At the end of the session the participants should be able to : 1. Define medical ethics 2. Explain the principles of Ethics 3. Implement the principles of ethics in patient care

***ACGME Core competency covered: MK - Medical Knowledge, SBP - System based practice, PC - Patient Care, IPS - Interpersonal & Communication Skills, Profe - Professionalism, & PBLI - Practice Based Learning and Improvement.**

REGISTRAR
SRI BALAJI VIDYAPEETH
 (Deemed University) s 3 of UGC ACT, 1956)
 Accredited by NAAC with 'A' Grade
 Pillaiyakudi, Pondicherry-607 402.

Day II: 09.07.2019 (8:45 AM - 4 PM)**Venue: MEU HALL**

Time	Topic	Resource Persons	Session Objectives
9:00-9:15am	Rapporteur's session		
9:15-9:45am	Competency Based Residency Program	Dr. Saurabh Shrivastava	At the end of the session the participants should be able to: 1. What is CBME 2. Differences between Traditional & CBME 3. Understand the principles of CBME.
9:45-10:45am	Effective Use of EPA's as a learning tool. Followed by Group Task.	Dr. Saurabh Shrivastava Dr. Gokul Dr. Muthukumar Dr. Vijay Kautilya	At the end of the session the participants should be able to: 1. Enumerate the differences between Competency, EPA & Milestones 2. Describe the components and domains of EPAs 3. Explain the grading of EPA. 4. Elaborate the uses of EPA.
10:45-11:00am	Tea Break		
11:00 - 12:00pm	Professionalism and humanism in Medical practice Followed by Group Task.	Dr. P F Kotur & Dr. Vijay Kautilya	At the end of the session the participants should be able to: 1. Appreciate the principles of professional behavior. 2. Demonstrate a positive attitude towards practicing a humane approach towards patient care.
12:00-1:00pm	Workplace Based Assessment Techniques. Followed by Group Task.	Dr. Pushpa Kotur & Dr. Mohan Raj	At the end of the session the participants should be able to: 1. Define Workplace Based Assessment Techniques (WPBA). 2. Relate to the purpose of WPBA 3. Enumerate various methods of WPBA 4. Use this knowledge for achieving the intended learning competencies / outcomes.
1:00-2:00 pm	Lunch Break		
2:00 -3:00pm	Reflective writing Followed by Group Task	Dr. Vijay Kautilya & Dr. Shruti Hegde	At the end of the session the participants should be able to: 1. Identify the characteristics of reflective writing. 2. Reflect effectively on a given event. 3. Write a structured reflection.
3:00-4:00pm	Practice based learning and improvement (PBLI)*	Dr. Jaishree Vasudevan	At the end of the session the participants should be able to: 1. Elaborate on PBLI and care 2. Definition and components of PBLI as a requisite competency for residents

Day III: 10.07.2019 (8:45 AM - 4 PM)**Venue: MEU HALL**

Time	Topic	Resource Persons	Session Objectives
9:00-9:15am	Rapporteur's session		
9:15-10:15am	Systems Based Practice (SBP)* Patient safety Norms and role of a resident in patient safety. Followed by Group Task	Dr. PushpaKotur & Dr. Maduram	At the end of the session the participants should be able to 1) Show awareness and understanding about the factors which are responsible for the decline in patient safety in hospital. 2) Show understanding about the precautionary measures which can be put in practice to prevent or mitigate the hazards encountered during health care delivery to patients 3) Demonstrate a positive attitude towards practicing safe patient care
10:15-10:30am	Tea Break		
10:30-12:45pm	Hands on training in creating and maintaining E-portfolio. Feedback on E-portfolio	Dr. Kalaivani & Dr. Lavakumar	At the end of the session the participants should be able to design and maintain his E-portfolio effectively.
12:45-01:45 pm	Lunch Break		
01:45-02:30pm	Computer skills needed for residency program	Dr. Glad Mohesh	At the end of the session the participants should be able to understand basic computer skills
02:30-03:00 pm	Improving Presentation Skills	Dr. Lavakumar	At the end of the session the participants should be able to understand the key elements of an ideal presentation.
03:00-03:30 pm	Handling Stress during Residency	Dr. Anusha	At the end of the session the participants should be able to effectively handle the Stress during Residency.
03:30-03:40pm	Rapporteur's session		
03:40-03:50 pm	Post Test		
03:50 pm	Vote of thanks	Dr. Lavakumar	

Index	
Sl/No	Topic
1	Competency-based medical education: Theory to practice
2	Guidelines on Seminar Presentations
3	How to Prepare for and present a Journal Club
4	Approach to Presenting a Clinical Journal Club
5	STROBE Checklists
6	Guidelines for writing a research project synopsis or protocol
7	Communication skills competencies: definitions and a teaching toolbox
8	Ethical and professional conduct of medical students: review of current assessment measures and controversies
9	Confidentiality and the duties of care
10	Hospital Do-Not-Resuscitate Orders: Why They Have Failed and How to Fix Them
11	Patient-Physician Relationship; A keystone of Care in Emerging Health Care System
12	Entrustable Professional Activities: Teaching and Assessing Clinical Competence
13	Medical humanities in medical education and practice
14	Teaching and Assessing Professionalism in the Indian Context

REGISTRAR
SRI BALAJI VIDYAPEETH
 (Deemed University u/s 3 of UGC ACT, 1956)
 Accredited by NAAC with 'A' Grade
 Pillaiyarkuppam, Pondicherry-607 402.

Index	
Sl/No	Topic
15	Workplace-based assessment as an educational tool: AMEE Guide No. 31
16	The Dark Bridal Canopy
17	The Gibbs Reflective cycle
18	Reflective writing: a basic introduction
19	Key Points for Developing an Elegant Presentation
20	Practice-Based Learning and Improvement


 REGISTRAR
 SRI BALAJI VIDYAPEETH
 (Deemed University u/s 3 of UGC ACT, 1956)
 Accredited by NAAC with 'A' Grade
 Pillaiyarkuppam, Pondicherry - 607 402.

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/45387543>

Competency-based medical education: Theory to practice

Article in *Medical Teacher* · August 2010

DOI: 10.3109/0142159X.2010.501190 · Source: PubMed

CITATIONS

454

READS

2,748

20 authors, including:



Jason R Frank

Royal College of Physicians and Surgeons of ...

84 PUBLICATIONS 1,989 CITATIONS

[SEE PROFILE](#)



Dr. Craig Murray Campbell

Royal College of Physicians and Surgeons of ...

27 PUBLICATIONS 801 CITATIONS

[SEE PROFILE](#)



Sarah Taber

Royal College of Physicians and Surgeons of ...

9 PUBLICATIONS 540 CITATIONS

[SEE PROFILE](#)



Martin Talbot

The University of Sheffield

15 PUBLICATIONS 803 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Effective M&M Rounds for Quality Improvement View project



CanMEDS 2015 View project

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry-607 402.

All content following this page was uploaded by Jason R Frank on 11 September 2017.

The user has requested enhancement of the downloaded file.

Competency-based medical education: theory to practice

JASON R. FRANK¹, LINDA S. SNELL², OLLE TEN CATE³, ERIC S. HOLMBOE⁴, CAROL CARRACCIO⁵, SUSAN R. SWING⁶, PETER HARRIS⁷, NICHOLAS J. GLASGOW⁸, CRAIG CAMPBELL⁹, DEEPAK DATH¹⁰, RONALD M. HARDEN¹¹, WILLIAM IOBST¹², DONLIN M. LONG¹³, RANI MUNGROO¹⁴, DENYSE L. RICHARDSON¹⁵, JONATHAN SHERBINO¹⁶, IVAN SILVER¹⁷, SARAH TABER¹⁸, MARTIN TALBOT¹⁹ & KENNETH A. HARRIS²⁰

¹Royal College of Physicians and Surgeons of Canada and University of Ottawa, Canada, ²McGill University and Royal College of Physicians and Surgeons of Canada, ³Center for Research and Development of Education, University Medical Center, Utrecht, the Netherlands, ⁴American Board of Internal Medicine, USA, ⁵Department of Pediatrics, University of Maryland, Baltimore, USA, ⁶Accreditation Council for Graduate Medical Education, USA, ⁷University of New South Wales, Australia, ⁸Australian National University, Canberra, Australia, ⁹Royal College of Physicians and Surgeons of Canada and University of Ottawa, Canada, ¹⁰McMaster University and Royal College of Physicians and Surgeons of Canada, ¹¹University of Dundee, Scotland, ¹²American Board of Internal Medicine, USA, ¹³Johns Hopkins University, Baltimore, USA, ¹⁴Canadian Association of Internes and Residents, ¹⁵University of Toronto and Royal College of Physicians and Surgeons of Canada, ¹⁶McMaster University, Hamilton, and Royal College of Physicians and Surgeons of Canada, ¹⁷University of Toronto, ¹⁸Royal College of Physicians and Surgeons of Canada, ¹⁹University of Sheffield, England, ²⁰Royal College of Physicians and Surgeons of Canada, University of Ottawa and University of Western Ontario, Canada

Abstract

Although competency-based medical education (CBME) has attracted renewed interest in recent years among educators and policy-makers in the health care professions, there is little agreement on many aspects of this paradigm. We convened a unique partnership – the International CBME Collaborators – to examine conceptual issues and current debates in CBME.

We engaged in a multi-stage group process and held a consensus conference with the aim of reviewing the scholarly literature of competency-based medical education, identifying controversies in need of clarification, proposing definitions and concepts that could be useful to educators across many jurisdictions, and exploring future directions for this approach to preparing health professionals.

In this paper, we describe the evolution of CBME from the outcomes movement in the 20th century to a renewed approach that, focused on accountability and curricular outcomes and organized around competencies, promotes greater learner-centredness and de-emphasizes time-based curricular design. In this paradigm, competence and related terms are redefined to emphasize their multi-dimensional, dynamic, developmental, and contextual nature. CBME therefore has significant implications for the planning of medical curricula and will have an important impact in reshaping the enterprise of medical education.

We elaborate on this emerging CBME approach and its related concepts, and invite medical educators everywhere to enter into further dialogue about the promise and the potential perils of competency-based medical curricula for the 21st century.

Introduction

We believe that in the future, expertise rather than experience will underlie competency-based practice and... certification (Aggarwal & Darzi 2006)

Issues surrounding competency-based medical education (CBME) have generated increasing attention and debate among health professions educators in recent years. This is evidenced by sessions at major international conferences (Frank et al. 2008; Thompson et al. 2009; Frank & Snell 2010), innovative pilot projects (Kraemer 2009), and a growing number of key publications in medical education journals (Harden 1999; Long 2000; Carraccio et al. 2002;

Practice points

- Competency-based education is a resurgent paradigm in professional education.
- CBME is organized around competencies, or predefined abilities, as outcomes of the curriculum.
- The CBME paradigm employs redefined concepts of competence and its development.
- CBME holds great promise along with many challenges for physician training worldwide.
- CBME has the potential to transform contemporary medical education.

Correspondence: Dr Jason R. Frank, Associate Director, Office of Education, Royal College of Physicians and Surgeons of Canada, 771 Echo Drive, Ottawa, ON, Canada, K1S 5N8. Tel: (613) 736-7307. E-mail: jfrank@rcpsc.edu

631 Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry - 607 402.

ISSN 0142-159X print/ISSN 1466-187X online/1466-187X online
DOI: 10.3109/0142159X.2010.501190

RIGHTS LINK

Albanese et al. 2008). CBME has entered the lexicon of the profession and is now debated in the top general medical journals (Leung 2002; Aggarwal & Darzi 2006). "Competencies" have become the unit of medical educational planning in many jurisdictions (Leung 2002; Albanese et al. 2008). Competency frameworks such as CanMEDS (Frank et al. 2005; Frank & Danoff 2007), the Outcome Project of the (US) Accreditation Council for Graduate Medical Education (ACGME 2001), and the Scottish Doctor (Simpson et al. 2002) now arguably form the basis of training for the majority of medical learners in the Western world – at least on paper. However, significant controversies remain. The rationale, definition, components, pros and cons, and implications of CBME are all still hotly debated (Leung 2002). To address these recurring issues, and in an effort to advance the profession through CBME discussions, the Royal College of Physicians and Surgeons of Canada convened an international "theory to practice consensus conference" in 2009 (Royal College 2009b). Participants in this process formed the International CBME Collaborators group to work in partnership on key themes. In this paper, we report the initial consensus findings of the ICBME Collaborators.

Methods: The ICBME Collaborators

Medical educators and institutions around the world are exploring the premises and practicalities of CBME. In 2009, the Council of the Royal College passed a resolution directing the Office of Education to move forward on a CBME agenda for specialty education in Canada:

The Royal College in collaboration with key partners, [will] explore opportunities for incorporating competency-based education in residency training and across the spectrum of medical education. This would ensure that the 21st century PGME [postgraduate medical education] system is focused squarely on meeting societal needs as the primary goal of training. Implementing any such change would conceivably take many years and require a coordinated, resourced, collaborative approach (Royal College 2009a).

Part of the initial work involved a systematic review of the literature (see Frank et al. 2010, pp. 631–637 in this issue), which identified authors from various countries who have published key papers on CBME. Authors of papers that defined and elaborated contemporary concepts of CBME were invited to join in a multi-stage group process to advance work in this area. The goals of the ICBME Collaborators are summarized in Box 1. In addition to conducting the systematic

review, the Collaborators submitted written statements on various aspects of CBME, participated in teleconferences, attended a three-day summit in Ottawa, Canada, and contributed to international thematic writing groups to articulate the consensus findings. The group process identified several important topics for contemporary educators to consider. These included the origins of CBME, the rationale for CBME, key definitions related to CBME, the elements of planning CBME, and practical implications of the CBME approach across the continuum of medical education.

Origins of competency-based education

Calls for competency-based approaches to preparing professionals go back 60 years or more (Grant 1975; Spady 1977; Carraccio et al. 2002). Although an emphasis on program goals and objectives articulated in the work of Tyler (1949) and Mager (1997) was widely adopted in the early 20th century, others rejected the ensuing focus on process at the expense of program end-products. Outcome-based education (OBE) arose in response (Block 1974; Rubin & Spady 1984; Levine 1985; Spady 1994; Harden 1999). OBE emphasized learner and program outcomes, not the pathways and processes to attain them. Whereas traditional criteria organized around knowledge objectives tend to emphasize the instructional process, regardless of the product of the program, OBE takes the opposite position: outcomes guide all curriculum decisions, and curriculum processes are secondary (Harden 1999). In this context, competency-based approaches to curricula can be seen as a type of OBE. Competency-based curricula have been used across multiple professions, including chiropractic (Wangler 2009), social work (Menefee & Thompson 1994) teacher education (Houston 1973), pharmacology (Marshall et al. 1997) and others (Pruitt & Epping-Jordan 2005; du Toit et al. 2010). Within medicine, CBME has been proposed for over 50 years (McGaghie et al. 1978), but has only recently come to the fore (Leung 2002).

The rationale for CBME

If CBME is not new, why it is attracting such interest now? Calls to reform medical education have been a recurring theme in the medical literature and the subject of many proposals since Flexner's report of 1910 (Neufeld et al. 1993; Christakis 1995; Institute of Medicine 2001). In recent years, however, a number of forces and trends have given rise to a particular interest in CBME. From recent arguments in favour of CBME, four overarching themes have emerged: a focus on outcomes, an emphasis on abilities, a de-emphasis of time-based training, and the promotion of learner-centredness. The following sections reflect on these themes, which are also outlined in Table 1.

1. A focus on curricular outcomes

Advocates of CBME have criticized contemporary health professions curricula on the grounds that they fail to ensure that all medical graduates demonstrate competence in all the

Box 1. Goals of the International CBME Collaborators.

1. Review the international CBME literature.
2. Identify controversies in need of clarification.
3. Explore future directions.
4. Propose consensus definitions that could be useful to educators around the world.

Table 1. The rationale for CBME.

Main principle	Elaboration
<p>Focusing on outcomes In an era of greater public accountability, medical curricula must ensure that all graduates are competent in all essential domains.</p>	<ul style="list-style-type: none"> • Not all current curricula explicitly define desired outcomes. • Not all current curricula address all of the desired outcomes. • Not all current curricula assess or ensure that graduates have acquired all of the necessary abilities. • In the health professions, assessment scores should not be compensatory from one domain to another (i.e., excellent knowledge does not compensate for poor communication skills). • Medical education needs to be transparent for learners, teachers, and the public with respect to its goals and effectiveness. • Standards must be criterion-oriented. • Medical education tends to emphasize process issues (e.g., instructional methods) over outcomes (e.g., graduate performance and satisfaction). • Medical education must prepare trainees for practice. • Content that does not contribute to preparation for practice should be dropped.
<p>Emphasizing abilities Medical curricula must emphasize the abilities to be acquired.</p>	<ul style="list-style-type: none"> • There is too much emphasis on knowledge, and not enough on skills, attitudes and their synthesis into observable competencies. • An emphasis on the abilities of learners should be derived from the needs of those served by graduates (i.e., societal needs). • Educational objectives as an organizing framework should be replaced with a hierarchy of competencies.
<p>De-emphasizing time-based training Medical education can shift from a focus on the time a learner spends on an educational unit to a focus on the learning actually attained.</p>	<ul style="list-style-type: none"> • Time is a resource to be tailored to the needs of teachers and learners. • Current curricula and credentialing tend to emphasize fixed times spent in training. • Learners may progress at different rates, and may achieve threshold competencies faster or slower than the average peer. • Greater emphasis should be placed on the developmental progression of abilities and on measures of performance. • Greater flexibility may make some curricula more efficient and engaging.
<p>Promoting greater learner-centredness Medical education can promote greater learner engagement in training.</p>	<ul style="list-style-type: none"> • A curriculum of competencies provides clear goals for learners. • A roadmap of milestones provides a transparent path to achieve the competencies. • An individual learner can adjust their own learning using the milestones.

domains of their intended practice. They argue that, in an era of greater accountability and scrutiny of the professions, medical educators must ensure that every graduate is prepared for practice. Commentators in many countries have noted that many curricula do not even explicitly define the outcome abilities needed of graduates, let alone ensure they are learned, assessed, and acquired. They advocate an approach to curriculum planning that, explicitly tied to the needs of those served, is inherently utilitarian: each curricular element must contribute to learner outcomes or be cut. In addition, they argue that the phenomenon of allowing ability in one essential domain (e.g., procedural skills) to compensate for lack of ability in another (e.g., communication) does a disservice to both the profession and the public served. CBME is seen as an answer to these challenges in that it is focused on outcomes, is inherently tied to the needs of those served by graduates, and involves explicit definitions of all essential domains of competence to be acquired (Neufeld et al. 1993; Tamblyn 1999; Voorhees 2001b).

2. An emphasis on abilities (competencies as the organizing principle of curricula)

Proponents of CBME favour a curriculum organized around competencies or abilities. Over long lists of knowledge objectives, it can be argued that the reductionism of

objectives-based approaches has led to an over-emphasis on knowledge at the expense of skills, attitudes, and higher order aspects of practice (Talbot 2004). In addition, independent lists of knowledge objectives can create a program in which learning is not integrated across the curriculum. In the CBME paradigm, curricular elements are tailored to build on one another in a constructivist manner. As we will discuss, by using competencies as an organizing framework, educators have an opportunity to address these issues by designing learning experiences that continuously incorporate prior learning elements and emphasize observable abilities (McGaghie 1978; Voorhees 2001a; Carraccio et al. 2002).

3. A de-emphasis of time-based training

Calls to reform medical curricula through the implementation of CBME have also judged much of contemporary medical education to be oriented toward the amount of time spent in an aspect of training (e.g., a rotation) rather than the abilities actually acquired (Long 2000). Aspects of physician credentialing, such as eligibility for certification exams, also tend to focus on time spent on specific experiences. Contemporary education, they argue, should shift its focus in favour of developing the learner's abilities. Learners may progress faster or slower than their peers in a given curricular component. Theoretically, by accommodating these different rates of

learning and skills attainment, a curriculum with flexible time periods may be more efficient and engaging than a strictly time-based curriculum (Bell et al. 1997; Long 2000; Carraccio et al. 2002).

4. The promotion of learner-centredness

Closely related to the de-emphasis of time-based training is the concept of enhancing the learner-centredness of training. CBME, some authors have argued, encourages trainees to take responsibility for their progress and development by mapping out a transparent pathway from milestone to milestone on their way toward competence. Again, individual learners may reach these milestones at varying speeds; accordingly, a CBME system could afford them the flexibility they need to adjust the time spent on each learning task (Carraccio et al. 2002).

What is CBME? Defining the key concepts

As the systematic review by Frank and colleagues demonstrates (2010; see pages 631–637 in this issue), the definition of “competency-based medical education” is highly variable in the literature. In our literature review and discussions, it became clear to the ICBME Collaborators that a lack of consensus on definitions and terms limits the advancement of discourse on CBME, and thereby the advancement of health professions education (Diwakar 2002; Albanese et al. 2008). We therefore propose the definitions of CBME-related concepts listed in Box 2.

The central tenets of the CBME paradigm require an understanding of physician competence as multi-dimensional, dynamic, contextual, and developmental. The current view of physician competence is that it involves multiple domains of ability, in keeping with the work of Epstein and Hundert

(2002), Gardner’s work on multiple intelligences (2006), and expertise theory (Ericsson 2004; Ericsson et al. 2006). For each domain of competence, there is a corresponding spectrum of ability from novice to master, as described by Dreyfus (2004; see also Carraccio et al. 2008). However, instead of a static concept of competence that postulates a physician who, once certified to practise, is competent forever, we emphasize the concept of competence as an ever-changing, contextual construct (Koens et al. 2005). For example, a surgeon certified as fit for practice in an urban academic teaching hospital soon after graduation from residency may find it difficult to cope in a rural hospital in a developing country. Similarly a physician may find that some aspects of her abilities atrophy during the course of her career, while others develop to the mastery level. In this way, each physician has a unique constellation of abilities at any time in any one context. The idea of “progression of competence” speaks to this conception of competence as dynamic, developing or receding over time, and as grounded in the environment of practice or learning.

Furthermore, we propose that *competencies* be viewed as ingredients of *competence*, which can be assembled from smaller elements of learning. For example, as discussed by Susan Swing in this issue (see pp. 663–668), specific elements of knowledge, skills, and attitudes are the components of a given specific ability, and several of these specific competencies can be combined into a broader overarching competency. Competencies are considered abilities or capabilities and are the organizing units of CBME (Albanese et al. 2008). A competency-based curriculum therefore begins with outcomes in mind, on the basis of which it defines the abilities needed by graduates and then develops milestones, instructional methods, and assessment tools to facilitate their acquisition by learners.

A further conclusion of our group process was that, in this renewed CBME paradigm, the contemporary vocabulary

Box 2. Proposed definitions of CBME and related terms by the International CBME Collaborators.

Competence

The array of abilities across multiple domains or aspects of physician performance in a certain context. Statements about competence require descriptive qualifiers to define the relevant abilities, context, and stage of training. Competence is multi-dimensional and dynamic. It changes with time, experience, and setting.

Competency

An observable ability of a health professional, integrating multiple components such as knowledge, skills, values, and attitudes. Since competencies are observable, they can be measured and assessed to ensure their acquisition. Competencies can be assembled like building blocks to facilitate progressive development.

Competency-based medical education

An outcomes-based approach to the design, implementation, assessment, and evaluation of medical education programs, using an organizing framework of competencies.

Competent

Possessing the required abilities in all domains in a certain context at a defined stage of medical education or practice.

Dyscompetence

Possessing relatively less ability in one or more domains of physician competence in a certain context and at a defined stage of medical education or practice.

Incompetent

Lacking the required abilities in all domains in a certain context at a defined stage of medical education or practice.

Progression of competence

For each aspect or domain of competence, the spectrum of ability from novice to mastery. The goal of medical education is to facilitate the development of a physician to the level of ability required for optimal practice in each domain. At any given point in time, and in a given context, an individual physician will reflect greater or lesser ability in each domain.

related to a physician being "competent" needs to be updated. Currently, a physician is deemed competent at the point where he or she is considered ready to practise independently. This static view of competence often rests quite arbitrarily on time-based credentialing. We therefore propose that the term "competent" be used with modifiers that specify which domains of ability, which context, and what stage of medical education or practice it refers to. Thus, a second-year medical student could be competent to enter a supervised undergraduate clinical rotation on a teaching hospital ward, a resident trainee could be competent to run an intensive care unit autonomously overnight, and a graduate of a residency program could be competent to perform some, but not all, procedures independently in a rural institution. This notion of the term "competent" as requiring specification is aligned with the work of ten Cate (2005; ten Cate & Scheele 2007) and the concept of entrustable professional activities. Entrustable professional activities are essentially competencies in context; that is, an integration of the competencies that allow one to perform the professional activities expected of a good doctor within a given specialty.

Similarly, we offer definitions for the expressions "incompetent" and "dyscompetence." Dyscompetence has been used in several ways in the medical education literature already (Pierson 1992; Leape & Fromson 2006). We propose "dyscompetence" as a comparative term to refer to physicians who have a relative deficiency in one or more domains of competence (e.g., communication abilities). To say that a physician is "incompetent" would be a judgment that his or her constellation of abilities does not meet the requirements for a specified stage of training or practice, in a specified setting (e.g., a third-year medical student could be incompetent to function in an ambulatory clinic with intermediate supervision).

Planning CBME

The approach to planning CBME, and how this contrasts with contemporary process-based curricula, has been well described by Carraccio and colleagues (2002). Whereas a traditional program may begin with the question, "What do learners need to know?" or "How shall we teach our learners?", CBME begins with outcomes. CBME is organized around the question, "What abilities are needed of graduates?" (Harden et al. 1999). The answer to this question can come from educational needs assessments, such as practice profiling, task analysis, defining population health needs, or identifying entrustable professional activities for the specialty or subspecialty (ten Cate 2005; Wang et al. 2005; ten Cate & Scheele 2007). The identified abilities are organized as competencies for a curriculum, and are further delineated in terms of their building blocks. Working backward, educators can then identify milestones that trainees will need to reach as they acquire the required competencies. Instructional methods and assessment tools can then be selected to facilitate the development of learners for these abilities (Bienenfeld et al. 2000; Carraccio et al. 2002). These steps are summarized in Box 3. CBME curricula developed from this process can reflect

a spectrum in terms of structure and time flexibility, as in Figure 1.

Promise and perils: implications of the CBME approach for the health professions

Among the various important implications of considering a competency-based approach to medical education, some hold tantalizing prospects for improving training, while others present challenges to the adoption of CBME.

Among the benefits promised by the adoption of CBME are:

- A new paradigm of competence. The terms identified by the ICBME Collaborators can facilitate a new discourse on what is meant by physician competence and the role of medical education in the acquisition, maintenance, and enhancement of the abilities of each individual professional.
- A renewed commitment to outcomes. CBME curricula, with their emphasis on graduate abilities, can fulfill medicine's societal contract to prepare clinicians to serve their patients and communities.
- A new focus for assessment on developmental milestones. CBME's requirement for frequent, utilitarian assessment to guide development emphasizes the role of assessment in the learning process
- A mechanism to promote a true continuum of medical education. By defining competencies and milestones for each stage of medical education and practice, CBME can promote vertical and horizontal integration of training programs, from undergraduate medical education to residency to continuing professional development.
- A method to promote learner-centred curricula. By providing experiences within a more flexible time frame and focusing on the learner's development, CBME can help

Box 3. Steps in planning CBME curricula.

1. Identify the abilities needed of graduates.
2. Explicitly define the required competencies and their components.
3. Define milestones along a development path for the competencies.
4. Select educational activities, experiences, and instructional methods.
5. Select assessment tools to measure progress along the milestones.
6. Design an outcomes evaluation of the program.

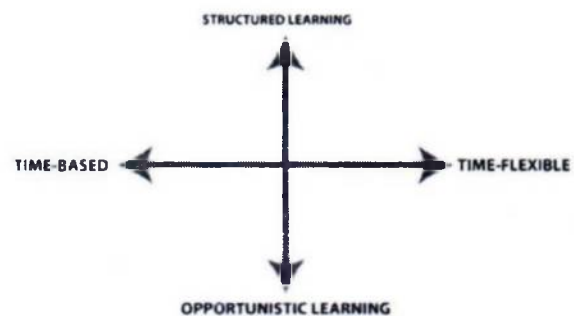


Figure 1. The spectrum of CBME curricula.

physicians-in-training to become truly engaged in a process that progresses at their own rate of acquisition.

- A way to de-emphasize time-based credentialing in medicine. Transitions from undergraduate education to residency education to continuing professional development or maintenance of competence would be based primarily on evidence of skills rather than on predetermined and universally applied time frames. Time then becomes a resource for education, not the marker of learning itself.
- Potential for portability of training. The adoption of a competency-based approach can facilitate the movement of physicians, physician credentials, and credit for training across jurisdictions.

Among the potential perils and challenges of CBME are:

- The threat of reductionism. In an effort to address the challenges of defining and assessing competencies, some have resorted to breaking them down into the smallest observable units of behaviour, creating endless nested lists of abilities that frustrate learners and teachers alike.
- Promoting the lowest common denominator. Critics of CBME have pointed out that, by focusing on an array of competencies so comprehensively, learners may perceive a underlying message that milestones and not excellence are the ultimate pursuit in medicine.
- Logistical chaos. Given that many educational systems around the world are time-based (e.g., requiring a prescribed number of weeks for each rotation), how can a transition to a more competency-based system be accomplished? How can health care manage the scheduling of the thousands of medical trainees progressing at their own pace (in a pure CBME curriculum, for example)?
- Loss of authenticity. If a CBME curriculum is implemented, along with its language of domains for instructional design and its focus on outcomes, what happens to the mentoring and immersion that has served medicine well for 2000 years? Can we use CBME without losing the fidelity and strengths of our current curricula?
- The tyranny of utility. A pure CBME approach is inherently utilitarian, and proposes cutting content and experiences that do not directly contribute to defined program outcomes. This can be unacceptable to some stakeholders in the profession.
- The need for new educational technologies. Adopting CBME on a larger scale would require new teaching techniques, new modules, and new assessment tools to be practical and effective.
- Inertia and lack of resources. For many jurisdictions, adopting a CBME approach would require significant investments in teaching, infrastructure and assessment, and perhaps even an augmented workforce.

An agenda for further development

Finally, in considering the steps needed to move the dialogue on CBME forward, the Collaborators agreed that there is a need for further debate among medical educators, teachers, policy-makers, learners, and other stakeholders as to whether

the future of health professions education should be competency based. We call upon medical education leaders, researchers, journal editors, and conference chairs to engage our communities in this important discussion. To advance the discourse in this area, medical education requires universally accepted definitions for CBME and related terms. We have proposed such a set of terms here, for modification or adoption. Finally, we feel that further scholarship is needed, especially to document the design, feasibility, acceptability, and impact of CBME curricula of all kinds.

Conclusions

Competency-based medical education has emerged as priority topic for medical education planners in the early 21st century. From its origins in the outcomes movement, it has resonated with those who feel that our current curricular paradigm is anachronistic. Our unique partnership, the International CBME Collaborators, recognizes CBME as an educational approach that has the potential to transform how we prepare the physicians of the next decade. We have elaborated on the CBME paradigm and encourage those engaged in medical education around the world to enter into a debate on its utility.

Declaration of interest: The authors report no conflict of interest. The authors alone are responsible for the content and writing of this article.

Notes on contributors

JASON R. FRANK, MD, MA(Ed), FRCPC, is the Associate Director of the Office of Education, Royal College of Physicians and Surgeons of Canada, and the Director of Education in the Department of Emergency Medicine, University of Ottawa.

LINDA S. SNELL, MD, MHPE, FRCPC, FACP, is Professor of Medicine, Vice-Chair (Education), Department of Medicine, and a member of the Centre for Medical Education, McGill University, Montréal. She is also Senior Clinician Educator at the Royal College of Physicians and Surgeons of Canada, Ottawa, Canada.

OLLE TEN CATE, PhD, is Professor of Medical Education and Director of the Center for Research and Development of Education at University Medical Center, Utrecht, the Netherlands.

ERIC HOLMBOE, MD, is Senior Vice President and Chief Medical Officer at the American Board of Internal Medicine and American Board of Internal Medicine Foundation. He is also Professor Adjunct of Medicine at Yale University, and Adjunct Professor at the Uniformed Services University of the Health Sciences.

CAROL CARRACCIO, MD, MA, is Professor of Pediatrics and Associate Chair for Education at the University of Maryland, Baltimore, MD, USA.

SUSAN R. SWING, PhD, is Vice President of Outcome Assessment at the Accreditation Council for Graduate Medical Education. Dr. Swing is a co-developer of the ACGME/ABMS Toolbox of Assessment Methods and is working on collaborative projects to evaluate the quality of assessment tools and develop performance milestones for residents.

PETER HARRIS, MB BS, FRACGP, is a Senior Lecturer in the Medical Education and Student Office of the Medical Faculty, University of New South Wales, Sydney, Australia, where he co-ordinates the Medical Faculty's Assessment Working Party and has been involved in undergraduate and specialty training curriculum design.

NICHOLAS J. GLASGOW, BHB, MBChB, MD, FRNZCGP, FRACGP, FACHPM, is Dean of Medicine and Health Sciences and Dean of the Medical School at the Australian National University, Canberra, Australia.

CRAIG CAMPBELL, MD, FRCPC, is a specialist in Internal Medicine, Associate Professor of Medicine at the University of Ottawa, and is the Director, Professional Affairs, at the Royal College of Physicians and Surgeons of Canada. He directs the Centre for Learning in Practice; a CPD research and development unit at the Royal College focusing on physician lifelong learning.

DEEPAK DATH, MD, MEd, FRCSC, FACS, is Associate Professor of Surgery at McMaster University, Hamilton, Ont., and a Clinician Educator with the Royal College of Physicians and Surgeons of Canada.

RONALD M. HARDEN MD was formally Professor of Medical Education and Director of the Centre for Medical Education, Teaching Dean and Postgraduate Dean at the University of Dundee, Scotland. He is currently General Secretary of the Association for Medical Education in Europe (AMEE) and is the Editor of *Medical Teacher*.

WILLIAM IOBST, MD, is Vice President of Academic Affairs at the American Board of Internal Medicine. He is also an Associate Professor of Clinical Medicine at the Pennsylvania State University College of Medicine.

DONLIN M. LONG, MD, PhD, is Distinguished Service Professor, The Johns Hopkins University School of Medicine, Baltimore, Md., USA.

RANI MUNGROO, MPA, is Manager, Education & Professionalism at the Canadian Association of Internes and Residents, Ottawa, Ontario.

DENYSE RICHARDSON, MD, MEd, FRCPC, is a Clinician Educator at the University of Toronto. She is the Lead for Faculty Development in the Division of Psychiatry. She is also a Clinician Educator at the Royal College of Physicians and Surgeons of Canada, Ottawa, Canada.

JONATHAN SHERBINO, MD, MEd, FRCPC, is the Director of Continuing Professional Education, Division of Emergency Medicine, McMaster University, Hamilton, Ont., and a Clinician Educator with the Royal College of Physicians and Surgeons of Canada.

IVAN SILVER, MD, MEd, FRCPC, is Professor of Psychiatry and Vice-Dean of Continuing Education and Professional Development in the Faculty of Medicine, University of Toronto.

SARAH TABER, MHA, is the Manager of Educational Strategy, Innovations and Development at the Royal College of Physicians and Surgeons of Canada, where she oversees strategic initiatives and major projects related to key policy issues in postgraduate medical education.

MARTIN TALBOT, MAEd, MEd, FRCP Lond, F Acad M Ed, is a Consultant Physician in Genitourinary Medicine/HIV and Honorary University Reader in Medical Education at the University of Sheffield, England. He is a Senior Fellow of the United Kingdom's Higher Education Academy, an Associate of the Institute of Education, London University, Fellow of the Academy of Medical Educators, and Policy Lead of the Association for the Study of Medical Education, Edinburgh, Scotland. (The views expressed here are not the official views of the ASME.)

KENNETH A. HARRIS, MD, FRSCS is Director of Education at the Royal College of Physicians and Surgeons of Canada, has an adjunct appointment with the University of Ottawa, and is Professor Emeritus at the University of Western Ontario.

References

Accreditation Council for Graduate Medical Education [ACGME]. 2001-present. Outcome project. Chicago (IL): ACGME. Available from: www.acgme.org/Outcome (Accessed 7 June 2010).

Aggarwal R, Darzi A. 2006. Technical-skills training in the 21st century. *N Engl J Med* 355(25):2695-2696.

Albanese MA, Mejicano G, Mullan P, Kokotailo P, Gruppen L. 2008. Defining characteristics of educational competencies. *Med Educ* 42(3):248-255.

Bell HS, Kozakowski SM, Winter RO. 1997. Competency-based education in family practice. *Fam Med* 29(10):701-704.

Bienenfeld D, Klykylo W, Knapp V. 2000. Development of competency-based measures for psychiatry residency. *Acad Psychiatry* 24:68-76.

Block JH. 1974. *Schools, society, and mastery learning*. New York: Holt, Rinehart and Winston.

Carraccio CL, Benson BJ, Nixon LJ, Derstine PL. 2008. From the educational bench to the clinical bedside: Translating the Dreyfus developmental model to the learning of clinical skills. *Acad Med* 83(8):761-767.

Carraccio C, Wolfsthal SD, Englander R, Ferentz K, Martin C. 2002. Shifting paradigms: From Flexner to competencies. *Acad Med* 77(5):361-367.

Christakis NA. 1995. The similarity and frequency of proposals to reform US medical education. Constant concerns. *JAMA* 274(9):706-711.

Diwakar V. 2002. Commentary: The baby is thrown out with the bathwater. *BMJ* 325(7366):693-696.

Dreyfus SE. 2004. The five-stage model of adult skill acquisition. *Bull Sci Technol Soc* 24(3):177-181.

du Toit R, Cook C, Minnies D, Brian G. 2010. Developing a competency-based curriculum for eye care managers in Sub-Saharan Africa. *Rural Remote Health*. 10(2):1278.

Epstein RM, Hundert EM. 2002. Defining and assessing professional competence. *JAMA* 287(2):226-235.

Ericsson KA. 2004. Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains. 79 10 *Suppl*:S70-81.

Ericsson KA, Charness N, Feltovich PF, Hoffman R, editors. 2006. *The Cambridge handbook of expertise and expert performance*. New York: Cambridge University Press.

Frank JR, editor. 2005. *The CanMEDS 2005 physician competency framework: Better standards, better physicians, better care*. Ottawa: The Royal College of Physicians and Surgeons of Canada.

Frank JR, Danoff D. 2007. The CanMEDS initiative: Implementing and outcomes-based framework of physician competencies. *Med Teach* 29(7):642-647.

Frank JR, Holmboe E, Reznick R, Snell LS. The future of competency-based education and the implications for residency. Symposium. The International Conference on Residency Education 2008, Ottawa, Canada. 26 September 2008. Available from: <http://rcpsc.medical.org/meetings/2008>. (Accessed 4 June 2010).

Frank JR, Mungroo R, Ahmad Y, Wang M, De Rossi S, Horsley T. 2010. Toward a definition of competency-based education in medicine: A systematic review of published definitions. *Med Teach* 32(8):631-637.

Frank JR, Snell LS, for the International CBME Collaborators. A new vision of competency-based medical education and definition of competence. The 14th Ottawa Conference on Assessment of Competence in Medicine and the Healthcare Professions. 18 May 2010. Miami, USA.

Gardner H. 2006. *Multiple intelligences: New horizons in theory and practice*. New York: Basic Books.

Grant G, associates. 1979. *On competence: A critical analysis of competence-based reforms in higher education*. San Francisco: Jossey-Bass.

Harden RM. 1999. AMEE Guide no 14: Outcome-based education. Part 1 - An introduction to outcome-based education. *Med Teach* 21(1):7-14.

Harden RM, Crosby JR, Davis MH, Friedman M. 1999. AMEE Guide no. 14: Outcome-based education: Part 5 - from competency to meta-competency: A model for the specification of learning outcomes. *Med Teach* 21(6):546-552.

Houston RW. 1973. Designing competency-based instructional systems. *J Teach Ed* 24:200-204.

Institute of Medicine Committee on Quality of Health Care in America. *Institute of Medicine Crossing the Quality Chasm: A new health system for the 21st century*. 2001. Washington: National Academies Press.

Koens F, Mann KV, Custers EJ, ten Cate OT. 2005. Analysing the concept of context in medical education. *Med Educ* 39(12):1243-1249.

Kraemer W. Development and implementation of a competency-based curriculum in orthopaedic surgery. 35th Gallie Day symposium, Department of Surgery, University of Toronto, Toronto, Canada. 8 May 2010.

Leape LL, Fromson JA. 2006. Problem doctors: Is there a system-level solution? *Ann Int Med* 144(2):107-115.

Levine D. 1985. *Improving student achievement through mastery learning*. San Francisco (CA): Jossey-Bass.

Leung W. 2002. Competency based medical training: Review. *BMJ* 325(7366):693-696.

- Long DM. 2000. Competency-based residency training: The next advance in graduate medical education. *Acad Med* 75(12):1178–1183.
- Mager RF. 1997. Preparing instructional objectives: A critical tool in the development of effective instruction. 3rd ed. Atlanta (GA): Center for Effective Performance.
- Marshall JM, et al. 1997. Practical, ongoing competency-assessment program for hospital pharmacists and technicians. *Am J Health-Syst Pharm* 54(12):1412–1417.
- McGaghie WC, Miller GE, Sajid AW, Telder TV. 1978. Competency-based curriculum development in medical education. Geneva: World Health Organization. Available from: http://whqlibdoc.who.int/php/WHO_PHP_68.pdf (Accessed 7 June 2010).
- Menefee DT, Thompson JJ. 1994. Identifying and comparing competencies for social work management: A practice driven approach. *Adm Soc Work* 18(3):1–25.
- Neufeld VR, Maudsley RF, Pickering RJ, Walters BC, Turnbull JM, Spasoff RA, Hollomby DJ, LaVigne KJ. 1993. Demand-side medical education: Educating future physicians for Ontario. *CMAJ* 148(9):1471–1477.
- Paulson K. 2001. Using competencies to connect the workplace and postsecondary education. *New Dir Inst Res* 110:41–54.
- Pierson RN. 1992. Remedial medical education: The problem of dyscompetence. In: Rosof AB, Felch WC, editors. *Continuing medical education: A primer*. 2nd ed. New York: Praeger.
- Pruitt SD, Epping-Jordan JE. 2005. Preparing the 21st century global healthcare workforce. *BMJ* 330 :637–639.
- Royal College of Physicians and Surgeons of Canada 2009b. *Imagine the future: An international summit on competency-based medical education [consensus conference]*. Ottawa, 9–11 July.
- Royal College of Physicians of Canada. 2009a. *Directions for residency education, 2009: A final report of the core competency project*. Ottawa: The Royal College of Physicians of Canada. Available at: <http://royalcollege.ca>
- Rubin SE, Spady WG. 1984. Achieving excellence through outcome-based instructional delivery. *Educ Leadersh* 41(8):37–44.
- Simpson JG, Furnace J, Crosby J, Cumming AD, Evans PA, Friedman Ben David M, Harden RM, Lloyd D, McKenzie H, McLaughlan JC, et al. 2002. The Scottish doctor – learning outcomes for the medical undergraduate in Scotland: A foundation for competent and reflective practitioners. *Med Teach* 24(2):136–143.
- Spady WG. 1977. Competency-based education: A bandwagon in search of a definition. *Educ Res* 6(1):9–14.
- Spady WG. 1994. Outcome-based education: Critical issues and answers. Arlington (VA): American Association of School Administrators.
- Swing SR. 2010. Perspectives on competency-based medical education from the learning sciences. *Med Teach* 32(8):663–668.
- Talbot M. 2004. Monkey see, monkey do: A critique of the competency model in graduate medical education. *Med Educ* 38(6):587–592.
- Tamblyn R. 1999. Outcomes in medical education: What is the standard and outcome of care delivered by our graduates? *Adv Health Sci Educ* 4(1):9–25.
- ten Cate O, Scheele F. 2007. Competency-based postgraduate training: Can we bridge the gap between theory and clinical practice? *Acad Med* 82(6):542–547.
- ten Cate O. 2005. Entrustability of professional activities and competency-based training. *Med Educ* 39(12):1176–1177.
- Thompson A, Gordon D, Frank JR, ten Cate O. Competency-based postgraduate education. Association for Medical Education in Europe 2009 Conference. September 1, 2009. Malaga, Spain. Available from: <http://www.amee.org/documents/AMEE%202009%20Final%20Programme.pdf> (Accessed 4 June 2010).
- Tyler RW. 1949. *Basic principles of curriculum and instruction*. Chicago: University of Chicago Press.
- Voorhees RA. 2001a. Competency-based learning models: A necessary future. *New Dir Inst Res* 110:5–13.
- Voorhees AB. 2001b. Creating and implementing competency-based learning models. *New Dir Inst Res* 110:83–95.
- Wang N, Schnipke D, Wuu EA. 2005. Use of knowledge, skill, and ability statements in developing licensure and certification examinations. *Educ Meas* 24(1):15–22.
- Wangler M. 2009. Usefulness of CanMEDS competencies for chiropractic graduate education in Europe. *J Chiropr Educ* 23(2):123–133.

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University's 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry - 607 402.

Guidelines on Seminar Presentations

Your main goal in presenting this seminar is to **communicate** your topic to an audience of **mixed backgrounds and interests**. This should **not** be a technical paper such as would be presented at a professional meeting. Your seminar **should** tell a scientific story in a way that **everyone present can understand** and go home with some **lesson learned**.

Purpose of Seminar:

A presentation concentrates on teaching something to the audience. A **good** presentation means that the audience understood the message. The first rule is to place yourself in the mind of your audience. The second rule is to provide the minimum amount of information to the audience; this helps overcome the temptation to fill presentations with details meant to impress the audience. So, make sure to:

- **Try not to cover so many ideas, stick instead to a **major theme**.
- **Focus on what the audience needs to know about the subject and not on what you want to tell them.
- **Don't give too many experimental details unless the method is the main point of the talk.
- **For each set of data, explain the significance of the findings, don't just only show it.
- **Don't assume that the audience will know what you mean.
- **Make transitions from one topic to another logical and smooth: "now I'd like to tell you..."
- **Unlike a written report, the audience must be able to immediately grasp the information. So, keep it simple.
- **Use repetition as a tool to help the audience remember important points.

Audience Analysis:

Remember that your audience will be scientifically literate but **will not** automatically understand terms, jargon, abbreviations, and methods used in all fields. When planning your seminar, put yourself in their shoes.

Explain all terms and concepts that are important for understanding your topic and will be used throughout your presentation.

Ask yourself:

What do they know?

What do they want to know?

What do they need to know in order to understand my presentation?

Use the answers to these questions to guide how you present your seminar.

Title

Make your title descriptive, succinct, informative and interesting.

Visual aids:

A visual aid is something your audience can see that **aids your speech content**. Always look and talk to the audience, **NOT** to the visual aid. **Don't read** directly from the slides; you will lose eye contact with the audience and run the risk of putting everyone to sleep because they can read faster mentally than you can verbally.

Animation is good and beneficial as long as it does not get too distracting.

» Font, color, background

Decide what font, colors, graphics, background design and layout to use for your entire presentation. While you can use variation, **strive for consistency**: titles should be the same color, bullets should be the same color and shape, etc...Visual aids can be created using almost any color, but there should be enough contrast between foreground and background elements and too many colors can distract from the message. If you want to use graduated backgrounds, keep them subtle and smooth.

N.B: Sometimes different computers project colors differently, so make sure to check it out on the big screen before the actual presentation.

» Size and number of elements

A limited number of elements, big graphics, and big text make reading easier. "*Less is more and big is beautiful*". It should be big enough to be seen at the end of the auditorium. Nothing aggravates the audience more than not being able to see what the speaker is talking about. Titles should be 36-48 point and text should be 26-36 point (72 points equals 1 inch). Also, keep similar text the same size from one visual to the next.

» Use of white space

Blank areas in a visual help the reader through the data and avoid the appearance of overcrowding. Slides should have enough margins on all sides and eye friendly. Try to keep your slides neat and uncluttered.

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University under 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiarkuppam, Pondicherry - 607 402.

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University under 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiarkuppam, Pondicherry - 607 402.

» *Text*

Use **short and simple** phrases in place of sentences or paragraphs and limit the amount of information in the presentation. Each visual should be a hint and **not** the whole story. Visuals should have:

- One main point
- One thought per line
- No more than 5-7 words per line
- No more than 5-7 lines per visual

Use a combination of uppercase and lowercase lettering. **Using all capital is harder to read.** Avoid commas, semicolons, or periods in visuals. Instead, use bullets or numbers to separate and group ideas.

» *References*

You need to give credit to the work of others. Don't forget to include references on your visuals at the bottom in small font.

» *Graphs and tables*

Graphs and tables are the best way to summarize large quantities of raw data.

- Simplify the data
- Show only the essential information
- Be consistent in style and terminology, font, color, style...
- Data elements should be the thickest and the brightest colors. Frames, grid lines, axis lines, and error bars should be lighter in color and weight.
- X and Y axis lines should end at the last data point
- Include legends.

Proof read visuals, then have someone proof read them for you!!

How should the information be organized?

Developing an **outline** is important for a logical flow of ideas as well as serving as a **checklist** for items that appear in the slides per se.

- Introduction and background information (why is the work important? what related work exists?)
- Objectives of research
- Explanation of methods (what is unique about the presenter's approach?)

Results

- Discussion and conclusion (did the results meet the objectives?)
- Relevance or significance, implications of findings (what is the overall scope of the work?)
- Future work (what happens next?)

» *Introduction* (Tell them what you are going to say)

The introduction serves to provide a **focus** (statement of main idea), a **reason to listen** (significance of the main idea), and an **orientation** (division of the presentation). Identify the problem and focus on the scientific observations that led to your research topic. Include some background information.

» *Body* (Tell them)

Choose the story you want to tell then present the data or experiments that are **essential** to your story. Be selective; **don't overwhelm** the audience with volumes of data that may just confuse them. This is **NOT** your thesis defense. Present your results in an **order and organization** that support and maintain the flow of your story and that facilitates understanding, even if that is not the order you used in the laboratory. Ideally, summarize after you finish each point to wrap up what you've said and connect it to the next argument. Repetition makes the idea stick in the audience's head. Never use a slide unless you give the audience **time to understand** its content. Presenting complex equations or tables "for show" is not useful. Only present material that you can take the time to explain and define.

» *Conclusion* (Tell them what you told them)

Take this time to repeat and **reemphasize** the most important conclusions. Show the significance of your work. Tell them exactly what YOU want them to walk away remembering.

Delivery

Well-done visuals and graphics are important in expressing ideas, and offering results that escape words. However, it is the oral communication that gives depth and understanding to the visuals.

» *Practice*

Practice is very important for a successful presentation. It allows the speaker to spot flaws and enables smoother transitions from section to section. Try to **rehearse** with an audience of friends; it is the best way to get feedback and constructive criticism. Although you might first develop a script for your presentation, it **should never be read**. If you do use notes or cards during the seminar, try not to obviously read from them. **Know your talk** well enough that you speak out to your audience most of the time and just sneak a peak at your notes periodically to keep you on track.

» *Dress for success*

Look and act **professional**. Develop a confident (but not arrogant) stage presence. Look at your audience and make **frequent eye contact** with them. This conveys an air of confidence and knowledgeability about the subject matter. Avoid doing things that distract the audience such as nervous habits or noticeable repetitive hand motions. Don't insult your audience or put them in a position of having to admit their ignorance. Don't ask, "how many of you don't know...?"; rather say, "some of you may not know..."

» *Don't be nervous*

"The internal nervousness most speakers feel during presentations is usually **not seen externally**". It is a good idea to visit the auditorium and **practice before** your seminar. The familiarity with the environment is comforting. Also, get used to having the slides behind you and to looking at both very bright lights and very dark spaces. Practice how far your voice can project and whether slides are legible from a distance.

» *Don't speak too fast*

During an oral presentation, the speaker is in charge of speed control. **Sentences should be short** and main points should be repeated to aid memory and understanding. Your voice should be clear and your pace should vary according to the audience's familiarity or unfamiliarity with the subject. **Show excitement** by varying your voice pitch and tone. "Time practice" will tell you how much material can be presented in the time allotted. **Never try to include more information by speaking faster.**

» *Don't be boring*

Enthusiasm is contagious. If the speaker shows excitement for the topic, the audience will listen attentively. Listeners can **absorb only a few points** during a 20-30 minutes presentation. Concentrate on what is

significant and avoid intricate mathematics that are not critical to the presentation.

» *Handling questions*

During practice sessions, ask colleagues to pose what they feel might be typical questions. Keep your **answers short and to the point**. Preparing extra slides for anticipated questions is also a good practice. Never get into a power struggle with someone in the audience. Appropriate responses might be: "we have not performed those experiments yet", or "that is a very interesting idea; we'll have to give that some thought". If an answer will take an unreasonable period of time, say that you would be happy to discuss it after the session.

Don't let your presentation sound over-rehearsed!!

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry - 607 402.

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University u/s 3 of UGC ACT, 1956)
Accredited by NAAC with 'A' Grade
Pillaiyarkuppam, Pondicherry - 607 402.

How to prepare for and present at a journal club

Introduction

Presenting a paper at a journal club can be a daunting prospect for a trainee and one for which undergraduate medical education may leave the trainee feeling under-prepared. However, the ability to critically appraise and present an academic paper is a competency required of the trainee doctor.

This article discusses the benefits of attending a journal club and considers the characteristics common to successful journal clubs. It reviews the impact of new technology on the format of journal clubs and suggests a framework for preparing presentations.

Historical background

The first mention of a journal club is found in the 1835–54 memoirs of British surgeon Sir James Paget. He reported that 'self-select of the pupils, making themselves into a kind of club, had a small room over a baker's shop near the Hospital-gate where we could sit and read the journals'. Sir William Osler is widely credited as establishing the first organized journal club at McGill University in 1875 (Linzer, 1987). In 1966, Professor Mattingly of Exeter University wrote one of the first articles about journal clubs as an 'introduction to the systematic use of medical literature' for junior staff, and 'a convenient method of surveying the medical literature' for senior staff (Mattingly, 1966). Since then journal clubs have been widely used to keep abreast of the current literature.

In the 1990s the concept of evidence-based medicine was introduced, defined as '...the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual

patients' (Sackett et al, 1996). The skill of critical appraisal and the ability to use the current evidence base in medical practice has evolved, with journal clubs being integral to this process.

Why attend journal clubs?

Journal clubs link research to clinical practice by encouraging critical review of the current medical literature and act as a vehicle for the application of evidence-based medicine through continuing medical education (Esisi, 2007; Leung et al, 2013).

Journal clubs also allow academic debate and networking between colleagues of varying seniority (Esisi, 2007). Regular meetings to discuss and appraise the medical literature help trainees to develop their critical appraisal skills. These skills are increasingly seen as a requirement for specialist hospital doctors and the ability to demonstrate them is assessed at specialty training (ST3) interviews (Picard et al, 2010; Leung et al, 2013).

By honing critical appraisal skills, competence is developed and publications may follow in the form of 'letters to the editor' or papers developing research ideas stimulated by the articles reviewed (*Table 1*).

Characteristics of successful journal clubs

Successful journal clubs have generally met for more than 2 years with good participation (Sidorov, 1995). There are many differ-

ent ways that meetings are structured but common characteristics are as follows (Sidorov, 1995; Alguire, 1998; Deenadayalan et al, 2008; Millichap and Goldstein, 2011):

1. They are held at regular intervals (e.g. monthly)
2. They are held at a set time convenient for the members
3. Attendance is compulsory and an attendance register is held
4. The attending clinicians share common clinical interests
5. There is a nominated chairman, who possesses research experience and is widely respected. His/her role is to chair meetings as well as guide club members in their choice of journal articles
6. The club has a clear purpose which is agreed by the members and is periodically reviewed
7. The articles selected for discussion are aligned with the agreed 'overall aim' of the club and of clinical relevance to the members
8. Original articles are the most frequent papers discussed
9. The papers are read in good time before the meeting. Circulating the subject matter by email or the internet are effective ways to do this
10. Food is available at the meetings; the provision of food at meetings is widely reported to improve attendance.

The future of the journal club

In the past journal clubs involved the members travelling to meet at a given location. Recently, journal clubs have used web-based platforms. These also improve participants' ability to undertake critical appraisal of the literature (Macrae et al, 2004), although journal clubs in person are more efficient at developing these skills (McLeod, 2010). Most departments therefore still hold physical meetings (Millichap and Goldstein, 2011) with internet technology used as an adjunct.

Social media platforms such as LinkedIn and Twitter have also been used to host journal clubs. Early forays into microblogging-based journal club discussions (e.g. via Twitter) have produced encouraging forum

Table 1. The benefits of a journal club

- Critical appraisal skills are developed
- Participants keep abreast of current medical literature
- Research literacy and evidence-based practice are developed
- The needs of continuing medical education are met
- Interview skills are developed
- Academic debate is stimulated
- Intradepartmental social and professional networking take place
- Publications are generated (e.g. letters to editor, further research)

Dr PFD Bowles is Core Surgical Trainee, Mr K Mareah is Specialist Registrar in Orthopaedic Surgery, Mr DM Ricketts is Consultant Orthopaedic Surgeon and Mr BA Rogers is Consultant Orthopaedic Surgeon in the Department of Trauma and Orthopaedics, Brighton and Sussex University Hospitals, Brighton BN2 5BE

Correspondence to: Dr PFD Bowles (philippe.bowles@nhs.net)

**REGISTRAR
SRI BALAJI VIDYAPEETH**

Deemed University u/s 3 of UGC ACT, 1956
Accredited by NAAC with 'A' Grade
Pillaivarkuppam, Pondicherry-607 402.

SRI BALAJI VIDYAPEETH
Deemed University u/s 3 of UGC ACT, 1956
Accredited by NAAC with 'A' Grade
Pillaivarkuppam, Pondicherry-607 402.

advertized and conducted on Twitter can be used to access an international, multi-disciplinary community and engage readers directly with authors. One such experimental study, conducted over a 48-hour period, reported participation from 45 contributors representing clinicians, students and members of the public, from 10 countries (Thangamy and Woo, 2013).

Positive correlations have been shown between the number of 'tweets' a journal article generates and more traditional measures of influence such as citations (Eysenbach, 2011). Regarding the risk of unprofessional conduct, the vast majority of contributions raise no concerns (Leung et al, 2013). In light of this the potential of social media sites to compliment physical meetings and stimulate debate is now being investigated by international medical journals (Leung et al, 2013).

The advantages of journal clubs via social media platforms include:

- Immediate access to authors and editors
- Immediate appraisal and feedback for editors and authors
- The ability for discussion between authors and readers
- The opportunity to promote international discussion
- Enhanced dissemination to developing countries and remote areas
- Development of a forum to answer questions and explore practical applications
- Discussion open to people interested in the topic who are not medical professionals (adapted from Leung et al, 2013).

Presenting at a journal club

Most presentations take place at physical meetings for which standard approaches apply. Powerpoint slides will help convey the structure of the presentation and the data under discussion. Where such facilities are unavailable, slides on overhead projectors or simple handouts are suitable alternatives. The timing of the presentation should be appropriate to the content of the paper and duration of the meeting. Rehearsing the presentation will help to combat nerves and further familiarize the speaker with the content, facilitating an engaging and interactive presentation. Some meetings may favour a less formal roundtable discussion format where the chairperson will help guide the discussion, encouraging group participation.

Schwartz et al (2007) drew a comparison between presenting a critical appraisal and presenting patients; in both the aim is to convey the essential information in a concise manner using a standardized structure. Just as a junior doctor's ability to present clinical problems improves dramatically with practice, the skill of engagingly and concisely conveying the essence of a paper can also be learnt.

The authors suggest the following step-wise approach to presenting an article:

Step 1: introduction

Explain the clinical question that prompted you to consult the literature and what drew you to the article.

Step 2: who wrote the paper?

Consider the title of the paper, the authors and their affiliated institution(s). Are there any outstanding features, e.g. a first study of its kind, a well-known author or institution?

What is the impact factor of the journal? What is the circulation (i.e. regional, national or international) and who is the readership?

Try to ignore the abstract initially. Reading the author's stated conclusions before forming your own ideas about the validity of the paper may influence your appraisal.

Step 3: the hypothesis

What is the research question? Is it well constructed? Does it observe the four basic components (PICO) of a good research question?

- Population – who was studied?
- Intervention – what was the intervention tested?
- Control – what was the alternative that the intervention was compared to?
- Outcome – what was the nature of the outcome measured? (Van Loveren and Aartman, 2007).

Step 4: appraise the evidence base

Read the key references and related papers.

What is already known on the subject? Is this correctly presented? Is the hypothesis correct? Is the question relevant and important in the context of the existing literature? What does the study contribute to the existing literature?

The introduction will usually contain a statement validating the content of the

article by placing it in the context of the wider literature. For example, 'Intervention 'x' has been shown to show significant reduction in patient group 'y'. However, no studies to date have assessed the effect of 'x' in patients with a history of 'z.' (adapted from Schwartz et al, 2007).

Step 5: study design

Consider the following:

The study type

Is it appropriate to the research question and the subject under investigation, e.g. randomized controlled trial, case control, meta-analysis, cross-sectional, descriptive (Schwartz et al, 2007)?

The study population

Can the results of the study be translated to the general population? Is the patient group representative of the normal population? If not, is this addressed in the text?

Randomization

How are the participants allocated into the groups?

Bias

This refers to a flaw in impartiality that introduces systematic error into the methodology and results of a study.

Is the research method exposed to bias? Has randomization been used to reduce experimenter bias?

What form of blinding or masking has been used to reduce experimental or observational bias?

Inclusion and exclusion criteria

Are these appropriate and clearly stated? Can you identify any oversights that may affect the validity of the study?

Step 6: is the method thorough?

A flawed methodology will undermine the validity of the results. Consider the following:

Was the method and approach to the study appropriately diligent? Were processes consistent? Was follow up complete and consistent in each group? What outcome measures were used and were they appropriate?

Are the statistical tools adopted suitable and correctly incorporated by the investiga-

REGISTRAR
SRI BALAJI VIDYAPEETH
(Deemed University as per UGC ACT 1956)
Accredited by NAAC with 'A' Grade
Pillaiyar Kuppan



SHRI SATHYA SAI MEDICAL COLLEGE AND RESEARCH INSTITUTE
AMMAPETTAI, KANCHEEPURAM DISTRICT-603108.
 (A CONSTITUENT UNIT OF SRI BALAJI VIDYAPEETH-SBV, DEEMED TO BE UNIVERSITY)



Post Graduate Orientation Program: Part II

Certificate of Participation

This is to certify that has participated as a Delegate/ Resource Faculty in the Post Graduate Orientation Program: Part -2 ,Academic Year 2017-2018 conducted by the Medical Education Unit at Shri Sathya Sai Medical College and Research Institute from 8th to 10th July 2019.

Coordinator, MEU
 SSSMCRI

REGISTRAR
 SRI BALAJI VIDYAPEETH
 (Deemed University u/s 3 of UGC ACT, 1956)
 Accredited by NAAC with 'A' Grade
 Pillaiyarkuppam, Pondicherry-607 402.

Dean
 SSSMCRI

REGISTRAR
 SRI BALAJI VIDYAPEETH
 (Deemed University u/s 3 of UGC ACT, 1956)
 Accredited by NAAC with 'A' Grade
 Pillaiyarkuppam, Pondicherry-607 402.

POST GRADUATE ORIENTATION PROGRAMME PART II ON TEACHING
LEARNING, CBME, PROFESIONALISM AND ETHICS
8th TO 10th JULY 2019

SHRI SATHYA SAI MEDICAL COLLEGE & RESEARCH INSTITUTE

LIST OF PARTICIPANTS

S.No STUDENT NAME UIN No. DEPARTMENT

- 1 Akshara 1902021001 Anaesthesia
- 2 Sangeetha Gg 1902021002 Anaesthesia
- 3 Dhanasekar 1902021003 Anaesthesia
- 4 Vasanth 1902021004 Anaesthesia
- 5 Aishwarya Guru 1902021005 Anaesthesia
- 6 Srinithi A 1902021006 Anaesthesia
- 7 Divya 1902021007 Anaesthesia
- 8 Syed Najeebullah Khadri 1902021008 Anaesthesia
- 9 Shivashankari.P.A 1902051001 CommunityMedicine
- 10 Kiran Francis 1902061001 Dermatology
- 11 Nandhini. P 1902061002 Dermatology
- 12 Jayavarshini Jothivel 1902071001 ENT
- 13 Abdul Azeez. K 1902071002 ENT
- 14 Samarth Somanath 1902091001 General Medicine
- 15 Dhanya Sureddy 1902091002 General Medicine
- 16 Hirshitha. N 1902091003 General Medicine
- 17 Chengotaiyeen 1902091004 General Medicine
- 18 Nagarjuna. T 1902091005 General Medicine
- 19 Krishna Kannan 1902091006 General Medicine
- 20 Parth Patel 1902091007 General Medicine
- 21 Kushal Udaykumar 1902091008 General Medicine
- 22 Meenambikai 1902091009 General Medicine
- 23 Shezad Razabali 1902091010 General Medicine
- 24 Sunanth 1902101001 General Medicine
- 25 Swathi 1902101002 General Surgery
- 26 Maruduraj. V. C 1902101003 General Surgery
- 27 Balakumaran. A 1902101004 General Surgery
- 28 Eshwar Karthikeyan 1902101005 General Surgery
- 29 Abhinav Patnaik 1902101006 General Surgery
- 30 Sarthak Narayan Routray 1902101007 General Surgery
- 31 Dharshana 1902121001 OBGY
- 32 Keerthana 1902121002 OBGY

- 33 Palleneni Vedavathi 1902121003 OBGY
34 Shaarika 1902121004 OBGY
35 Chitra 1902121005 OBGY
36 Soumya Singh. S 1902131001 Ophthalmology
37 Ajin Raj 1902141001 Orthopedics
38 Indrajeet Hemant
Bhoite 1902141002 Orthopedics
39 Palak Gangwani 1902151001 Paediatrics
40 Kata Sai Vinuthna 1902151002 Paediatrics
41 Lakshmi Priya. B 1902151003 Paediatrics
42 Sneha Priyadarshini 1902151004 Paediatrics
43 Rijoe Rajulin 1902151005 Paediatrics
44 Mulupuri Navya Sahiti
Priya 1902151006 Paediatrics
45 Saranya 1902161001 Pathology
46 Nikhil Ravooru 1902201001 Radiodiagnosis
47 Sumukh Mithunkul. B 1902201002 Radiodiagnosis
48 Fraser Gomes 1902201003 Radiodiagnosis
49 Fathima Thahmina
Hameed 1902201004 Radiodiagnosis
50 Sarumathi 1902201005 Radiodiagnosis
51 Nithin Thomas 1902211001 Respiratory Medicine
52 Vidhya Priya. S 1902211002 Respiratory Medicine


CO-ORDINATOR
MEDICAL EDUCATION UNIT
SSSMCRI