

Implementing Competency-Based Medical Education in the Age of Complexity

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ROYAL COLLEGE
OF PHYSICIANS AND SURGEONS OF CANADA

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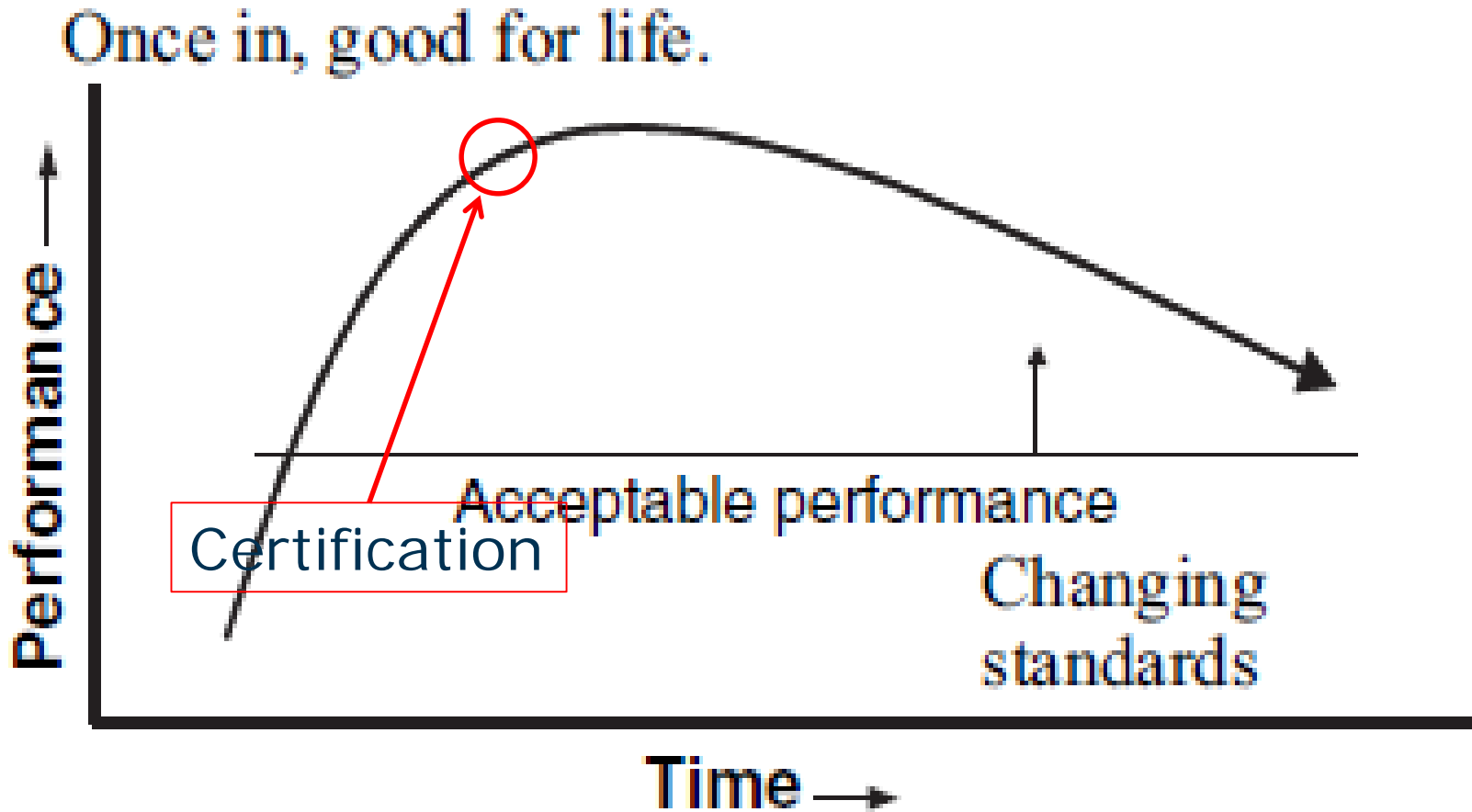
I do not have any affiliation (financial or otherwise) with a commercial organization that may have a direct or indirect connection to the content of my presentation(s)

1. To define competency based medical education (CBME)
2. To provide the rationale for moving from a time based system to CBME
3. To describe Competency by design, the Royal College's program of CMBE
4. To share challenges and lessons learned in the implementation of CBME

Birth of Residency Education



The Ballistic Model



The NEW ENGLAND JOURNAL of MEDICINE

REVIEW ARTICLE

MEDICAL EDUCATION

Malcolm Cox, M.D., and David M. Irby, Ph.D., Editors

American Medical Education 100 Years after the Flexner Report

Molly Cooke, M.D., David M. Irby, Ph.D., William Sullivan, Ph.D.,
and Kenneth M. Ludmerer, M.D.



Abraham Flexner.

Courtesy of the Carnegie Corporation of New York.

MEDICAL EDUCATION SEEMS TO BE IN A PERPETUAL STATE OF UNREST. From the early 1900s to the present, more than a score of reports from foundations, educational bodies, and professional task forces have criticized medical education for emphasizing scientific knowledge over biologic understanding, clinical reasoning, practical skill, and the development of character, compassion, and integrity.¹⁻⁴ How did this situation arise, and what can be done about it? In this article, which introduces a new series on medical education in the *Journal*, we summarize the changes in medical education over the past century and describe the current challenges, using as a framework the key goals of professional education: to transmit knowledge, to impart skills, and to inculcate the values of the profession.

From the Department of Medicine, University of California, San Francisco, San Francisco (M.C., D.M.I.); the Carnegie Foundation for the Advancement of Teaching, Stanford, CA (M.C., D.M.I., W.S.); and the Department of Medicine, Washington University, St. Louis (K.M.L.).

N Engl J Med 2006;355:1339-44.

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- Residents can be disempowered
- Great burden placed on faculty
- Teacher-Learner exchange is conflicted
- Failure to fail
- Dichotomous (pass/fail) judgements
- Lack of direct observation
- Too much reliance on high stakes national exams



- Learning judged by time spent, not ability
- Trainees unprepared for transitions
- Concerns about patient harm
- Missing content
- Lack of support for lifelong learning
- Need for assessment *for* learning

- Teach for competence and strive for excellence across all the roles;
- Ensure physician competencies increase over time;
- Address rapid changes in health care technology and patient needs; and
- Enable physicians to identify when and how to apply these changes in their practice.

CBME: A solution?

The screenshot displays the website for TheLancet.com, featuring a navigation bar with links for Home, Journals, Specialties, Clinical, Global Health, Audio, Conferences, Information, and Healthcare Jobs. The main content area highlights an article titled "Medical education for the 21st century" published on November 29, 2010. The article's executive summary states that a Lancet Commission call for major reform in the training of doctors and other healthcare professionals for the 21st century, emphasizing the need for fragmented, outdated, and static curricula to produce ill-equipped graduates. The commission argues for a major reform across the entire medical education system to produce competency-led curricula for the future. The article includes a section for comments, a new speech for health professionals' education by Richard Horton, and a student's view on health professionals for the 21st century by Florian L. Stigler, Robert J. Dooliver, Margot Weggemans, and Helmut J.F. Sauer. The article also features an audio player for an MP3 audio file and a section for related content, including "Health care: an African solution" by The Lancet and "Collaborating partners" like the Bill & Melinda Gates Foundation and The Rockefeller Foundation. On the left side, there is a sidebar for the Josiah Macy Jr. Foundation, which is dedicated to improving the health of the public by advancing the education and training of health professionals. The sidebar lists priorities such as Interprofessional Education and Teamwork, Patient Safety, Quality Improvement, and System Performance, New Models for Clinical Education, and Career Development for Underrepresented Minorities. The right side of the screenshot shows the website for The Future of Medical Education in Canada (FMEC), a project funded by Health Canada. The FMEC website includes a navigation bar with links for Home, Project Overview, Reports, Who is Involved, Activities, Links, News, and Contact Us. The main content area features a welcome message and a section titled "FMEC PG Project Receives Extension and Additional Funds from Health Canada". The text explains that Health Canada recently announced its decision to grant additional funding and an eight-month extension to the Future of Medical Education in Canada Postgraduate (FMEC PG) Project. The project will now be completed on March 31, 2012. This additional time will allow the Steering Committee to further develop and refine recommendations for changes to the Canadian postgraduate medical education system. The additional time and funding will also allow for more extensive consultation and the further cultivation of a national, evidence-based collective vision. The FMEC PG Project will culminate with a National Forum in January 2012 hosted by the four consortium partners of the FMEC PG Project: key stakeholders from the national PGME community will gather in Ottawa to receive and discuss the draft recommendations. The FMEC PG Project is funded by Health Canada and spearheaded by a consortium of four organizations: The Association of Faculties of Medicine of Canada (AFMC), The College of Family Physicians of Canada (CFPC), La Collège des médecins du Québec (CMQ), and The Royal College of Physicians and Surgeons of Canada (RCPS(C)). As is old for the FMEC PG Education Project, the AFMC will act as Secretariat for the FMEC PG Project. The sidebar on the right includes a link to click here to create more about FMEC PG Project and a button to click here to read the latest edition of our newsletter.



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...is an **outcomes**-based approach to the design, implementation, **assessment** and evaluation of a medical education program using an organizing framework of **competencies**

Medical Teacher Aug. 2010

An observable ability of a health professional



- Reflects a spectrum
- Integrates multiple components such as knowledge, skills, values, and attitudes
- Multiple competencies can be combined
- Measurable with respect to a defined outcome;

*Possessing the required abilities
at a specified stage of medical
education*

Is always qualified by a frame of
reference

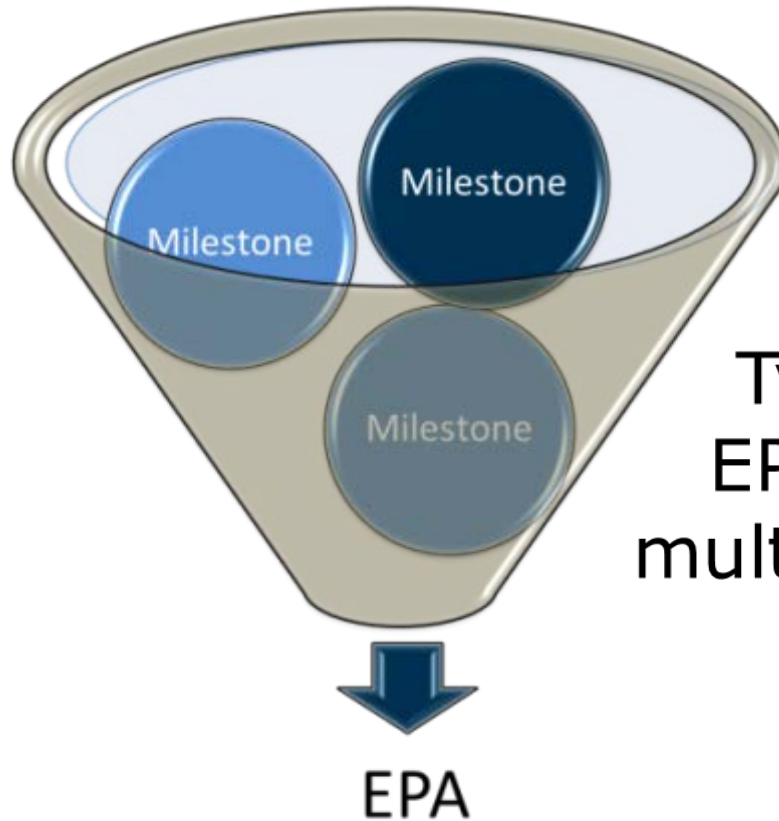
- Milestones are the abilities expected of a physician or trainee at a defined stage of development.



- **Entrustable Professional Activity (EPA)** – An essential **task** of a "discipline" that an individual can be trusted to perform **independently** in a given **context**
 - Used for assessment
 - Encompasses multiple milestones



Milestones within an EPA



Typically, each
EPA **integrates**
multiple milestones.

The Introduction of CBME into Canadian Specialty Training



Canada & Mexico by the numbers

	Canada	Mexico
Area	9,984,670 km ²	1,972,550 km ²
Time zones	6	3
% water	8.92	2.5
Population	35.2 million	122.3 million
Density	3.9/km ²	61/km ²
GDP per capita	\$49,775	\$20,028
Life expectancy	82.1 yrs.	76.9 yrs.

Postgraduate Medical Education in Canada



- Medical School
 - 3-4 years
- Specialty Residency
 - 5-6 years for Specialties
 - 2 years for Subspecialties
- Areas of Focused Competence
 - Competency based
- A time-based model of training



- The Royal College recognizes:
 - 28 Specialties
 - 39 Subspecialties
 - 24 Areas of focused competence
- ~ 800 programs
- >15,000 trainees

- Usually 3 – 6 months
- Principles of graded responsibility
- Actively involved in provision of clinical care
- Regular evaluation
 - Student
 - Faculty
- Usually in large academic centres

- Multi-year, transformational change initiative to introduce CBME to residency education and continuing professional development;
- Focused on the learning continuum from the start of **residency to retirement**;
- Based on a competency model of education and assessment; and
- Designed to address societal health need and patient outcomes.

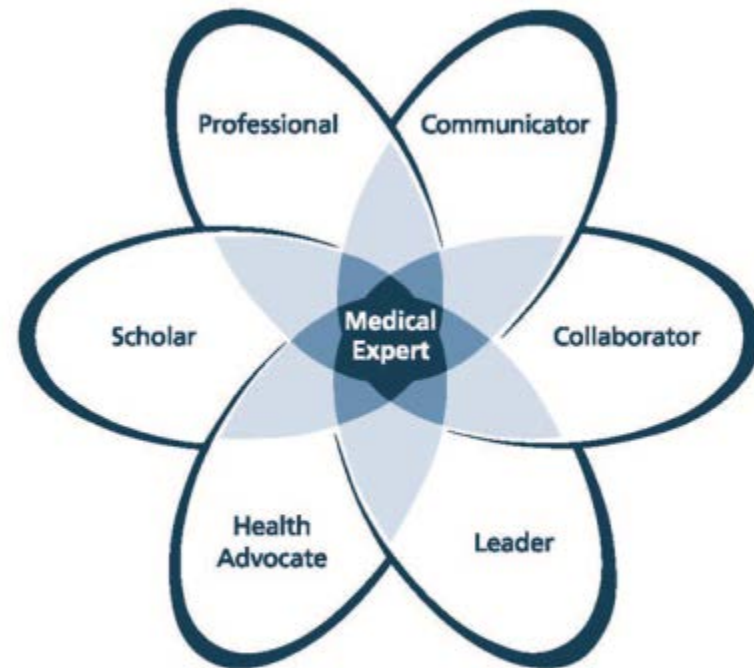
The Strategic Goal of CBD

In the long-term, the goal of CBD is to improve the health and healthcare of Canadians:

- Time-based training = variation in outcomes
- Incorporate best practices
- CBME as the 21st century training model



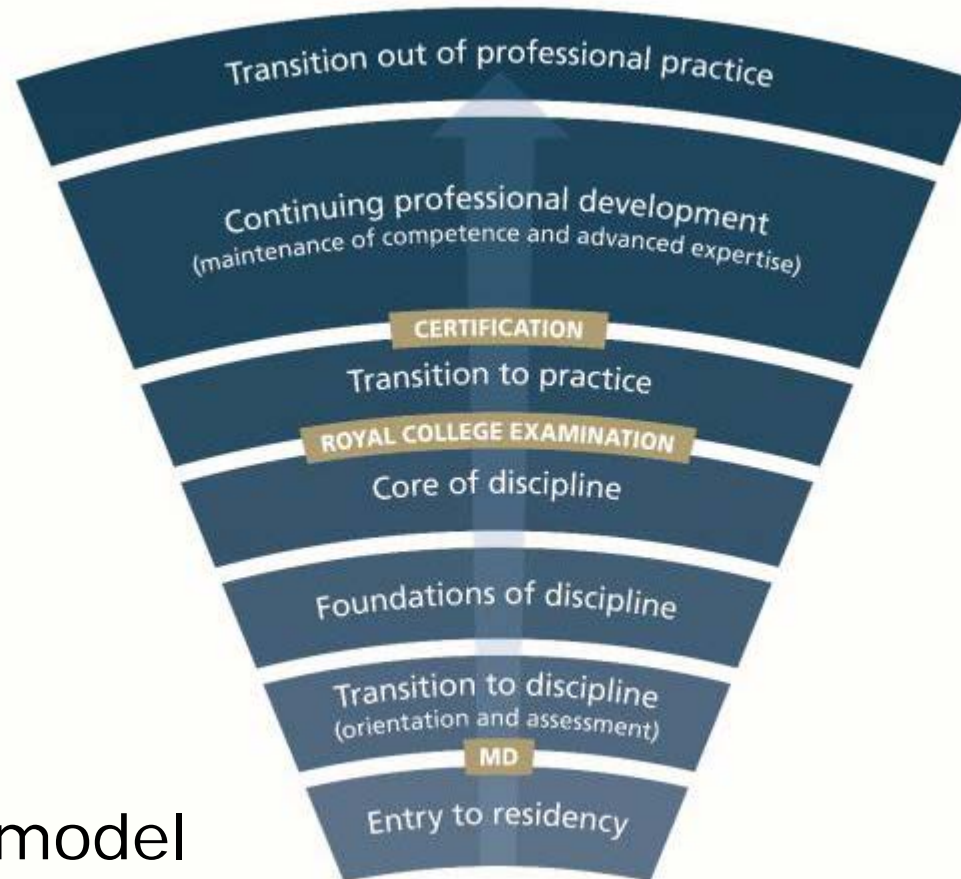
- Medical Expert
- Communicator
- Collaborator
- Health Advocate
- Leader
- Scholar
- Professional



CANMEDS



CBD^{1,2} Competence Continuum

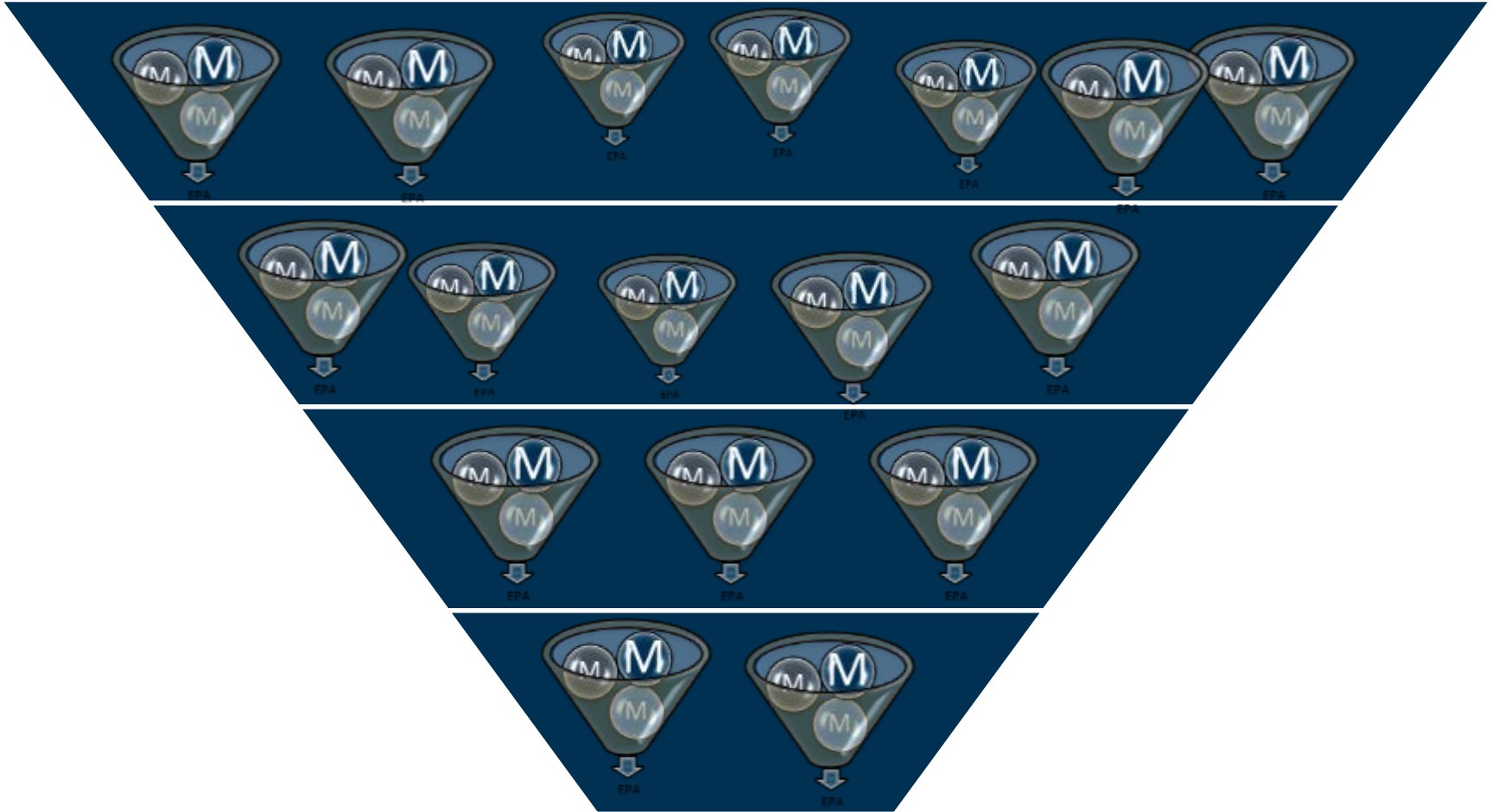


Hybrid model

¹ Competence by Design (CBD)

² Milestones at each stage describe terminal competencies

Four Stages of Residency

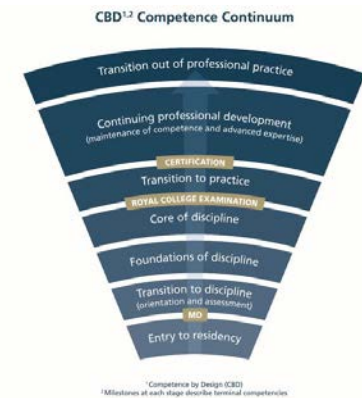


Foundations

- Provision of anesthetic for an elective, uncomplicated, non-subspecialty surgery on an ASA 1 or 2 adult patient

Core

- Management of low-frequency, life-threatening situations in either a real clinical scenario or a simulated environment



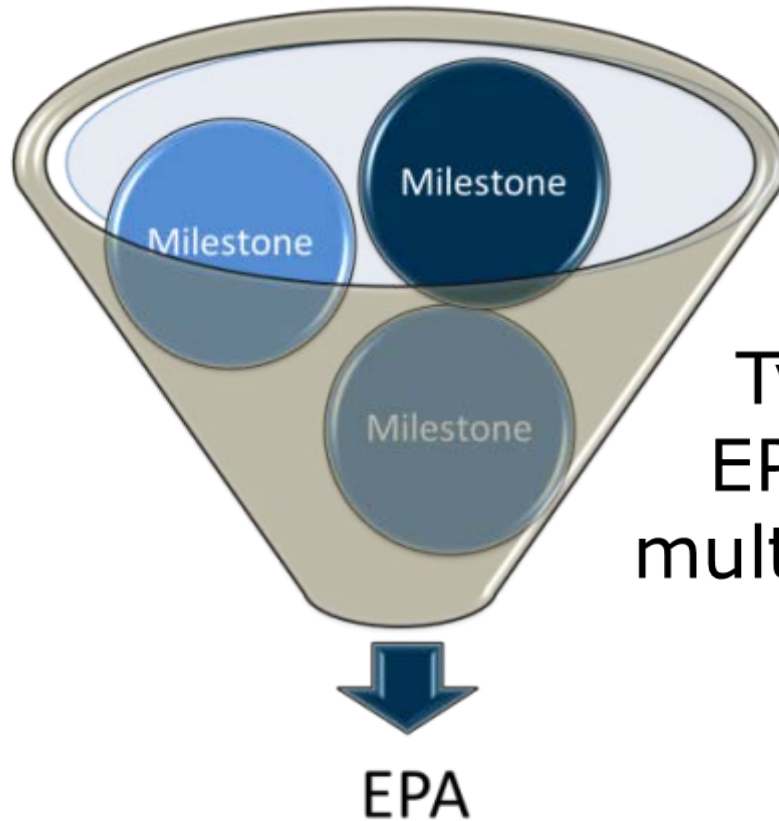
Transition to Discipline

- Demonstrate ability to function in OR
- Repair basic skin laceration

Foundations

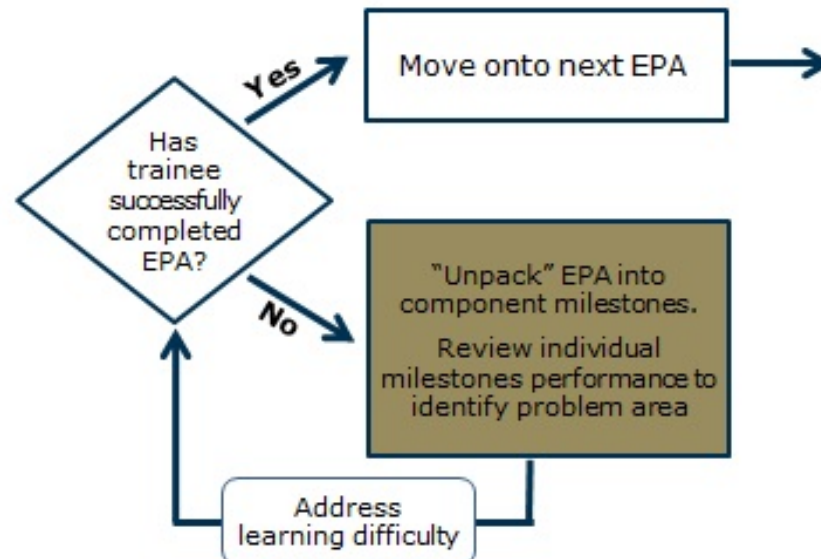
- Initial management of trauma patient
- Management of post-op patient with complications

Milestones within an EPA



Typically, each
EPA **integrates**
multiple milestones.

- If a trainee is struggling with an EPA, the teacher can break the EPA down into its component abilities (milestones) to help determine where further guidance or teaching is needed.



- Workplace Based Assessment (WBA)
- Demonstration of performance
 - Multiple short clinical observations
 - Promotion decisions made by Competence Committee
 - Deliberate promotion
- Coaching model
- Examinations



Six Essential Elements of a CBME Assessment Strategy

1. Assessment requirements, as defined by the Specialty committee, and inclusive of:
 - EPAs, as defined by the Specialty Committee
 - CanMEDS-based milestones, as defined by the Specialty Committee
2. Increased emphasis on direct and indirect observation
3. Many low-stakes observations of focused clinical tasks
4. Narrative, actionable, timely, concrete recorded feedback
5. Curation, collation, and group decision-making by a Competence Committee
6. Stages and progression of increasing entrustment, facilitated by group entrustment decisions at the Competence Committee level

ePortfolio



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Casey Chandler Learner

- Learner
- Observer

Discipline: Oncology
 Current Stage: Foundations of Discipline
 Stage Start Date: 6/2/2015
 Next Progress Meeting: 11/12/2015
 Total for Discipline: 31 of 68



Add Reflection

EPA's By Stage (68) Reflections (4) Narratives (2) Supporting Documentation (1)

Stage Hide Achieved

Transition to Discipline (14)

Foundations of Discipline (24)

EPA	EPA Status	Observations	Evidence
2.1. Manage the transfusion needs of a complex patient	In Progress	2 of 4	
2.2. Supervise & interpret immunohematology testing	Achieved	2 of 3	Proof of exam.pdf
2.3. Conduct and interpret appropriate assessment of intracoronary physiology	Achieved	10 of 10	

- Each program
- Each university
- Deliberate promotion
- Group decision

CBD^{1,2} Competence Continuum



¹Competence by Design (CBD)

²Milestones at each stage describe terminal competencies

CBD Implementation: Timelines



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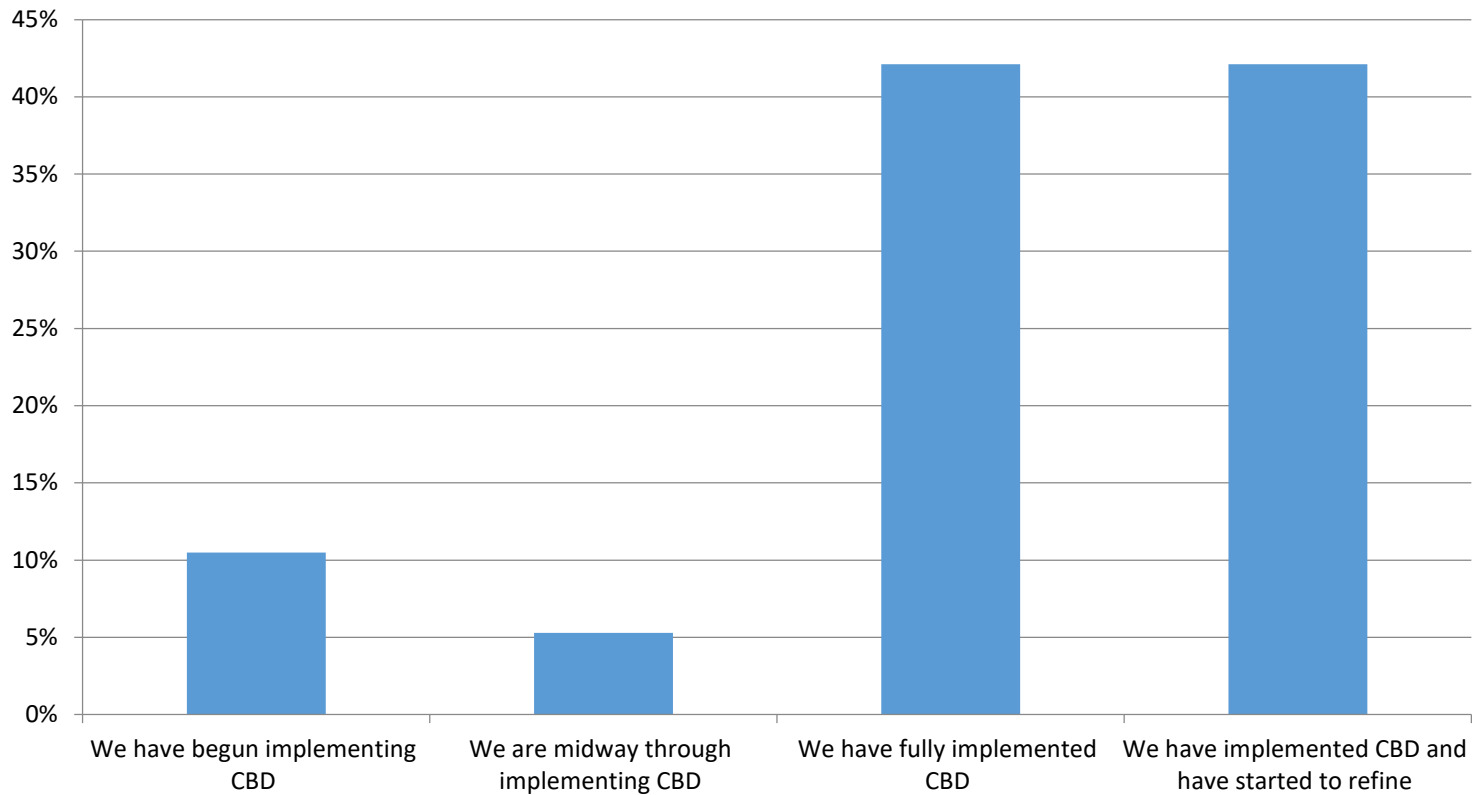
CBD timelines

- 2009 Toronto CMBE orthopedic pilot
- 2012 CBD approved by RCPSC council
- 2015 Revision of CanMEDS framework
- 2017 First cohort deployed
 - Anesthesiology
 - ENT Head and neck Surgery
- 2018 Second cohort in preparation
 - Emergency Medicine, Forensic Pathology, Medical Oncology, Nephrology, Surgical Foundations, Urology

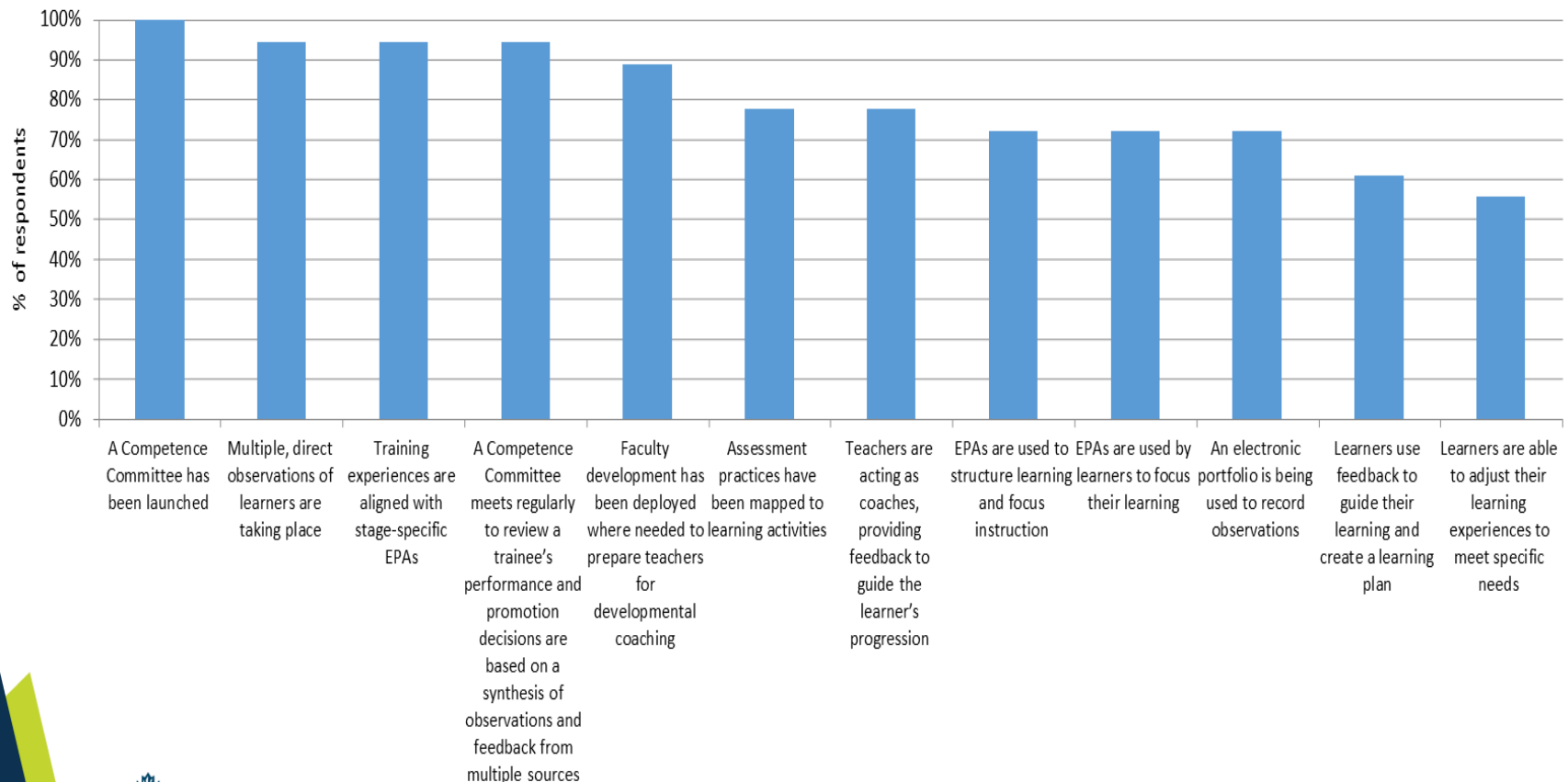
- University of Toronto
 - Orthopedic Surgery
 - Psychiatry
- University of Ottawa
 - Anesthesiology
- Dalhousie University
 - Anesthesiology
- Queen's University
 - 29 programs



CBD Implementation – current status



Features of CBD currently present in program



Stakeholder Engagement with CBD: How are we doing on the change curve?



Source: Scott & Jaffe

- Complexity requires simplicity
- Avoid reductionism
- Aim for excellence over perfection
- Full engagement of all stakeholders, in particular the medical schools and resident organizations

Lessons learned (2)

- Timelines must be adaptable
- Need for both central and local resources
- Resource impact needs to be moderated
- Communication, communication, communication

Starting a new relationship with residents



- The number of required EPAs need to reflect a balance between practicality and comprehensiveness.
- Faculty development is essential both prior to CBME implementation and on an ongoing basis.
- Residents need to be engaged in the design of the system

- Academic promotion must be objective, transparent, comprehensive and must not rely not only on the raw number of observed clinical experiences
- Best practices in CBME implementation in collaboration must be shared
- Programs should assume responsibility of mapping EPAs to their specific resident rotations.

Conclusions

- CBME is a natural evolution to adapt to the needs and realities of the 21st century
- CBME offers the potential for greater flexibility, accountability, adaptability & transparency
- CBME implementation is a multi-year process and must be adaptable
- Implementing CBME requires a fundamental rethinking of the system. Full engagement of all stakeholders is essential
- Implementation cannot overwhelm teachers and training sites. They must be supported
- Enormous potential for us to learn from each other's successes and challenges



International Competency-based Medical Education

"Big breakthroughs happen when what is suddenly possible meets what is desperately necessary."
- Thomas Friedman

Read about how we're transforming medical education with competency-based medical education.

[Learn more](#)

About ICBME Collaborators

The International Competency-based Medical Education (ICBME) Collaborators are leading international experts who examine conceptual issues and current debates in competency-based medical education (CBME). With secretariat support from the Royal College of Physicians and Surgeons of Canada, the ICBME collaborators are engaged in ongoing discussions and debate of CBME issues and are key promoters of CBME scholarship.

The [ICBME Collaborative](#) aspires to the advancement of medical education around the world.

Join the discussion on Twitter



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#CBME
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Questions?



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“The postgraduate school as developed in the United States may be characterized as a compensatory adjustment”

“It is an effort to mend a machine that was pre-destined to break-down”

“The postgraduate school was thus originally an undergraduate repair shop”

1910