



# Competence by Design:

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## Competence Based Medical Education

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Despite our continuously evolving health care system with its ever changing demands and expectations, there has been little parallel change in the medical education system over the past century, since the distribution of the Flexner Report in 1910. In order to address several perceived issues with medical education, including accountability, in 2015, the Royal College of Physicians and Surgeons of Canada launched "Competence By Design" (CBD)- a competency-based medical education (CBME) approach to training residents and integrating best practices in medical education, to better meet and respond to patient and societal needs. Last year, July 2015, the Department of Anesthesia at the University of Ottawa enrolled its first cohort of residents into a competency-based program. All Anesthesiology departments at Canadian universities will be following suit and will be implementing a CBD curriculum with the first cohort of residents starting in July 2017.

Some might ask, "why devote all this time, man power, and expense to fix something that ain't broke?" Few will disagree with the current resident training program's past and present success in producing excellent physicians; however, there is growing evidence that suggests that the current method of training and lifelong learning can be improved. The question is less so "what

are we doing wrong?", but rather "what can we do better?"

An analogy often used to describe our current medical education system is that of steeping a tea bag. Our training system is founded on the principle that the more time trainees spend on an activity, the more they will develop and refine expertise. This guiding principle might, however, be flawed as there are trainees who complete their residency but who still feel inadequately prepared to begin independent practice. This is joined by society's growing demand for greater accountability and assurance that residents are trained in the most effective manner, that they graduate with all the abilities required for independent practice, and that they constantly maintain and improve their performance.



Areas for improvement include responding to specialist physicians who

- Graduate with knowledge gaps and feel unprepared for independent practice,

- Feel existing methods of assessment and feedback are inadequate and ineffectual,
- Lack a clear understanding of the learning objectives of their program,
- Lose needed clinical practice time while focusing on preparing for the final exam, and
- Find it difficult to determine when new abilities/skills are needed throughout practice

A guiding principle of CBME is the development of predefined competencies which residents must achieve prior to graduation in order to allow them to practice independently and safely. Assessment of these competencies will bolster the focus, effectiveness, and efficiency of resident training. A CBME system which requires frequent evaluator observations and requires evaluators to use formative assessments based on identifiable criteria (as determined by pre-defined competencies) will also be instrumental in allowing for the early identification underperforming residents and the areas in which they require assistance.

Some concerns that have arisen around a pure CBME model include planning of clinical rotations and service needs. In order to address these concerns, the CBD framework will be a hybrid of time (most residents would be expected to complete training in approximately 5 years) and competency (each resident will be able to demonstrate achievement of the predefined competencies at their own pace). However, time is de-emphasized and residents who need more time to achieve these competencies can be easily identified and accommodated. This is not so in the current tea-steeping model.

CBME requires trainees to demonstrate competence in progressing along the path from novice to expert. The stages within the CBD framework reflect the stages throughout a physician's training and career:

- 1) Transition to Discipline
- 2) Foundations of Discipline
- 3) Core of Discipline
- 4) Transition to Practice
- 5) Continuing Professional Development
- 6) Transition out of Professional Practice

The bedrock to CBD is the establishment of well-defined criteria which will be assessed for advancement at each stage. The terminology used to describe these requisite competencies within the CBD framework includes milestones and entrustable professional activities (EPAs).

The Royal College of Physicians and Surgeons of Canada undertook the Canadian Medical Education Directives for Specialists (CanMEDS) 2015 project to better clarify the role descriptions and definitions and allow for better alignment with a CBME approach. Milestones within each role have been developed to describe physician abilities across the continuum of medical education.

Milestones refer to the outlined, observable markers of a trainee's abilities at defined stages of their development.

eg. Recognize urgent problems that may need the involvement of more experienced colleagues and seek their assistance immediately

Milestones serve as a learning roadmap for residents, and they allow teachers to track the progression from a dependent to an independent learner. Milestones are behavioural descriptors that in order to allow for training and assessment must be linked to a context.

EPAs provide that necessary context and allow for individual learning trajectories based on longitudinal assessment. EPAs define a specialty in terms of the specific independent professional activities that are essential to the practice of that discipline. EPAs are also identifiable clinical activities that a trainee can be trusted to perform with minimal or no supervision. They make

milestones meaningful by placing them in a familiar context within the specialty.

EPAs are essential professional activities that:

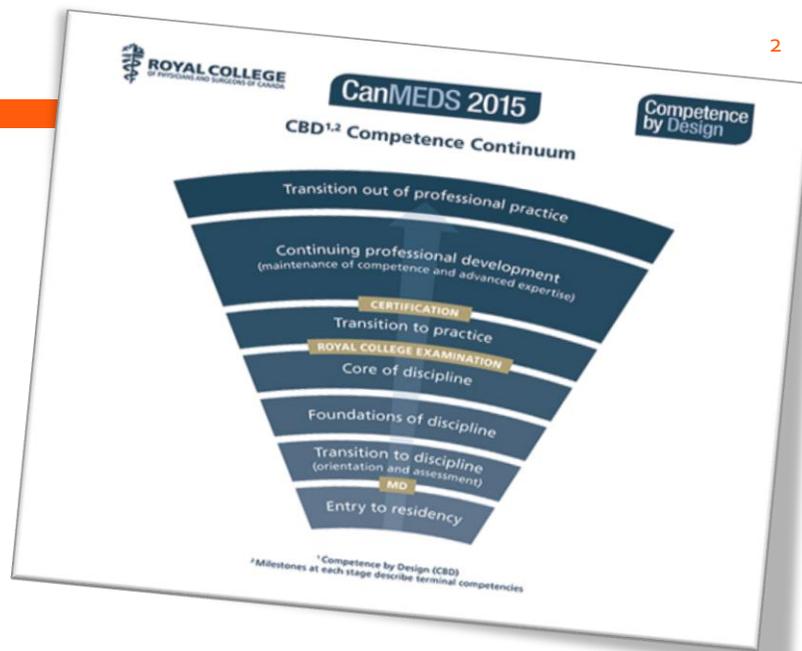
1. specify knowledge, skills, and attitudes;
2. lead to recognized outputs of professional work;
3. can be independently executed;
4. are observable and measurable; and
5. encompass a set of competencies across different roles.

The key difference between EPAs and milestones is that EPAs are the tasks or activities that must be accomplished, whereas milestones are the abilities of the individual.

Typically, each EPA *integrates* multiple milestones. A collection of EPAs for the specialty of Anesthesiology is being developed that will encompass the range of clinical activities relevant to the different stages of training. Each EPA will incorporate relevant CanMEDS competencies.

Milestones and EPAs will direct us in regards to what to assess. With this change in our education model, so too will our assessment tools need to change. Instead of evaluating residents on a scale from "Below Expectations" to "Exceeds Expectations", a likert scale of "Requires constant staff supervision and assistance" to "Able to function independently" will be both more appropriate and instructive.

This is an exciting time for medical education and resident training at the University of Toronto and across Canada. Being one of the first specialties to roll-out a competence based medical education program, Anesthesiology is in a crucial position to help



guide the creation of similar programs across different specialties nationwide.

The department of Anesthesia looks to our exceptional faculty who will be key players in the successful implementation of this new education and assessment model. We will be providing faculty development and further updates on the topic of competence based medical education and its implementation in the University of Toronto's Anesthesiology residency training program. Stay tuned for upcoming updates on the resident curriculum, resident EPAs and assessment tools, the Competence Continuum (relevant to not only our residents but also current staff and their continuing professional development), and much more.

#### QUESTIONS/CONCERNS?

We are, of course, always eager to hear from you.

Please do not hesitate to send any questions or concerns to:

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A great resource to learn more about CBD is:

<http://www.royalcollege.ca/rcsite/competence-design-e>