

1. Introduction

Competence in curriculum development and design is crucial to advance medical education programs. This unit will provide the Clinician Educator (CE) with the theoretical background and practical skills they need to be able to systematically create, implement, evaluate, and improve curricula, ranging from short (e.g., half-day workshop) to longitudinal curricula (e.g., a new residency program).

2. Prerequisite units

- Foundations: Part 1
- Teaching and Learning (co-requisite)

3. CE Competencies addressed in this unit

A CE must be able to:

1. Plan and conduct a needs assessment
2. Systematically design and plan the implementation of a curriculum
3. Evaluate an educational program

4. Learning objectives

By the end of this Unit, the CE will be able to:

- 1. Demonstrate competence in systematic educational design, by**
 - describing and contrasting commonly used educational design approaches
 - analyzing a commonly used design approach with reference to supporting education theories
- 2. Demonstrate competence in needs assessment, by**
 - differentiating perceived, observed, organizational (institutional), and societal needs
 - discussing the advantages, challenges, and implications of commonly used needs assessment instruments
 - preparing and conducting a needs assessment
- 3. Demonstrate proficiency in setting learning goals and objectives, by**
 - defining and comparing the terms “goals,” “learning objectives,” and “milestones”
 - defining three broad domains of learning objectives
 - composing clear and effective learning objectives using appropriate levels-of-learning taxonomies
 - composing clear and effective milestones using appropriate levels-of-learning taxonomies

- describing the use of curriculum mapping or blueprinting to ensure that objectives are linked to teaching and assessment

4. Demonstrate comprehension of the challenges of curriculum implementation, by

- determining the human, fiscal, and physical resources required for the delivery of a new educational initiative
- outlining critical factors for success in the implementation of a new curriculum
- discussing the necessary elements of curriculum maintenance

5. Demonstrate proficiency in program evaluation, by

- describing and comparing common program evaluation models
- evaluating a curriculum

6. Demonstrate comprehension of the importance of the education environment, by

- explaining the influences on and interactions within an educational environment, which is embedded within interconnected and complex health and medical education systems
- defining the concept of the “hidden curriculum” and describing the implications of this phenomenon

5. Suggested resources

Articles

Bennett N, Lockyer J, Mann K, Batty H, LaForet K, Rethans JJ, et al. Hidden curriculum in continuing medical education. *J Contin Educ Health Prof.* 2004;24(3):145–52.

Bice-Stephens W. Designing a learning-needs survey—10 steps to success. *J Contin Educ Nurs.* 2001;32(4):150–1.

Bordage G, Harris I. Making a difference in curriculum reform and decision-making processes. *Med Educ.* 2011;45(1):87–94.

Evans DE, Estcourt CS. A practical guide to building a national curriculum. *Br J Hosp Med.* 2007;68(11):612–5.

Ehrenberg RG, Brewer DJ, Gamoran A, Willms JD. Does class size matter? *Sci Am.* 2001;285(5):78–85.

Goldenberg D, Andrusyszyn MA, Iwasiw C. A facilitative approach to learning about curriculum development. *J Nurs Educ.* 2004;43(1):31–5.

Gozu A, Windish DM, Knight AM, Thomas PA, Kolodner K, Bass EB, et al. Long-term follow-up of a 10-month programme in curriculum development for medical educators: a cohort study. *Med Educ.* 2008;42(7):684–92.

Harden RM. AMEE Guide No. 21: Curriculum mapping: a tool for transparent and authentic teaching and learning. *Med Teach.* 2001;23(2):123–6.

Harden RM, Sowden S, Dunn WR. Educational strategies in curriculum development: the SPICES model. *Med Educ.* 1984;18(4):284–97.

Krackov SK, Pohl H. Building expertise using the deliberate practice curriculum-planning model. *Med Teach.* 2011;33(7):570–5.

Malik AS, Malik RH. Twelve tips for developing an integrated curriculum. *Med Teach*. 2011;33(2):99–104.

Windish DM, Gozu A, Bass EB, Thomas PA, Sisson SD, Howard DM, Kern DE. A ten-month program in curriculum development for medical educators: 16 years of experience. *J Gen Intern Med*. 2007;22(5):655–61.

Books

Kern D, Thomas PA, Hughes MT. *Curriculum development for medical education: a six-step approach*. 2nd ed. Baltimore (MD); Johns Hopkins University Press; 2009.

Sherbino J, Frank JR, editors. *Educational design: a CanMEDS guide for the health professions*. Ottawa: Royal College of Physicians and Surgeons; 2011.

Book chapters

Donaldson SI. Developing program impact theory. In: *Program theory-driven evaluation science: strategies and evaluations*. New York: Taylor and Francis Group; 2007. p. 20–39.

Donaldson SI. Formulating, prioritizing, and answering evaluation questions. In: *Program theory-driven evaluation science: strategies and evaluations*. New York: Taylor and Francis Group; 2007. p. 40–8.

Harden RM. Curriculum planning and development. In: Dent JA, Harden RM, editors. *A practical guide for medical teachers*. 3rd ed. Edinburgh: Churchill Livingstone; 2009. p. 8–16.

Prideaux D. Curriculum development in medical education: from acronyms to dynamism. *Teaching Teacher Educ*. 2007;23 (Apr):294–302.

Stufflebeam DL. The CIPP model for evaluation. In: Stufflebeam DL, Madaus GF, Kellaghan T, editors. *Evaluation models: viewpoints on educational and human services evaluation*. 2nd ed. Boston: Kluwer Academic Publishers; 2000.

6. Learning activities

Formal

- The candidate must engage in a structured, formalized activity or a series of activities related to the learning objectives above. This activity or activities should include interactions with other learners and teachers. The activity or activities will facilitate a deeper engagement of the material. The learning activity or activities can include, for example, workshops, courses, e-learning programs, or other activities associated with a faculty development program, a national specialty society or education conference, or a freestanding course, such as CLIME (Canadian Leadership Institute in Medical Education), a Physician Management Institute course (Canadian Medical Association), etc. The learning activity or activities must be pre-approved by the CE AFC program. To assist in standardizing the scope of the required learning activity or activities among CE AFC programs the typical time requirement for the formal learning activity or activities is 6 hours.

Applied

- The candidate must design and conduct a needs assessment for a planned curriculum or curricular innovation.
- The candidate must design and plan the implementation of a curriculum. This curriculum must run longitudinally and be more than a single event. The design should be informed by the above needs assessment, and should include learning objectives, and (if appropriate) a curriculum map. The implementation plan should include a determination and description of the required human, physical, and financial resources.

- The candidate must design a program evaluation for the planned curriculum to determine strengths and limitations, and must formulate plans for improvement.

7. Assessment

Formative

During this unit candidates should meet regularly with their unit advisor (a minimum of four 30-minute meetings or equivalent) to:

- discuss and receive feedback on their understanding of key ideas in curriculum design and program evaluation
- check their progress in achieving the learning objectives of this unit
- monitor their progress in the applied learning activities

Documentation of these interactions and their outcomes is required (through the Final Unit Report).

Summative

Candidates should submit e-documentation of the following via their electronic portfolio:

1. proof of successful completion of the formal learning activities (via the Final Unit Report and not as a separate entry.)
2. a report outlining the completed needs assessment
3. a written or multimedia report of a curriculum design, including a detailed plan for program evaluation. The report should include, but is not limited to:
 - a. the justification for the overall approach and the curriculum elements incorporated in the design
 - b. the challenges encountered (or anticipated) and how these were (or would be) addressed
 - c. the plan for improvements in subsequent iterations of the curriculum
 - d. a documented response from the unit advisor as well as the candidate's subsequent reply
4. Final Unit Report: a narrative report from the unit advisor using the prescribed template indicating that the candidate has successfully completed the unit.

8. Criteria for a unit advisor

Education qualifications: formal training or recognized expertise in curriculum design or implementation

The CE AFC program must assess the appropriateness of the proposed unit advisor and submit the relevant certificate.

9. Unit designation

Core

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