

## FINAL ASSESSMENT REPORT

### Institutional Quality Assurance Program (IQAP) Review

#### Graduate Diploma in Clinical Epidemiology

**Date of Review: February 28<sup>th</sup>, 2023**

*In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the Graduate Diploma in Clinical Epidemiology. This report identifies the significant strengths of the program, together with opportunities for program improvement and enhancement, and it sets out and prioritizes the recommendations that have been selected for implementation.*

*The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; who will be responsible for providing any resources entailed by those recommendations; any changes in organization, policy or governance that will be necessary to meet the recommendations and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.*

#### **Executive Summary of the Review**

In accordance with the Institutional Quality Assurance Process (IQAP), the Graduate Diploma in Clinical Epidemiology leadership submitted a self-study in December 2022 to the Vice-Provost and Dean of Graduate Studies to initiate the cyclical program review of its program. The approved self-study presented program descriptions, learning outcomes, and analyses of data provided by the Office of Institutional Research and Analysis. Appendices to the self-study contained the CVs for each full-time member in the department.

Two arm's length external reviewers and one internal reviewer were endorsed by the Dean, Faculty of Health Sciences, and selected by the Vice-Provost and Dean of Graduate Studies. The review team reviewed the self-study documentation and then conducted a modified desk-audit review on February 28<sup>th</sup>, 2023. The review included interviews with the Vice-Provost and Dean of Graduates Studies, Associate Dean, Grad Studies and Research and Director of the Program.

The Director of the program and the Dean of the Faculty of Health Sciences submitted responses to the Reviewers' Report (April and December 2023 respectively). Specific recommendations were discussed and clarifications and corrections were presented. Follow-up actions and timelines were included.

- **Strengths**
  - Students provided both synchronous and asynchronous online learning options.

- Diverse instructors with strong backgrounds in clinical epidemiology and strong links to hospital and clinical settings.
- Students provided both synchronous and asynchronous online learning options.
- **Areas for Improvement**
  - Revisit the GDCE Program philosophy of making a core clinical epidemiology program that is accessible, given cost of the program.
  - Clarify wording of program learning outcomes (PLO) 4 & 6:
    - *Critically appraise the quantitative research methods used in published articles and research protocols after conducting a systematic review that requires the assessment of risk of bias and certainty of the evidence;*
    - *Use the updated reference lists of the GDCE courses to understand how the rapidly evolving nature of clinical epidemiology seeks to overcome the methodological limits of the discipline*
  - Collect data in a systematic fashion from faculty and students to assess whether the current Learning Outcomes are met and whether resources are adequate to meet the program requirements.
  - Require that students admitted have completed a basic undergraduate course in research statistics (i.e., that covers the basics of elementary probability, basic descriptive statistics, hypothesis testing, and introductory parametric/nonparametric tests).
  - The program does not include a foundations course in epidemiology. It is recommended to cover foundations in epidemiology with one of three approaches: 1) the Program considers requiring applicants to have completed an introductory epidemiology course before admission; 2) a foundations course in epidemiology will be added into in the GDCE curriculum as a fifth course; 3) a foundational course in epidemiology replaces the HTHRSM 771 course.
  - If the GDCE team does not take action based on Recommendation 5, consider changing the name of the program to include all methods taught (e.g. 'Graduate Diploma Program in Clinical Research Methods').
  - If HTHRSM 771 remains in the curriculum, update the Program Learning Outcomes, analysis course (HTHRSM 774), and systematic review course (HTHRSM 773) to include learning goals, analysis, and systematic review methods as relevant for qualitative research, as qualitative research is introduced in HTHRSM 771 but does not appear in any of the other courses.
  - The Program Learning Outcome "Understanding biostatistics at a level sufficient to complete a results/discussion section of a scientific paper" may be difficult to achieve with a single biostatistics course. If action is taken for Recommendation 4, the emphasis

on basic statistics could be reduced in favour of more hands-on instruction on relevant biostatistical methods in clinical epidemiology using analytic software in the lectures and tutorials. Selecting a specific software for students in this class is also recommended.

- Enhance student interaction with the pool of core faculty members to enrich their learning and educational experience within GDCE.
- To enhance the program's diversity in terms of students and offerings, three recommendations are made: 1) EDI training for all faculty members involved in GDCE teaching; 2) Funding support to applicants from low-resource settings, both nationally and globally; 3) Add more online courses to widen the range of options for students.

### **Summary of the Reviewers' Recommendations with the Department's and Dean's Responses**

#### **Implementation Plan**

Clarifications for table:

- HEI leadership = Chair, Associate Chair of Faculty Affairs and EDI-IR, and Associate Chair of Education
- GDCE Program Committee = GDCE central team, admissions committee, course coordinators, tutors, student ambassador, HEI chair, department manager and communications manager, and non-HEI representatives as needed.
- HEI Educational Council = Associate Chair of Education and leads of all graduate programs in HEI, i.e. Health Research Methodology MSc and PhD, Master of Public Health, e-Health MSc, Health Policy PhD, Public Health and Preventive Medicine Residency, Graduate Diploma in Clinical Epidemiology, and Graduate Diploma in Community and Public Health.

<b>Recommendation</b>	<b>Proposed Follow-Up</b>	<b>Responsibility for Leading Follow-Up</b>	<b>Timeline for Addressing Recommendation</b>
1. Revisit the GDCE Program philosophy of making a core clinical epidemiology program that is accessible, given cost of the program.	Discuss with the GDCE Program Committee and HEI leadership.	Program Director	Discuss in 2023. If GDCE costs are changed, implement September 2024 at the earliest.
2. Clarify wording of PLO 4 & 6.	Revise the wording for these PLOs for clarity.  Obtain feedback on planned revisions by educational developer.	Program Director	Revise in 2023.
3. Collect data systematically to assess	Review and revise course-specific and program-specific	Program Manager	Review in 2023. Changes will be implemented

achievement of PLO's and adequacy of resources.	<p>evaluation surveys to ensure adequate information is captured at the optimal time.</p> <p>Obtain feedback on planned revisions by educational developer.</p>		September 2023 - August 2024.
4. Require basic statistics course either for applicants or add to curriculum.	Discuss with the GDCE Admissions Committee, GDCE Program Committee, and HEI Educational Council.	Program Director	Discuss September-December 2023. If decided to add requirement, implement September 2024 at the earliest.
5. Cover foundations in epidemiology, as admissions requirement or in GDCE courses.	Discuss with the GDCE Admissions Committee, GDCE Program Committee, and HEI Educational Council.	Program Director	Discuss in 2023, together with Recommendation 6. Selected solution will be implemented in 2024-25.
6. If no action is taken for Recommendation 5, consider changing the program name (e.g. 'Graduate Diploma in Clinical Research methods').	Discuss with the GDCE Admissions Committee, GDCE Program Committee, and HEI Educational Council.	Program Director	Discuss in 2023, together with Recommendation 5. Selected solution will be implemented in 2024-25.
7. Update the PLO, analysis course, and systematic review course to include qualitative learning goals, qualitative analysis, and qualitative systematic review methods in line with HTHRSM 771.	Discuss with the GDCE Program Committee, and HEI Educational Council.	Program Director	Discuss in 2023. Selected solution will be implemented in 2024-25.
8. If Recommendation 4 is implemented, provide more hands-on instruction on relevant biostatistical methods in clinical epidemiology using analytic software. Selecting a specific software for students in	Discuss with the GDCE Admissions Committee, HTHRSM 774 course coordinator, GDCE Program Committee, and HEI Educational Council.	Program Director	Discuss in 2023, together with Recommendation 4. Selected solution will be implemented in 2024-25.

this class is also recommended.	Note: all GDCE students are already receiving access to SPSS software for the HTHRSM 774 course.		
9. Enhance student interaction with the pool of core faculty members.	Discuss with the GDCE Program Committee.	Program Manager	Discuss in 2023. Selected solution will be implemented in 2024-25.
10. EDI training for all teaching faculty, provide funding support to applicants from low-resource settings, and provide additional online courses.	Discuss with HEI leadership and GDCE Program Committee: 1) enforcement of EDI training for all teaching faculty; 2) potential avenues for funding support for applicants from low-resource settings.  Discuss with the GDCE Admissions Committee, GDCE Program Committee, and HEI Educational Council the addition of available or new online courses.	Program Director	Discuss with HEI leadership in 2023.  Discuss addition of online courses in 2024.

### Faculty Response

The reviewers note strengths of the program, including the effective mix of synchronous and asynchronous online learning strategies and the participation of instructors with strong backgrounds in the discipline and links to clinical settings. They offer ten recommendations for improvement.

We are confident that the program will consider these recommendations carefully and will respond appropriately. The report poses some interesting challenges to fundamental features of the GDCE in two main aspects.

The reviewers question whether applicants are arriving to the diploma with sufficient background in epidemiology and statistics, whether they have sufficient interaction with faculty during the program, and whether they emerge with sufficiently advanced skills. It is important to note that although the diploma is not a degree, it is derived from the Health Research Methodology master's program. But we acknowledge that the program should take seriously the implied question about whether the program is meeting the needs of its graduates and challenge them to implement a rigorous, ongoing plan to evaluate this.

The reviewers raise questions about the program's "accessibility", by which they appear to mean barriers to enrolment due to the cost of tuition. This diploma program seems to successfully respond to widespread calls for flexible, part-time, online curriculum to address the growing barriers to traditional, full-time, in-person study. Furthermore, the program operates in the financial context of the Department of Health Research Methods, Evidence, and Impact, in which the accessibility of other educational programming is crucially supported from GDCE revenue. Nonetheless, we agree that the program will need to consider whether the international influence and reach of the program is a priority and how to support this, given the fees.

### **Quality Assurance Committee Recommendation:**

McMaster's Quality Assurance Committee (QAC) reviewed the above documentation at the April 2024, meeting. The committee recommends that the **Graduate Diploma in Clinical Epidemiology** program should follow the regular course of action with an 18-month progress report and subsequent full external cyclical review to be conducted no later than eight years after the start of the last review.