Queen’s University
Department of Public Health Sciences
EPID 813 : Chronic Disease Epidemiology
Fall 2017

Instructor: Harriet Richardson, PhD
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Office Hours: by appointment
Class Days/Times: Mondays/9:30-12:30
Location: Carruthers Hall, Third Floor
Co-requisites: EPID 801

Course Description:
This course will provide an overview of the epidemiology of some of the non-infectious diseases and will highlight the key methodological issues surrounding studies and the surveillance of such diseases. The first part of the course will describe the leading causes of morbidity and mortality in Canada and worldwide, measurement of disease burden, classification of diseases, methods of disease surveillance, and related epidemiological conceptual models. The second part of the course will present the natural history, patterns of occurrence, personal and economic burden, social and physical determinants, and interventions for the prevention and/or management of selected types of these chronic diseases.

Course Objectives:
After taking this course students will be able to:
✓ List the leading causes of morbidity and mortality in Canada and globally and describe their epidemiology
✓ Describe the public health burden of important chronic diseases
✓ Understand conceptual and methodological issues related to chronic diseases
✓ Formulate a research question and design a research study or a surveillance report in the area of chronic disease epidemiology

Resources:
There is no required textbook for this course. Course notes, handouts, selected readings, and other course materials are available on the EPID 813 Web space (onQ). Students are expected to study the readings before the class and be prepared for class discussions.
Recommended resources:


3. Public Health Agency of Canada
   b. Canadian Chronic Disease Surveillance System:

4. World Health Organization; Chronic Diseases and Health Promotion: http://www.who.int/chp/en/

Course Content:

The course is organized into two main sections:

1) Description of the most common and important chronic diseases in Canada and important methodological and measurement issues relevant to chronic disease epidemiology

2) The epidemiology, etiology, and prevention strategies of selected chronic diseases

Course Evaluations:

1) In-class quizzes: 30%
2) Co-teaching assignment: 20%
3) Term project: 50%
<table>
<thead>
<tr>
<th>LECTURE DATE</th>
<th>TOPIC(S) COVERED</th>
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| September 18      | - Course overview  
                      - Introduction to chronic disease epidemiology                              |
| September 25      | Quiz  
                      - Leading causes of morbidity and mortality  
                      - Measurement of the burden of diseases                                         |
| October 2         | Quiz  
                      - Classification systems  
                      - Surveillance  
                      - Epidemiological models for chronic disease: eco-social, life-course         |
| October 9         | Thanksgiving (no class)                                                         |
| October 16        | Quiz  
                      - Methodological issues (structural confounding, issues related to longitudinal data, multi-level nature of risk factors) |
| October 23        | Quiz  
                      - Cancer biology and etiology                                                  |
| October 30        | Quiz  
                      - Cancer control and prevention                                                 |
| November 6        | - Cardio-vascular diseases (hypertension, coronary heart diseases)              |
| November 13       | - Respiratory diseases (asthma, COPD)                                           |
| November 20       | - Diabetes and obesity                                                          |
| November 27       | - TDB-Class to select the disease                                                |
| Week of Nov 27th (TBD) | - Student presentations                                                        |
Evaluation and Grades:
• **In-class quizzes (5):** 30% of overall grade

Students are expected to take part in all classes and participate in class discussions. In-class quizzes will be about basic epidemiological concepts (design, measures of occurrence and association, internal validity, etc.) to review what we have learned in previous lectures and/or past epidemiological courses.

• **Co-teaching of a session:** 20% of overall grade (due dates vary)

The goal of this assignment is to provide some teaching opportunities for students and to enhance their presentations skills. Students (or groups of students) will meet the instructor and will be assigned to co-teach part of a class in the second section of the course. Extra readings and direct “one on one” mentoring will be provided.

• **Term Project: Epidemiology of a selected chronic disease and research proposal (50% of overall grade)**

Students are required to choose an important chronic disease. This disease should be relevant to the Canadian population and can **NOT** be the subject of their thesis or practicum. Also, it may not be one of the main selected diseases that are the subject of one of the lectures.

A list of potentially suitable diseases will be provided but students may also select other diseases given they are able to provide enough rationale for their choice. The assigned disease should be approved by the instructor by Oct 18. This work will be shaped and developed during the course by the instructor’s guidance and has four related components in the form of assignments:

  ➢ **Assignment 1:** 10% of overall grade (due Nov. 6)

In 2–3 pages, students will briefly describe their selected disease from a global and Canadian context; explain why this disease is important and what the public health burdens are. Additional questions that this assignment may address include: Are there sub-populations within Canada that are particularly vulnerable? What are the main contextual and individual risk factors for the disease? How may these risk factors disproportionally affect certain Canadian populations? All factual statements should be supported by reliable evidence such as global and Canadian statistics (PHAC, WHO, ...) and high quality (peer-reviewed) literature.
Assignment 2: 10% of overall grade (due Nov 20)

For this assignment, an epidemiological model that best explains the selected disease pathway will be proposed. The position should be evidence-based and supported by literature. The third lecture will provide theoretical background for this assignment.

Class presentation: 10% of overall grade (Week of Nov 27th)

In 10 minutes, students will present their work to the class and will be evaluated by their peers and the instructor. The goal is to receive feedback, clarify the research, and get prepared for the final part of the assignment.

Final report: 20% of overall grade (due Dec. 15)

Based on the findings in assignments 1 & 2 and the instructor and peer’s feedback, students will develop the last assignment after choosing one of the following options:

Option one: Research protocol

The student will propose a research protocol by designing an epidemiological study. The protocol should include an overview of the problem, rationale and objectives, description of the study population, study design, how to measure the rates of occurrence, risk factors, and how to calculate the burden of the disease, identify procedures may improve the validity of the study, proposed statistical analyses, and potential public health implications of the research.

Option two: Surveillance report

Students will prepare a surveillance report highlighting a real public health issue related to their chosen disease in a Canadian context. The report should include detailed surveillance information, recent changes in the rate of the disease, and potential reasons for these changes. They will suggest social and public health policy options for dealing with the disease at the population level.

Detailed description of assignments will be discussed during the course.