Epidemiology of Health Care
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1. Course Description

The course provides an overview of health services and population based research that is made possible using administrative data banks. Most of the examples come from the Manitoba Centre's Research Data Repository although research conducted with other administrative data sets is also reviewed. A primary focus of the course is on using data to understand key policy issues, including physician practice patterns, how the health care system functions, and the broader determinants of health and well-being including education, challenged family situations, and poverty. The course is offered for credit to students in the Masters and Doctoral programs in Community Health Sciences.

Participants in the course will have an opportunity to learn:

Web-based skills in searching for information. Much of the course content is available on the web at**:** http://mchp-appserv.cpe.umanitoba.ca/teaching/frames.htm
- ➢ Basic skills in computerized statistical analysis, using SAS$^{®}$ software*
- ➢ How the files in the Manitoba Health Research Data Base are developed and structured
- ➢ Potential research uses of the data base: what kinds of analyses can be done on the data base, what are its weaknesses and strengths, issues of validity and reliability in data base research
- ➢ What is meant by case-mix and severity of illness, quality or outcomes of care, regional variations in utilization of services, physician practice patterns
- ➢ How a population based perspective is different from, and complements an institution specific or health care systems perspective
- ➢ How health services research can be linked to and support health/social policy development
- ➢ How powerful it can be to combine social policy data and health data for understanding policy issues
- ➢ Brownell will teach 2 or 3 alternative sections on research using the social databases for those interested.

There will be weekly reading assignments requiring approximately 2-3 hours to prepare for class discussion. There will also be a term paper in which the student will be expected to analyze "simulated" computer files.

Computer Workshops: Workshops focusing on an important statistical analysis computer application—SAS—will also be offered. SAS stands for statistical analysis software; it is used by the researchers and programmers at MCHP to analyze the Manitoba Health Research Data Base. The SAS Workshops provide an overview of basic SAS techniques.

The workshop is broken down into five half-day sessions (or two full day sessions, held on a Saturday) and registered students are strongly encouraged to complete the workshops ASAP.

The SAS course covers the following material:
- Basic introduction to the SAS interface and programming syntax
  - Use of basic statistical procedures and working through the SAS documentation
  - Reading raw or external data sources
  - Combining data through set and merge
  - Array processing
  - First/Last processing

This is a SAS programming and data usage course.

A copy of the SAS workshop handout can be found on the web.
http://rha.cpe.umanitoba.ca/intro_sas/Complete_Handout_final_june2010.pdf

2. Course Materials:
Copies of the syllabus will be distributed in class. Copies of the Centre's supplements will also be distributed in class. Required readings will be distributed.

3. Requirements for Registered Students:
Weekly readings to permit timely class participation. Registered students are expected to develop questions related to the readings or general topic areas (4 or 5 questions on one page) to be handed in to the instructor at the beginning of each class. This will help ensure coverage of issues important to students.

Two critical review papers of approximately five pages each. Papers should provide a review and synthesis of the issues raised in the readings for a particular week and discuss both issues pertaining to use of administrative data and substantive issues. How do these articles illustrate the strengths and weaknesses of using administrative data? What do the articles substantively say about how the population uses/accesses/benefits from health care? What are the health care systems issues raised? All readings should be covered in these papers. Paper topics will be chosen during the first or second week of class in consultation with the instructors. Papers will be due at the beginning of the class in which the topic is covered.

A computer exercise to demonstrate familiarity with SAS. In order to do the computer exercise and research paper, students will be required to learn SAS. Think of SAS as a tool rather than an end in itself.

A research paper is due the last week of the term on a relevant topic of the student's choice. It is to be developed by conducting relevant analyses and interpretation of results using simulated Manitoba Health administrative data, which will be distributed on disk. The real purpose of this paper is to enable you to learn how to use data to answer research questions.

Possible paper topics include, but are not limited to:
- ➢ Comparison of hospital use across age groups;
- ➢ Differences in physician contact rates across Manitoba children;
- ➢ Characteristics of long stay cases;
- ➢ Antidepressant Use in Manitoba;
- ➢ Description of hospital case mix across regions;
- ➢ Comparison of hospitalizations for individuals receiving care in their region of residence versus those receiving care outside that region;
- ➢ Individual and area-level factors associated with who visits physicians for what
- ➢ Others that you may define.

First choice of a paper topic should be made in consultation with the instructor. The research papers should be drafted as an article, ready for submission to a journal. Include a pertinent literature review (brief), statement of research questions(s), methods section, results (with maximum of 10 well chosen tables) and conclusions. If a draft document is turned in 2 weeks before the due date, constructive suggestions will be made, providing an opportunity to do revisions. Papers will be due on the last class. The simulated Manitoba Health data disks must be returned at that time.

4. Grading:

Class participation and question development	**10%**
2 critical review papers (10 points each)	**20%**
Computer exercise	**20%**
Research paper	**50%**

A letter grade for the course will be assigned on the following scale:

A+ = 90-100	A = 80-89	B+ = 75-79	B = 70-74
C+ = 65-69	C = 60-64	D = 50-59	F < 50