

# CHSM 330

## Managerial Epidemiology for Healthcare

January 14-April 15, 2015

RYERSON UNIVERSITY

# Agenda

- Introductions
- Course Overview & Connections
- Evidence-Informed Decision-Making

# Introductions

- Name
- Background
- Issue of interest
- One goal for course
  - “My participation in this course will have been successful if...”

# CHSM 330 Course Overview

- Epidemiology is the study of the distribution and determinants of health-related states or events (including disease) in defined populations, and the application of this study to the control of diseases and other health problems.
- Managerial epidemiology the use of epidemiology in designing and managing the health care of populations.
- This course provides the basic background in epidemiology that health care managers need to make good decisions:
  - measurement of health and disease
  - designs for studying the health and health needs of populations
  - standardizing population health information
  - planning for populations and population health outcomes.

# Other Course Connections

- CHSM 301: The Health Care System
  - Health care topics
    - Public health, primary, secondary & long-term care
    - Consumer participation
  - Course evaluation methods
- CHIM 301: Health Information Analysis
  - Critical thinking skills
  - Evidence-based decision-making
  - Information for quality improvement
  - Hospital administrative data
  - Course evaluation methods

# CHSM 330 Learning Outcomes

- By the end of the course you will be able to:
  - Clearly articulate a management decision that needs to be made
  - Search for evidence from providers or programs, websites, and publications to address the management decision
  - Analyze, interpret and critically assess the significance of a published epidemiology research article
  - Correctly apply epidemiological methods to data
  - Quantify the issue using sources of existing evidence
  - Draw conclusions and develop recommendations based on (epidemiological) evidence
  - Communicate a management decision, the methods used to identify sources of evidence, the results, the conclusions and recommendations, and additional research that could be conducted.

# Course Text and Materials

## ➤ Required Textbook:

- Fos, P.J., & Fine, D.J. (2005). *Managerial Epidemiology for Health Care Organizations* (2nd Edition). Jossey-Bass, San Francisco.
  - On Library reserve

## ➤ Required Readings:

- Ardal S., *The Health Analyst's Toolkit*. MOHLTC, Health Analytics Branch, Winter 2012.
- Ardal S., Butler J., Edwards R., Lawrie L. *Module 1: The Planning Process - The Health Planner's Toolkit*. MOHLTC, 2006.
- Ardal S., Butler J., Edwards R., Lawrie L. *Module 2: Assessing Need - The Health Planner's Toolkit*. MOHLTC, 2006.
- Ardal S., Butler J., Edwards R., Lawrie L. *Module 3: Evidence-Based Planning - The Health Planner's Toolkit*. MOHLTC, 2006.
- Ardal S., Butler J., Edwards R. *Module 5: Community Engagement and Communication - The Health Planner's Toolkit*. MOHLTC, 2006

# Evaluation

ASSIGNMENT	%	DATE ASSIGNED	DUE DATE
1. Final Paper Outline	5	January 21	March 4
2. Exam	20	February 25	February 25
3. Epidemiology Article Critique			
A. Critique Rubric	15	Schedule for Critique Presentations assigned January 28	Articles posted February 25 & March 4 Presented March 11 & 18
B. Presentation and Peer Review Q & A	10		
4. Managerial Presentation and Peer Review Q & A	15	Schedule for Presentations assigned March 4	Presented April 1 & 8
5. Final Paper	30	January 21	April 15
6. Participation	5	Across the Term	Across the Term
Total	100		

# *Final Paper Outline: due March 4*

- The outline should include four sections with the following headings:
  - Issue and area of focus or management decision to be made
  - Preliminary research summary: citations plus an assessment of “evidence quality”
  - Preliminary findings in relation to management issue
  - Management decision discussion
- <http://writingcenter.waldenu.edu/318.htm>

# ***Multiple Choice & Short Answer Exam: February 25***

- Students will be tested on their knowledge of the course content covered to date
  - Lecture material
  - Fos and Fine Chapters 1-4
  - Required Readings

# ***Epidemiology Article Critique: due March 11 or 18***

- Choose one published journal article. It is strongly suggested that you select a journal article that relates to the topic that you will be covering for your final paper.
- Review the article and submit a 3-4 page critique using research design and methodological issues as suggestions.
- Present your critique and findings to your peers on one of the assigned dates.

# *Managerial Presentation: due April 1 or April 8*

- All students will present the topic of their (draft) final papers.
- The purpose of the presentation is to identify and discuss:
  - the issue under investigation, the methods used to study the area of research selected
  - the findings associated with the various studies (or the general findings summarized together based on the individual studies reviewed)
  - the findings' real world utility and how they relate to the management decision selected.
- All other students will submit brief peer review evaluations on your presentation, and this peer feedback should be incorporated into your final paper

# *Peer Review Participation*

- All students will be peer reviewers for other students' presentations.
- Specific:
  - Two students per Article Critique presentation will be specifically assigned to be peer reviewers for that presentation.
  - Assigned peer reviewers work together to create 3 questions for the presenter based on major themes you've learned throughout the course.
- General:
  - All students will submit brief peer review evaluations following the article and managerial presentations.
- All students are required to attend and submit peer review evaluations for all presentations to be given a participation grade.

# *Final Paper: due April 15*

- The paper applying epidemiology to managerial decision making is the core focus of your required work.
- Pick a particular application of epidemiology to managerial decision-making
  - policy proposal
  - needs assessment
  - a new project or program
  - program priority setting
  - a quality assurance issue
- 9-11 pages in length
  - see course syllabus for template
  - incorporating peer feedback from the presentation

# Course Schedule

January 14  
Week 1

Introduction to  
Course

Topic(s)

- Review Syllabus
- Discuss evidence-based planning and critical appraisal
- Identify possible projects

# Course Schedule

January 21  
Week 2

Module 1 - Epidemiology in  
health care administration

Topic(s)

- Define epidemiology and discuss uses of epidemiology (What can epidemiology do for me?)
- Discuss the history of epidemiology
- Discuss distinction between observational and experimental epidemiology
- Define managerial epidemiology
- Describe field of social epidemiology
- Discuss the concept of populations and population health care management

1) Fos and Fine Chapter 1

1) Ardal et al. Module 1 Section 2.  
What Are The Types of Health  
Planning?

1) Ardal et al. Module 1 Section 3.  
What Are Critical Success  
Factors in a Health Planning  
Process?

# Course Schedule

January 28  
Week 3

Module 2 - Description of  
health and information  
systems

Topic(s)

- Discuss the identification of a decision that needs to be made
- Discuss what is meant by health and disease
- Explain the uses of descriptive information
- Identify disease classification systems
- Describe sources of descriptive information
- Describe person variables
- Describe place variables
- Describe time variables

1) Fos and Fine, Chapter 2

1) Ardal, Health Analyst's Toolkit.  
Section 1. Knowledge

# Course Schedule

February 4

Week 4

Module 3 - Measurement of health and evaluating the evidence

Topic(s)

- Explain the use of counts in planning and managing.
- Discuss the importance of rates.
- Discuss the distinction between ratios and proportions.
- Discuss the distinction between and use of incidence and prevalence.
- Describe source and use of morbidity data.
- Describe source and use of mortality data.
- Describe health-related Quality of Life (QoL) indicators.

- 1) Fos & Fine, Chapter 3
- 2) Ardal et al. Module 2 Section 3 Health Needs Assessment Choices: “Burden of Disease” Indicators
- 3) Ardal et al. Module 3 Section 3 How do I Judge the Quality of Information?

# Course Schedule

February 11

Week 5

Module 4 - Designs for studying the health and health needs of populations

- Topic(s)
- Define needs assessment
- Discuss concept of risk
- Discuss concept of causation
- Describe observational study designs
- Contrast experimental and observational study designs
- Describe descriptive study designs
- Describe analytic study designs
- Explain the method of measuring the association between a suspected causal factor and an outcome
- Define the constructs relative risk, attributable risk, and odds ratio

Readings:

- 1) Fos & Fine, Chapter 4
- 2) Ardal et al. Module 2 Section 1  
What is Health Needs Assessment?

# Course Schedule

February 18	Study week. No class	No Class
February 25	Exam	No Readings

# Course Schedule

March 4

Module 5 -Standardizing population health information

Topic(s)

- Discuss the concept of confounding
- Discuss the concept of standardization
- Describe the method of direct standardization
- Describe the method indirect standardization
- Define the standardized morbidity ratio construct
- Define the standardized mortality ratio construct
- Compare and interpret crude and standardized rates
- Discuss the concept of risk adjustment
- Describe the process of stratification

Readings:

- 1) Fos & Fine, Chapter 5
- 2) Ardal et al. Module 3. Section 4. How do I Use Information with Confidence?

# Course Schedule

March 11	Presentations: Epidemiology research articles	Selected epidemiology research articles
March 18	Presentations: Epidemiology research articles	Selected epidemiology research articles

March 25

# Course Schedule

Module 6 - Planning and management in population health care

Topic(s)

- Discuss the concept of risk adjustment
- Explain the concept of error in measurement.
- Discuss validity and reliability.
- Define sensitivity, specificity, and predictive values.
- Explain the ROC curve.
- Explain the impact of infectious epidemics.
- Discuss surveillance.
- Describe the role of epidemiology in community health assessment.
- Discuss the impact of epidemiology in planning.
- Discuss the relevance of community engagement in planning.

Readings:

- 1) Fos and Fine, Chapters 6 & 7
- 2) Ardal et al. Module 5. Section 1. The Why and What of Community Engagement

# Course Schedule

April 1	Final Presentations	No readings
April 8	Final Presentations	No readings
April 15	Final Paper	No Class Final Papers are Due

QUESTIONS?

**How do we ensure that a bad  
management decision is made?**

**“Public health is not a cult -  
we use evidence...”**

David Butler Jones, Public Health Agency of Canada

# What is Evidence?

- Information based on experiences (professional or personal)
- Information gathered from patients/clients, carers, public
- Theory/models yet to be empirically substantiated (LeMay, 1999)
- ‘Knowledge derived from a variety of sources that have been found to be credible’ (Higgs & Jones 2000)
- In the context of evidence-based practice, usually means research published in professional and academic journals and systematic reviews of research
  - (eg. Cochrane Collaboration)
  - <http://www.cochrane.org/>

# What is Good Evidence?

Evidence is property that has significance as a means of determining the truth as an alleged matter of fact.

Huestis-Lakewood & Wilbon-Aurora 2002

# Evidence Gap in Health Care

- Consistent evidence of failure to translate research findings into practice
- 30-40% patients do not get treatments of proven effectiveness
- 20-25% patients get care that is not needed or potentially harmful

▶ Schuster, McGlynn, Brook (1998). *Milbank Memorial Quarterly*

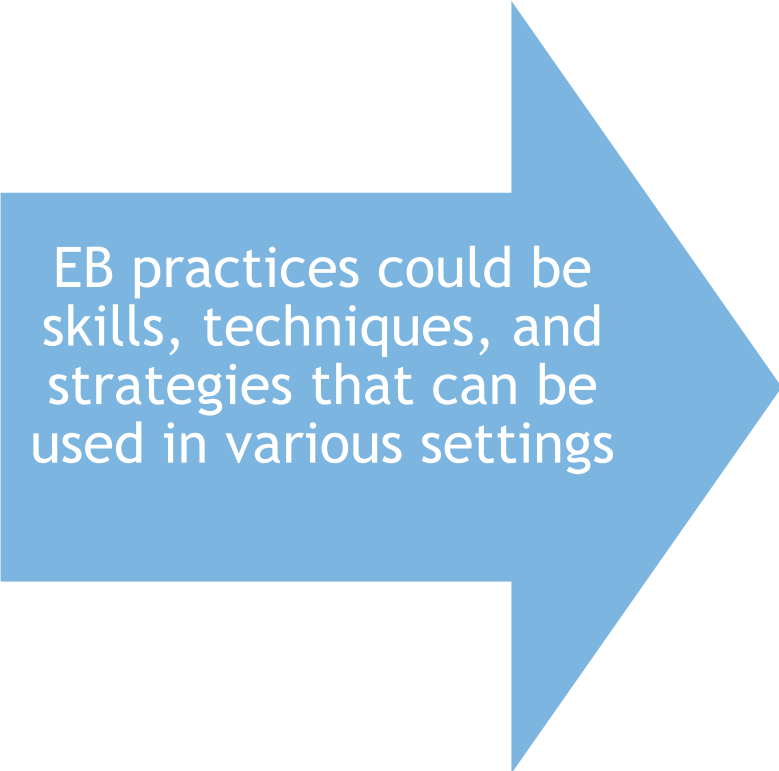
▶ Grol R (2001). *Med Care*

<http://www.choosingwiselycanada.org/>

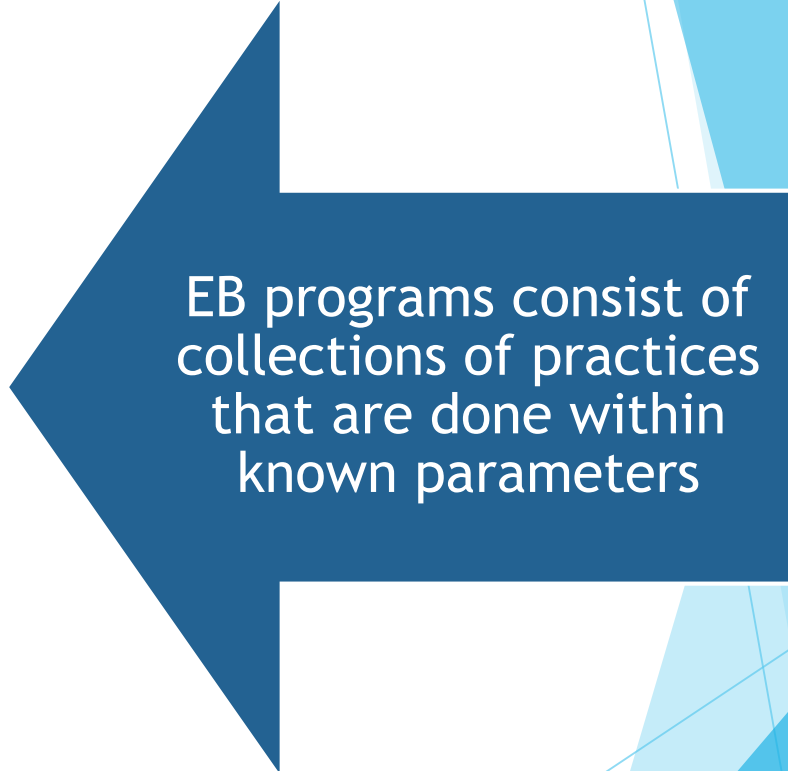
# Being 'evidence informed'

- Evidence about what is effective comes from research
  - from data gathered systematically by agencies (e.g. from local user consultations or service evaluations).
  - from large-scale academic studies
- Being 'evidence-informed' in your work implies a number of things:
  - asking challenging questions about current practice
  - knowing how and where to find relevant research
  - understanding key messages about what works

# Evidence-Based Practices VS. Evidence-Based Programs



EB practices could be skills, techniques, and strategies that can be used in various settings



EB programs consist of collections of practices that are done within known parameters

# Why the interest in evidence-informed programs and practices?

- **Accountability:** Increasingly required by funders within political climate
- **Efficiency:** Reduces development costs associated with creating a new program
- **Availability of good science:** Body of scientific evidence has reached a critical mass
- **Marketability:** Documented evidence can help sell and justify program
- **Ethics:** Responsibility to use what is known to be effective
- **Cost-effectiveness:** Increased likelihood that limited resources will be used wisely

# How Do We Practice EBP?

- “EBP is a life-long process of self-directed learning, in which caring for patients creates for the clinician a need for clinically important information about diagnosis, therapy, prognosis, and other clinical and health services issues. In this process, we:
  - Convert information needs into answerable questions (testable hypotheses)
  - Track down the best evidence with which to answer them
  - Critically appraise the evidence for validity and usefulness
  - Apply the results of this appraisal in clinical practice
  - Evaluate performance”

Kirby, 2004

# Evidence-Informed Decision-Making in Community Health



# What are some limitations of evidence-based programs & practices?

- Can be costly to implement in both time & money
- May not address particular issues or audiences
- Tend to be problem-focused
- May downplay local knowledge and community ownership
- Overlooks value of promising grassroots programs
- Often difficult to transport to new settings
- Not always easy to find
- Resistance?

# Barriers to using evidence in practice

- **Culture:** health & social services workers operate in a “verbal” culture & prefer face to face communication
- **Time:** heavy workloads & staff shortages = time pressure & find it difficult to find time to search for, evaluate and apply published research findings
- **Low priority:** practitioners struggle to prioritize research over the more immediate demands of practice
- **Poor communication** of research within organizations
- **Research is not timely or relevant** to user’s needs
- **Access:**
  - Technical issues e.g. access to the internet
  - Where technical access is possible, access to research evidence itself may not be.
- **Skills:**
  - Lack of IT skills
  - **Lack of information literacy/critical appraisal skills.**



National Collaborating Centre  
for Methods and Tools

Centre de collaboration nationale  
des méthodes et outils

sharing what **works**  
in public health

## NCCMT Learning Centre

<http://www.nccmt.ca/learningcentre/index.php?lang=en#main3.html>

### What is Evidence-Informed Public Health?

The process of distilling and disseminating the best available evidence from research, context and experience, and using that evidence to inform and improve public health practice and policy.



Put simply, it means finding, using and sharing what works in public health.

More information on the process is available in the [EIPH section of our website](#).

Login to NCMT to access resources in the Learning Centre

Log in

### Not already Registered?

Registration is free and simple!

Register today to start receiving your benefits:

- Access to NCCMT's online modules
- Track your progress and certification
- Receive news about upcoming NCCMT learning opportunities
- And more!

NCCMT's online learning opportunities are designed to support our seven-step process of

# Health Evidence™



**Helping public health use best evidence in practice**

[Home](#)

[SEARCH](#)  
[healthevidence.org](#)

[Products](#)

[Tools](#)

[Consultation](#)

[About Us](#)

Language: [EN](#) [FR](#)

[+ Share / Save](#)

**Find Evidence:** [Search healthevidence.org](#) for access to 4,032 quality-rated systematic reviews evaluating the **effectiveness of public health interventions**. We search the published literature and compile public health relevant reviews -- eliminating your need to search and screen individual databases. Join the 7,686 visitors that accessed our database this past month!

**Use Evidence:** Our [consultation](#) services assist individuals, teams, divisions and organizations in interpreting research evidence and applying it to program and policy decisions. Our [tools](#) support you along the way.



**New from Health Evidence**



**Health Evidence**  
@HealthEvidence

Check out our latest publication [goo.gl/yy714e](http://goo.gl/yy714e) re: challenges of collaboration in EIDM in public health  
Expand



**McMasterHealthForum**  
@MacHealthForum

.@Mac\_AgingNews delivers best available research evidence on #health & #aging [mcmasteroptimalaging.org](http://mcmasteroptimalaging.org)

# Conclusion

- Multiple influences on decision-making
- “Evidence-based” or “evidence-informed” decision-making has become *de rigeur*
  - EBM
  - EBP
  - EIPH
  - EIDM
- A fundamental management skill
- **Recognizing the broader context, our focus will be on finding, appraising, understanding and using epidemiological evidence to inform decision-making**

# Questions?

Next class:

- Epidemiology in Health Care Administration
  - Epidemiology a basic science for managing population health
    - History
    - Concepts
    - Role in health planning & management