

PUBH5010 Epidemiology Methods and Uses

Core

Credit points: 6

Semester: 1

Delivery mode: The unit will be provided in flexible mode i.e. it may be undertaken in face to face or online/ distance mode.

36 hours (3 hours per week for 12 weeks)

Pre-requisites: N/A

Co-requisites:

Prohibition: BSTA5011

Unit coordinator: Dr Tim Driscoll and A/Prof Alex Barratt,
School of Public Health

Summary

This unit provides students with core skills in epidemiology, particularly the ability to critically appraise public health and clinical epidemiological research literature.

This unit covers: study types; measures of frequency and association; selection bias; measurement bias; confounding / effect modification; systematic reviews; screening and test evaluation; infectious disease outbreaks; measuring public health impact and use and interpretation of population health data. It is expected that students spend an additional 2 hours preparing for their tutorials. This unit may be undertaken in face to face or online/distance mode.

Aim

To provide students with core skills in epidemiology, particularly the ability to critically appraise public health and clinical epidemiological research literature.

Learning objectives

At the end of this unit students will be able to:

- Identify whether the hypothesis of a paper is concerned with the efficacy of intervention, causality, test accuracy or determining the magnitude of the health problem.
- Identify which study type has been used, and judge how this affects the interpretation of the results.
- Calculate and interpret measures of disease frequency and measures of association.
- Identify and assess the implications of the main forms of bias (selection, measurement, confounding, lead time, and length bias) in epidemiological and clinical medicine research.
- Distinguish which of the methodological flaws in any paper are the most important.
- Assess the overall quality of a research paper or report concerned with:
 - Defining the magnitude of a health problem;
 - Evaluating the effect of a health intervention;
 - Causal inference;
 - Evaluating screening tests and interpreting their use in different

- populations.
- Assess the reliability, validity and efficacy of a diagnostic test.
- Critically appraise and use a systematic review.
- Assess infectious disease outbreaks.
- Be able to identify and interpret key sources of population health data.

Content

Study Types

- Measures of frequency
- Measures of association
- Use and interpretation of population health data
- Selection bias
- Information bias
- Confounding / effect modification
- Screening and test evaluation
- Infectious disease outbreaks
- Causal inference
- Measuring public health impact
- Systematic reviews

Instructional format

The unit is based on pre-reading, lectures and tutorials. Each topic is covered in a lecture and a two-hour tutorial (or equivalent on-line work). Lectures are on Tuesdays and tutorials on Thursdays. For each topic, exercises must be done for the tutorial, at which participants are expected to discuss their answers and the relevant epidemiological concepts. It is expected that students spend an additional 2-3 hours preparing for their tutorials.

There will be a limited number of on-line tutorial groups and students will need to nominate themselves for these groups. Those with a genuine reason (e.g. not living in Sydney) will be given preference.

Assessment

1 x 4 page Mid-semester assignment 30%

1 x 2.5 hr end of semester open-book exam 70%

The final examination for this unit of study will be held at the University of Sydney. A student who participates in an online tutorial group may nominate an alternative venue and supervisor for this exam, but will need to make appropriate arrangements for supervision, based on criteria provided by the School. The venue and arrangements must meet the requirements of the School. If these requirements cannot be met, the student will be required to attend the final examination at the University of Sydney.

Learning materials

Recommended texts:

Textbooks

Webb, P.W., Bain, C.J. and Pirozzo, S.L: *Essential Epidemiology: An Introduction for Students and Health Professionals*: Cambridge University Press 2005.

Other good books:

Beaglehole, R. (1993) *Basic Epidemiology*. Geneva: World Health Organisation.

Hennekens, CH., Buring, J. (1987). *Epidemiology in Medicine*. Boston: Little, Brown.

Further references are given for each topic throughout the unit.

Notes

Access to a computer linked to the internet will be required to use WebCT. Students can access WebCT using the computers in the student laboratory located on campus in the School of Public Health. Students who wish to study off campus will have to make their own arrangements for computer and internet access.