

CHRONIC DISEASE EPIDEMIOLOGY DEPARTMENT

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Epidemiology is the study of the frequency, distribution, and causes of diseases in human populations. Chronic Disease Epidemiology (CDE) aims to enhance understanding about the determinants of chronic diseases in populations and how to intervene most effectively to reduce morbidity and mortality due to chronic diseases. CDE strives to advance public health by promoting a research-based approach to the prevention and management of chronic disease. By focusing on the health of populations, as opposed to individuals, CDE utilizes places (neighborhoods, cities, states, countries), institutions (schools, housing developments, correctional facilities, workplaces), and health care facilities (newborn nurseries, nursing homes, public health clinics, hospitals) as its laboratories.

CDE students learn how to identify the types of data needed, choose appropriate data collection methods, collect the data, and analyze the data appropriately so that the whole research effort leads to the improvement of the health of populations. The CDE curriculum emphasizes critical thinking, based on thorough knowledge of research methods, and its application to the scientific literature, to the development of research protocols, and to the design, implementation, and analysis of epidemiologic investigations. A principal research instrument of the chronic disease epidemiologist is often the questionnaire. The development of valid, reliable, and unambiguous questionnaires is a skill taught to all CDE students. Increasingly, epidemiologists also make use of genetic and biologic markers to indicate exposure to potentially damaging agents or as signs of increased susceptibility to or early onset of disease. Students learn the role of these methodologies throughout the program through course work, seminars, and practicum experiences.

Students learn about the role of epidemiology in a broad range of public health and medical areas, including the fields of aging, cancer, cardiovascular disease, global health, molecular and genetic epidemiology, perinatal and reproductive epidemiology, and psychosocial epidemiology, all areas in which the CDE department has particular strength. Among the resources available to students are the Yale Cancer Center; the Connecticut Tumor Registry (the oldest of its kind in the world); the Center for Perinatal, Pediatric, and Environmental Epidemiology; the Yale Program on Aging; and the Center for Interdisciplinary Research on AIDS. M.P.H. graduates of the CDE department find employment in a variety of research, public health practice, and advocacy settings, including academic institutions; public health agencies at the international, national, state, and local levels; the pharmaceutical industry; charitable foundations; and a variety of other nonprofit organizations. For example, graduates may obtain positions in such federal agencies as the National Institutes of Health (NIH) or the Centers for Disease Control and Prevention (CDC). Nonprofit agencies, such as cancer or heart associations, also recruit graduates to participate in or direct community health programs. Private industries, including pharmaceutical companies, find the quantitative skills of CDE graduates useful in monitoring drug safety and

in conducting clinical research. Many CDE graduates subsequently pursue doctoral degrees in public health or other professional or academic fields.

DEPARTMENTAL REQUIREMENTS

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| BIS 505 | Biostatistics in Public Health II | 1 |
| CDE 516 | Principles of Epidemiology II ¹ | 1 |
| CDE 525 | Seminar in Chronic Disease Epidemiology ¹ | 0 |
| CDE 526 | Seminar in Chronic Disease Epidemiology ¹ | 0 |
| CDE 534 | Applied Analytic Methods in Epidemiology ¹ | 1 |
| EPH 525 | Thesis | 2 |

¹ Must be completed in the first year.

One of the following:

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| BIS 540 | Fundamentals of Clinical Trials | 1 |
| BIS 621 | Regression Models for Public Health | 1 |
| BIS 623 | Advanced Regression Models | 1 |
| BIS 628 | Longitudinal and Multilevel Data Analysis | 1 |
| BIS 630 | Applied Survival Analysis | 1 |

One of the following:

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| CDE 532 | Epidemiology of Cancer | 1 |
| CDE 535 | Epidemiology of Heart Disease and Stroke | 1 |
| CDE 562 | Nutrition and Chronic Disease | 1 |
| EHS/CDE 502 | Physiology for Public Health | 1 |

Chronic Disease Epidemiology students are advised to take *two* additional CDE elective courses.

COMPETENCIES

Upon receiving an M.P.H. with a concentration in Chronic Disease Epidemiology, the student will be able to:

- Create and manipulate data sets and variables to evaluate epidemiologic associations.
- Conduct and interpret a multivariable linear regression analysis to evaluate epidemiologic associations.
- Conduct and interpret a multivariable logistic regression analysis to evaluate epidemiologic associations.
- Understand the application and interpretation of survival analysis in epidemiologic studies.
- Understand the principles of meta-analysis and interpret a meta-analysis study.