Public Health

- ◊ Biostatistician
- ◊ Environmental Scientist
- ◊ Health Educator
- ◊ Health Policy and Management
- ◊ Epidemiologist

Workers in public health fields focus on the community, national, and global health of entire populations rather than individuals and prevention rather than treatment after people are already sick or injured. They identify global, national, or community groups at risk for disease, develop public policy initiatives that address health problems, and work to ensure that all individuals receive adequate health care. All public health specialists work towards the ultimate goal of health promotion and disease prevention, but they differ in their methods and roles. They work as leaders, managers, educators, program designers and evaluators, policy analysts, advocates, and researchers. Public health fields are numerous. The main divisions include: biostatistics, environmental health, epidemiology, health education/behavior, health policy and management, international health, as well as others.

Academic Requirements

Completion of a Masters of Public Health (MPH) degree prepares one to work in the field. Other master's level degrees are also possible. Attending an accredited school of public health is recommended. Programs are one to two years in length. Undergraduate prerequisites may include: one year of college math, one year of natural sciences (biology, chemistry, physics), humanities, and social science courses. Particular fields prefer additional classes: two years of calculus for biostatistics; substantial biology and chemistry for environmental health and epidemology; sociology, education, psychology, and anthropology for health education/behavior; and a second language for international health. Experience relevant to public health is also preferred. Advanced degrees such as DrPH and PhD are usually needed for those who want to do research and/or teach.

Because of the diverse scope of public health, public health degrees can be combined with degrees in many fields: medicine, nursing, dentistry, social work, nutrition, engineering, law, veterinary medicine, and others.

◊ Biostatistician

Career Description:

Biostatisticians use statistical methodology to investigate and characterize health-related information. Biostatisticians also use their expertise in sampling and statistical significance to assist health investigators. They might estimate the percentage of a certain population likely to develop a disease, consider the likelihood of disease transmission, or examine data from clinical trials to determine methods for intervention. They may specialize in demograpics or health data systems, and vital statistics. Biostatisticians can find employment in the following places: federal, state, and local health departments; private institutions; and education, research, and policy organizations.
Usually biostatisticians have a master's or doctoral degree, however those with a bachelor's degree can gain employment. Due to a shortage of biostatisticians job prospects for new master's and PhD graduates are excellent.

Salary:

Salary range earned within one year of MPH graduation: $33,000 - $63,000

Resource:

American Statistical Association

◊ Environmental Health Scientists

Career Description:

Environmental health scientists develop, implement, and evaluate standards and systems to improve the physical environment as it affects health. They manage environmental health problems and promote awareness of the need to prevent and eliminate environmental health hazards. In this field one may concentrate on the following specialties: food protection, radiological health, occupational health, sanitation, water and air quality and resources, and toxicology.
Employment can be in all levels of government, consulting, health care, and industry. Entry-level positions exist but a master's or doctoral degree enables advancement.

Salary:

Salary range earned within one year of MPH graduation: $44,550 - $143,700

Resource:

Association of Schools of Public Health

◊ Health Educator

Career Description:

Public health educators design, implement, and evaluate behavioral, social, and political change strategies. They promote good health by educating the public about the causes of disease and the means of prevention on a community-wide level. Health educators are employed by health departments, national associations, schools, hospitals, industry, media, and community organizations. Entry-level positions require a bachelor's degree. A master's degree is recommended for advancement to supervisory levels.
Public health educators can specialize in the following areas:
Behavioral sciences, public health education, school health education, and communications theory and health media.

Salary:

Salary range earned within one year of MPH graduation: $33,000 - $86,630

Resource:

Association of Schools of Public Health

◊ Health Policy and Management

Career Description:

Those working in health policy analyze, develop, and evaluate health systems and policies and their impact on the health of populations, especially high risk and vulnerable groups, taking in to account the broader economic, political, and social contexts that shape the nation's health. Professionals trained in health policy and management have a wide range of employment options. These include employment in federal health agencies such as the CDC (Centers for Disease Control and Prevention), the FDA (Food and Drug Administration), legislative offices, and state and local health departments. They also work in academic settings, medical centers, issue-focused advocacy organizations, and for pharmaceutical firms and health care organizations.
Some entry-level positions exist for those with bachelor's degrees. Master's level and beyond is needed for most positions or for advancement.

Salary:

Salary range earned within one year of MPH graduation: $30,000 - $150,000

◊ Epidemiologist

Career Description:

Epidemiologists analyze the occurrence and distribution of disease and disability within a population by determining possible causes and evaluating and developing intervention programs. They usually work for universities; research organizations; federal, state, and local health agencies; and private industry, including biotechnical and pharmaceutical firms. Many epidemiologists are employed by the Centers for Disease Control (CDC) where they work to analyze and eradicate diseases affecting populations. Epidemiologists should have either a master's or doctoral degree.

Epidemiologists may specialize in the following fields:
Infections Disease
Chronic disease
Environmental/occupational epidemiology
Psycho/social epidemiology
Health care evaluations
Human genetics

Salary:

Salary range earned within one year of MPH graduation: $38,175 – $136,237

Resources:

American College of Epidemiology
Council of State and Territorial Epidemiologists
Association of Schools of Public Health

Sources: Association of Schools of Public Health, Faces of Public Health, National Health Council, University of Michigan School of Public Health, and whatispublichealth.org

Health Careers Program
Cornell Career Services
103 Barnes Hall
career.cornell.edu

Distinctions Between Medicine & Public Health

Medicine	**Public Health**
Primary focus on individual	Primary focus on population
Personal service ethic, in the context of social responsibilities	Public service ethic, as an extension of concerns for the individual
Emphasis on disease diagnosis, treatment and care for the individual patient	Emphasis on disease prevention and health promotion for the whole community
Medical paradigm places predominant emphasis on medical care	Public health paradigm employs a spectrum of interventions aimed at the environment, human behavior and lifestyle, and medical care
Uniform system for certifying specialists beyond professional medical degree	Variable certification of specialists beyond professional public health degree
Lines of specialization organized, for example, by: -*organ system (cardiology, neurology*) -*patient group* (*obstetrics, pediatrics*) -*etiology and pathophysiology* (*infectious disease, oncology*) -*technical skill* (*radiology, surgery*)	Lines of specialization organized, for example, by: -*analytical method* (*epidemiology, toxicology*) -*setting and population* (*occupational health, international health*) -*substantive health promotion* (*environmental health, nutrition*)
Biological sciences central, stimulated by needs of patients; research moves between laboratory and bedside	Biological sciences central, stimulated by major threats to the health of populations; research moves between laboratory and field
Numerical sciences increasing in prominence, though still a relatively minor part of training	Numerical sciences an essential feature of analysis and training
Social sciences tend to be an elective part of medical education	Social sciences an integral part of public health education

Courtesy: Harvard School of Public Health