What is public health?

The Institute of Medicine has a simple definition for public health: what society does collectively to assure the conditions for people to be healthy. Finding the evidence that helps create those conditions is a critical responsibility for a school of public health. The impact is tremendous: more than 70 percent of health comes from prevention and factors outside of any individual’s control.

THE SCIENCE OF PREVENTION

Public health is responsible for everything from clean air and water to safe workplaces; from controlling the spread of infectious diseases and preventing chronic diseases to improving prenatal nutrition; from reducing automobile accidents to designing quality health systems. Partnering with national and local governments, public health scientists respond to natural disasters, pandemics, and any other threat to population health. And while medicine is vital for each of us when we get sick, public health benefits everyone, young and old, rich and poor, healthy and unhealthy, millions at a time, and in ways that ensure health beyond what any of us alone can accomplish.

Understanding the links between tuberculosis and overcrowding in turn-of-the-century New York City brought about massive changes in housing, sanitation, and treatment—and a dramatically lower rate of TB infection.

To expand access to antiretroviral HIV medication across sub-Saharan Africa, massive systems were designed to create access to medicine and care, and improve disease prevention in countries without any reliable healthcare infrastructure, saving millions of lives and changing the course of the AIDS pandemic.

Researching the effects of carbon emissions from New York City’s buses on health led to the widespread use of hybrid-electric or compressed natural gas vehicles, dramatically reducing both air pollution and asthma all over the city.
What is Public Health?

Although the history of public health is filled with important discoveries, this is a science that thrives on continuous exploration. Public health scientists examine familiar areas of disease, disability, and safety, as well as conditions that alter the health landscape such as technological advancement, novel infections, and environmental shifts.

The field is divided into several areas of specialty, each with its own approach to improving health. Epidemiology is the cornerstone science of public health defining the causes, distribution, and prevention of disease and disability. When populations experience the effects of ill health, epidemiologists find solutions. Biostatistics, with the capacity to measure, monitor, and analyze complex data, is a force in population sciences, from genetics to precision medicine, from brain science to clinical trials. Biostatisticians extract meaning from big data, leading us to quantifiable evidence used by all public health disciplines.

Environmental Health Sciences examines our environment to explain how it contributes to health, whether measuring the effect of toxic substances on brain development, reducing levels of arsenic found in drinking water, or understanding how climate change and air pollution affect health. When health is impaired due to social forces such as racism, homelessness, or homophobia, Sociomedical Sciences is called upon to explain and alleviate the burdens of ill health.

Considering topics like humanitarian assistance, migration, and reproductive health, Population and Family Health studies the unique issues that affect health for the most vulnerable, including children, refugees, and expectant mothers. Health Policy and Management evaluates health systems to build knowledge of how nations and local organizations can deliver more health at lower cost. Researchers train professionals to become leaders everywhere—from government to nonprofits, from hospitals to the insurance industry.