

environmental health sciences

state environmentalist



State Environmentalist Checkpoint

Do you have a strong science background?

Are you willing to work with the business community, particularly planners and developers, to help maintain a safe environment for all?

Are you concerned about environmental problems and their effects on the health of populations?

If so, read on

A TRUE TALE

Thomas Burke, PhD, MPH, was raised in New Jersey. “As a kid growing up in that area in the ‘50s and ‘60s, you were really aware of your environment,” he says. Those were times prior to environmental controls, when apartment house incinerators burned every night and there was very little regard for environmental protection. He recalls, “With the smokestacks cranking in the background, my friends and I would go swimming in the river. Sometimes we would leave on our undershirts and shorts, and we’d always get in trouble because our clothes would never be white again.”



Thomas Burke, PhD, MPH

and educationally challenged children” in a high school in his hometown. The challenges of working with inner-city kids spurred his interest in public health and making a difference to the “big picture.” It was enough to send him back to school to seek a master’s in public health.

After receiving his MPH from the University of Texas, Dr. Burke served for ten years as Director of the Office of Science and Research in the New Jersey Department of Environmental Protection and as Assistant Commissioner for Occupational and Environmental Health. In 1986, Dr. Burke became New Jersey’s Deputy Commissioner of Health. While working in New Jersey, he completed his doctorate in epidemiology at the University of Pennsylvania. Later, he was offered and seized the opportunity to become an Associate Professor at the Johns Hopkins

After graduating from St. Peter’s College with a bachelor’s degree in science, Dr. Burke went on to teach science to a class of “socially

“One absolutely terrific thing about a career in environmental health is that it is never static. This tremendously evolving field presents constant new challenges. With sound scientific training, you can be working on the cutting edge of the nation’s public health issues.”

Bloomberg School of Public Health, where he focuses on environmental health science, epidemiology, risk assessment and public policy. Dr. Burke says he accepted the position because it allowed him to return to his first love, teaching.

Profiling the job

The major role of environmental health science (EHS) is to understand and identify those critical environmental exposures which may adversely impact human health. For someone who is interested in a career in the field, a strong science background is essential. Additionally, Dr. Burke says, an MPH can be a tremendous benefit because it provides a multidisciplinary foundation that allows people to be effective in management, epidemiology and biostatistics, and to bring a full kit of tools to any potential employer. An MPH also instills a broad problem-solving perspective, which is extremely important in this field.

The environmental health practitioner looking to subspecialize has many areas from which to choose. Toxicology is a good example of a busy subspecialty. This subspecialty includes bench scientists, who perform laboratory experiments on animals to determine if certain environmental threats may cause harm to the public, and field scientists, who collect data in the field and perform environmental evaluation. In fall 2001, it was the field scientists who were on hand when the Hart Senate Office building was examined for anthrax. Field scientists also evaluate water supplies and research ways to avoid impacting the environment adversely.

Another popular area of this discipline is public policy, which offers an opportunity to fashion environmental legislation. “Environmental law is a large part of what we do,” Dr. Burke says. One example of environmental law is The Clean Air Act, which creates a regulatory approach that allows the state or federal government to take control of a potentially harmful source of air pollution. The Clean Water Act operates similarly, and its enforcement allows people to drink water from almost any faucet in a public place with the assurance that the water is not contaminated. Dr. Burke initiated both these laws and was also personally involved in the shaping of the national Superfund, a law promoting the cleanup of hazardous waste sites, which gives states the resources to address toxic waste hazards in communities.



Did you know?
The average American home contains 3–10 gallons of hazardous materials.¹



Did you know? EPA studies of human exposure to air pollutants indicate that indoor levels of many pollutants may be 2–5 times, and occasionally, more than 100 times higher than outdoor levels. Cleaning products and other household products are among the many culprits.²

Today, environmental health is being redefined with a view that the environment and the community are one and the same. Accordingly, environmental health plays a role in community planning. On the state level, EHS faces the challenge of addressing the balance between the needs of the business community and commercial developers, and maintaining a safe environment. On the local level, almost every community has specific environmental problems, such as contaminated well fields and local factories that may pose pollution problems. Many local environmental health issues fall outside the reach of national environmental laws. “Interview local health officers, and you get a very different perspective than you get in academia or in Washington,” says Dr. Burke. “Many of their concerns are very specific. For example, rapid development has led to degraded water quality at our bathing beaches, preventing swimming at these locations. We’re losing these critical community resources and it’s a shame.”

“Urban sprawl” is another current EHS concern. Although a clear definition of sprawl remains elusive — some call it urban-like development outside of central urban areas — the concern is that unrestricted and poorly planned growth and low-density residential development threaten open spaces and farmland, increase public service costs, send unnecessary networks of roads cascading across once fertile fields and, most importantly, may degrade the environment. With good land-use planning, however, EHS practitioners may manage newly developed land so that urban development and growth enhance the quality of life and at the same time protect the health of the community’s citizens.

A day in the life

Once a state environmentalist, Dr. Burke is now in academia. But, he is not the typical academic environmentalist. Hopkins is an unusual place, where he may regularly meet with the Department of Defense on terrorism issues or the Department of Agriculture on food cultivation issues. He chairs the advisory committee to the Director of Environmental Health at the Center for Environmental Health, a position that keeps him directly involved in national scientific challenges and the practical issues of environmental health. He also works closely with the Centers for Disease Control and Prevention.

The most current issues of the field drive a typical day in the life of an environmental health scientist, with each day presenting fresh and varied tasks.

In fact, says Dr. Burke, the best aspect of environmental health practice is that there's never really a "typical day." Currently, he is working almost exclusively on addressing environmental health issues related to terrorism. "We have studies taking place at the World Trade Center to evaluate the health of the recovery workers at Ground Zero. We have conducted studies on the health of the firefighters who were there, and we are now looking at the recovery workers and the Teamsters still there." The safety of the postal system is a paramount concern, and his group is working assiduously on methods to sanitize the mail to prevent another anthrax situation.

career at a glance

Thomas Burke, PhD, MPH

2002–Present	Professor Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health
2001–Present	Director Johns Hopkins Bloomberg School of Public Health newly formed task force, Scientists Working to Address Terrorism (SWAT)
2000–Present	Member Institute of Medicine Panel, "Assuring the Health of the Public in the 21st Century"
1995–Present	Founding Co-Director Risk Sciences and Public Policy Institute, the Johns Hopkins University School of Hygiene and Public Health
1994–2002	Associate Professor Department of Health Policy and Management, the Johns Hopkins University School of Hygiene and Public Health
1990–1994	Assistant Professor Department of Health Policy and Management, the Johns Hopkins, University School of Hygiene and Public Health
1987–1990	Deputy Commissioner New Jersey Department of Health
1986–1987	Assistant Commissioner New Jersey Department of Health
1980–1986	Director Office of Science and Research, New Jersey Department of Environmental Protection
1977–1980	Research Scientist Office of Cancer and Toxic Substances Research, New Jersey Department of Environmental Protection
1976–1977	Public Health Trainee University of Texas, Health Science Center at Houston, School of Public Health
1974–1975	Teacher of Health, Biology and Mathematics Alternate High School, Patrick House Community Health Center



"Unless we understand basic issues, such as the major public health challenges faced by a population or a community, public health doesn't work."

Thomas Burke,
PhD, MPH

1 http://www.ems.org/household_cleaners/facts.html
2 http://www.ems.org/household_cleaners/facts.html

THE SANITARIAN IN PUBLIC HEALTH

“The environmentalist — also known as a sanitarian — is the key resource of environmental health,” says William Parker, a registered professional environmentalist. Sanitarians serve as the public’s guardians against unsafe and unhealthy environmental practices and conditions. In communities across the country, they work to ensure the safety and quality of air, water and food. These professionals are responsible for work in solid waste management, disease vector control and the handling and disposal of hazardous material. They play a vital role in environmental assessments, developing environmental policy and advocating for sound environmental health policies and practices.

As a sanitarian in the Environmental Sanitation Division of the Metropolitan Health Department in Nashville, Tennessee, Parker spends most of his time enforcing local and state health and sanitation codes on all private and public properties within the city. “I’m constantly dealing with situations of overgrown vegetation, illegal dumping and unsanitary conditions created by things like faulty plumbing that might possibly pollute our water supply. I also proactively seek out environmental problems and refer them to the proper environmentalists.” Parker works closely with neighborhood organizations, governmental agencies outside his own department and elected officials to offer training sessions and strategy planning on issues of environmental health. He updates and develops environmental health codes in Memphis to keep them effective and current. “Investigating citizens’ complaints of environmental problems is a challenging aspect of the job, but finding solutions, an even more challenging aspect of my work, is always extremely rewarding,” Parker says.