

# Enhancing the Maryland Environmental Public Health Workforce: A Collaborative Approach

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## Abstract

The practice of environmental public health (EPH)—ensuring food, water, and sanitation protection—is the traditional cornerstone of public health. Demands on the EPH infrastructure have broadened, however, to involve issues such as chemical and physical hazards in the environment, the role of the built environment in health, and disaster preparedness. Maryland, with its varied geography and population densities, faces many of the EPH challenges that are present elsewhere throughout the nation. A strong and stable EPH workforce is an essential ingredient in addressing these challenges. Yet significant workforce obstacles exist, including recruitment shortfalls, inability to retain qualified staff, impending retirements, inadequate training opportunities, insufficient compensation, and the absence of a robust career advancement pathway.

Recognizing the importance of EPH protection for Maryland's future, state and local agencies and academic institutions are working collaboratively to address EPH challenges. Much progress has been made: Communication and interaction between state and local agencies have been strengthened; practitioners and academic institutions have collaborated to improve EPH training opportunities; and workforce development efforts have been made to address recruitment and retention challenges.

Although there have been significant accomplishments, much work remains. It is imperative that these efforts continue and that they be supported at all levels of government. Coordination and communication, as well as the training, recruitment, and retention of the workforce, are critical to a strong and responsive EPH infrastructure.

## Introduction

According to *Healthy People 2010*, a strong public health infrastructure is necessary for fulfillment of the mission of public health, which includes preventing epidemics and the spread of disease, protecting against environmental hazards, preventing injuries, and helping communities to recover from disasters (U.S. Department of Health and Human Services, 2000).

Environmental health is a major component of this infrastructure. The Pew Environmental Health Commission defines environmental health as “those aspects of human health, including quality of life, that are determined by interactions with physical, chemical, biological and social factors in the environment. It also refers to the theory and practice of assessing, correcting, controlling, and preventing those factors in the environment that may

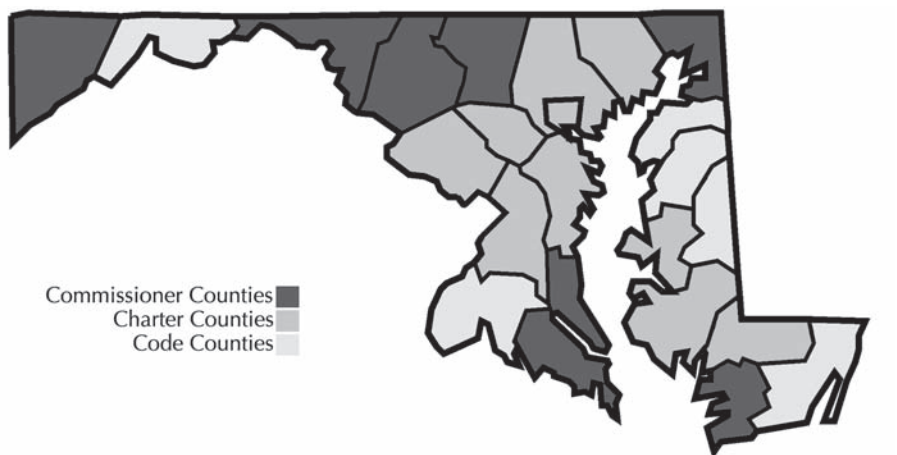
adversely affect the health of present and future generations” (2001, p. 6).

Several studies have found the environmental public health (EPH) infrastructure to be inadequate. According to the Institute of Medicine's 1988 report, *The Future of Public Health* report, “the removal of environmental health authority from public health agencies has led to fragmented responsibility, lack of coordination, and inadequate attention to the public health dimensions of environmental issues” (1988, p. 13). In 2001, the Pew Environmental Health Commission found that there is a lack of capacity in public health agencies at the state and local levels to address both existing and emerging environmental health threats.

Today, ensuring the safety of the food and water supply and the adequacy of sanitation remain the cornerstones of EPH. Demands on the EPH infrastructure have, however, broadened to involve issues such as chemical and physical hazards in the environment, the impact of the built environment on health, and disaster preparedness. Maryland, although small in total land mass, faces many of the EPH challenges present throughout the nation, in part as a result of its varied geography and population densities. Maryland's continued population growth, of nearly 1,000 new residents every week, has resulted in a 37 percent population increase over the last three decades. Over this same period, increasing sprawl has resulted in a 124 percent increase in the amount of land developed to accommodate this increasing population (National Geographic Society, 2002). Significant attention and resources have been provided for schools and roads to accommodate increasing populations. The burden placed on EPH services, however, is just as important, although not as

## FIGURE 1

Forms of Government in Maryland, by County



well known or provided for. As the demand for well and septic permits and food facility inspections increases, so too does the need to manage EPH problems related to increased development, such as sanitary sewer overflows, rodent activity, and threats to groundwater (U.S. Environmental Protection Agency, 2006).

In an attempt to document the demands on the EPH infrastructure and its capacities, the Johns Hopkins Center for Excellence in Environmental Public Health Practice (JHU Center), initiated the *Profile of Maryland Environmental Public Health Practice* report (*Profile*) in 2003 (JHU Center, 2003). Research for the *Profile*, funded by the Centers for Disease Control and Prevention (CDC), was conducted in collaboration with Maryland state and local health officials. The *Profile* findings, summarized in this article, provide an assessment of frontline EPH practice strengths and challenges.

### Maryland Environmental Public Health Structure

Maryland's county government structure forms the basis of the EPH infrastructure. According to Maryland law, each county is required to have a board of health. This board nominates a county health officer, who is appointed by the state secretary of health and mental hygiene. Consequently, all 24 jurisdictions in the state are required to have health departments (Maryland Association of Counties, 2004). Baltimore City, whose health commissioner is appointed by the mayor of Baltimore, is regarded as equivalent to a county jurisdiction.

As illustrated in Figure 1, there are three types of counties in Maryland:

- **Commissioner counties (eight counties)** are prohibited from creating new laws and regulations without the prior consent of the Maryland General Assembly. Commissioner counties cannot have any individual-county EPH laws or regulations without approval from the state legislature.
- **Charter counties (10 counties):** Voters have approved a formal charter (the equivalent of a county constitution) that provides executive and legislative powers to the elected executive, council, or administrator. The ability to legislate on EPH matters varies according to the counties' individual charters.
- **Code counties (six counties):** Voters have elected to provide home-rule powers to their commissioners, allowing the commissioners to legislate on all matters without prior approval from the general assembly. Consequently, code counties can develop EPH ordinances and regulations independently.

The form of the county government has significant implications for local EPH operations. Code counties, for example, can generally develop new laws or modify existing laws more easily than commissioner counties can, giving them greater flexibility to address emerging EPH issues. County government differences also pose challenges to the development of statewide approaches to EPH protection.

As outlined in Table 1, Maryland EPH services are delivered by multiple state and local agencies. At the state level, although agencies such as the Department of Agriculture and the Department of Natural Resources conduct some activities, the bulk of EPH practice is conducted by the Maryland Department of Envi-

ronment (MDE) and the Department of Health and Mental Hygiene (DHMH). These agencies, although responsible for different functions today, share a common history. Just as the U.S. Environmental Protection Agency (U.S. EPA) was created in 1970 from programs primarily within the Department of Health and Human Services (DHHS), MDE was established in 1987 from programs primarily within DHMH's Office of Environmental Programs (Maryland State Archives, 2006).

Local EPH services are generally delivered by an EPH division housed within a county health department. These local EPH divisions carry out the rules and regulations promulgated by state legislators via MDE and DHMH as well as legislation created by county governments (Table 1).

### Challenges

The *Maryland Profile* report provided an assessment of local EPH capacity. The *Profile* revealed a dedicated and responsive workforce facing many challenges due to a neglected and underfunded infrastructure. The full *Profile* report is available at the JHU Center Web site: [www.jhsph.edu/ecehp/Profile%20Report%20Page.html](http://www.jhsph.edu/ecehp/Profile%20Report%20Page.html).

Key findings included the following:

- EPH funding is vulnerable to budget cuts, which could be alleviated with dedicated funding for core EPH programs.
- Adequate compensation and career opportunities are needed to recruit and retain a strong and responsive EPH workforce.
- Training is needed for EPH professionals to maintain and enhance their technical knowledge to adequately address issues such as terrorism, natural disasters, and other emerging EPH threats.
- Coordination and communication between all levels of government need to be improved to ensure that the public's health is protected.
- Local agencies often lack sufficient authority to enact or enforce EPH laws and regulations.

Some of these challenges are described in greater detail below.

### Workforce

A key component of the EPH infrastructure is a strong, stable workforce. The EPH workforce provides public health protections that are often invisible to and undervalued not only by the residents, but also by state and local governments and institutions. EPH professionals are frontline responders, protecting against

foodborne and waterborne outbreaks and ensuring adequate sewage and drinking-water capacity. The Pew Environmental Health Commission and the *Profile* found that recruitment and retention difficulties, retirements, limited compensation, and career advancement opportunities pose challenges to maintaining an adequate EPH workforce.

#### Recruitment

The *Profile* findings indicated that low salaries, little room for advancement, and long hours make the hiring process difficult. The limited visibility of EPH also hinders recruitment, as many potential applicants are not aware of state and local EPH positions. Thus, positions often remain vacant for lengthy periods of time.

#### Retention

Retention of existing staff is also a challenge. Figure 2 outlines Maryland local EPH staff departures in 2003. As Figure 2 demonstrates, EPH positions often are “training grounds” for sanitarians who then leave for higher-paying positions in other agencies or private industry. This problem of “training to lose” rather than “training to retain” is particularly acute for new employees, who generally have higher turnover rates than more experienced EPH professionals. For example, over an 18-month period, Baltimore City’s Environmental Health Division lost four of its 23 environmental sanitarians: two to neighboring jurisdictions with higher salaries and two to other professions (Personal communication, Olivia Farrow, Baltimore City environmental health director). An agency’s organizational structure also can hinder career progression. Advancement is often impossible, particularly in small divisions, until higher-ranking staff are promoted, retire, or move on.

#### Retirement

Retirements are poised to have a huge impact on the EPH workforce. As shown in Figure 2, in 2003 alone, 25 percent of Maryland local EPH directors retired or moved to other positions (Resnick, Zablotsky, Nachman, & Burke, in press). Of these, only half had identified replacements at their time of departure. Large-scale losses of institutional knowledge are expected with upcoming retirements, and efforts to create a training pipeline for new and mid-career EPH professionals may be in jeopardy without seasoned personnel to ensure their existence. Consequently, leadership training for mid-level staff is essential to ensure adequate service delivery.

**TABLE 1**

**Maryland Environmental Public Health Services and Responsible Agencies**

Service	Local Authorities	State Agencies*
Consumer health and safety	Health	MDE, DHMH
Disease surveillance	Health	DHMH
Emergency preparedness and response	Health and local planning and response units	MEMA, DHMH, MDE, MDA, and other
Food protection	Health	DHMH
Housing code enforcement	Health	
Industrial discharges to water and air		MDE
Lead-poisoning prevention	Health	DHMH, MDE
Occupational health	Health	DLLR
Pesticide applications		MDA
Recreational-water quality	Health	MDE
School health	School board, health	
Sewage and septic	Health, public works	MDE
Shellfish protection and harmful algal blooms		DHMH, MDE, DNR
Solid/hazardous waste	Health	MDE
Swimming pool regulation	Health	MDE
Water supply	Health	MDE
Zoning	Zoning	
Zoonotic disease control (e.g., Lyme disease, West Nile virus, rabies)	Health	DHMH, MDA, DNR

\* Maryland Department of Agriculture (MDA), Maryland Emergency Management Agency (MEMA), Maryland Department of Environment (MDE), Department of Health and Mental Hygiene (DHMH), Department of Labor, Licensing and Regulation (DLLR), and Department of Natural Resources (DNR).

#### Advancement

The lack of a clearly defined career path is also problematic. Only 50 percent of local EPH divisions offer career tracks for practitioners that encourage professional and monetary advancements (Resnick, Zablotsky, Nachman, & Burke, in press). Many counties indicated that salary increases are not directly linked to educational advancement. Formalization of a career path varies by county and according to government structure. Commissioner counties must follow the state personnel system guidelines for promotions and pay increases, whereas code and charter counties can have their own systems, which generally offer more flexibility.

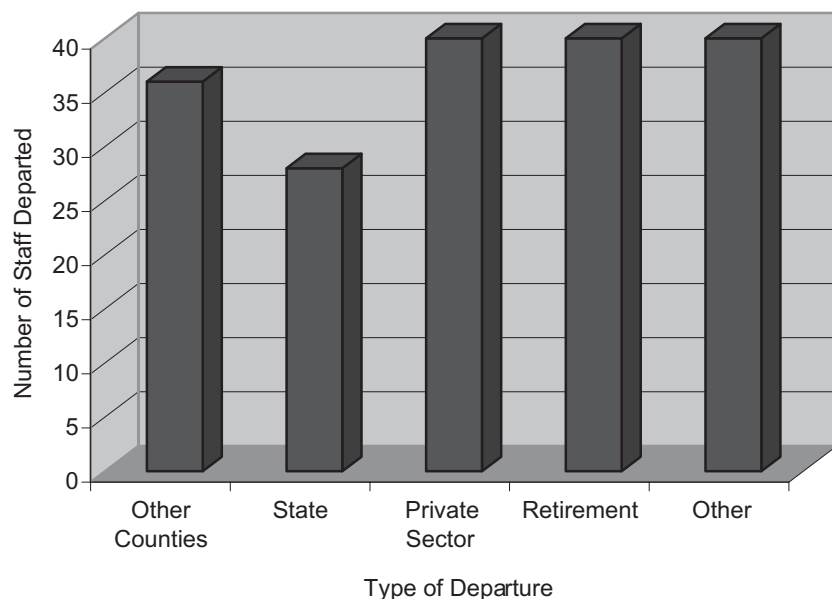
#### Compensation

Inadequate compensation is also a major barrier to a strong and stable workforce. By comparison with those holding similar government positions (e.g., teachers or social workers), sanitarians start at lower pay levels and have narrower salary ranges. Higher-profile professions, such as teaching, often have higher starting salaries, and their members re-

ceive additional compensation if they obtain training and education. For example, in Harford County, Maryland, a starting salary for a college graduate with a bachelor’s degree is \$38,964 for a teacher versus \$30,844 for a sanitarian (Harford County Public Schools, 2006, Maryland Department of Management and Budget, 2006). Over the first few years of their career, teachers have opportunities to raise their salary to \$41,000–\$43,000 by obtaining additional education and advanced professional certificates (Harford County Public Schools, 2006). Sanitarians, on the other hand, must meet field requirements as well as earn a passing score on the registered sanitarian exam to raise their salary to \$32,768 (Maryland Department of Management and Budget, 2006). Furthermore, an analysis of private-sector jobs requiring education and work experience similar to those of a sanitarian (e.g., geologist and environmental engineer technician) found that private-sector salaries were consistently higher (U.S. Department of Labor, 2005). As a result, the *Profile* recommended that EPH job classifications be reworked to ensure adequate compensation and career paths.

## FIGURE 2

Environmental Public Health Staff Departures in Maryland, 2003



### Training

The *Profile* found that EPH training opportunities are lacking and that when they do exist, they often inadequately address practitioners' needs. According to the *Seventh Report to the President and Congress on the Status of Health Personnel in the United States*, the environmental public health workforce suffers not only from limited training opportunities, but also from a lack of an established career path. Yet this country does have the financial resources to address the issue (U.S. Department of Health and Human Services, 1990). In order for EPH practitioners to remain functionally competitive with the private sector, it is imperative that sanitarians receive appropriate training encompassing a full range of disciplines. This training has been lacking in the past, but it is vital to the sustainability of the EPH profession, which is increasingly on the forefront of public health.

The *Profile* also found that many of the trainings offered are inappropriate for EPH practitioners. Much of the subject matter covered was either too general or too specific in nature to be useful, which makes attendance at future trainings less likely. For example, a training on general indoor air quality issues is likely too broad to be of practical use to sanitarians in their day-to-day activities, while a course on how to speciate mold would be too specific to be of practical use. Training formats can also influence effectiveness. Anecdotal

evidence indicates that Web-based trainings are often ineffective or infeasible because of a lack of computers or insufficient time for staff to actively participate.

As the field of EPH evolves, the workforce must adapt to the progressing needs of the communities it serves. Thus, it is critical that EPH professionals expand their skill sets over time to include new proficiencies. The ever-expanding nature of the field and the need for more advanced skills attracts talented individuals and makes EPH an exciting career. These same factors, however, also challenge EPH programs to find the time and resources to ensure adequate training. On the basis of these findings, the *Profile* recommended that EPH professionals work collaboratively with academic partners and other organizations to develop training tailored to their needs.

### Communication

EPH issues are diverse and broad, and involve multiple constituencies, perspectives, and technical competencies, which explains in part why so many agencies have a role to play. This diverse system often presents communication and coordination challenges. According to the CDC report *A National Strategy to Revitalize Environmental Public Health Services*, "informational barriers among environmental public health professionals, especially in different agencies, have long prevented rapid sharing of information...and too

often information does not flow smoothly to and from federal agencies to state and local professionals" (CDC, 2003, p. 26). The *Profile* found a similar situation. While Maryland has various mechanisms and forums to ensure that EPH issues are managed cooperatively, coordination and communication among all levels of government and local communities is a major challenge.

### Progress

The *Profile* report has emerged as a positive element in the state and local dialogue as it has highlighted many of the strengths of Maryland's EPH infrastructure and brought attention to the problem areas that must be promptly addressed if the EPH workforce is to maintain and enhance its ability to protect the public. Furthermore, state and local environmental health practitioners have come together to work hand-in-hand with state policy leaders to develop a comprehensive plan to ensure the continuation and enhancement of the environmental public health workforce and the state infrastructure that supports it. EPH communication mechanisms in existence since the creation of MDE have been used more effectively in the past several years. For example, representatives from MDE and DHMH routinely participate in monthly meetings of the Maryland Conference of Local Environmental Health Directors (MCLEHD). There is also active involvement in monthly Health Officer's Public Policy Roundtable meetings at DHMH. The Environmental Health Liaison Committee, an interagency committee of MDE, DHMH, county health officers, and representatives of county environmental health directors, meets once every two months. This group, established in 2000 to update and respond to issues from the long-standing memorandum of understanding (MOU) between the parties, has since evolved to facilitate communication, planning, policy development, and service delivery. The Environmental Health Liaison Committee has recently been strengthened by the ongoing participation of senior leadership from all parties.

The MOU was last updated in 2006 in a process that allowed for input from a large portion of the staff at MDE, DHMH, and county health departments. Sections on interagency communication and strategic planning, emergency response, and legal representation were expanded significantly, and a new section about coordinated data management was added.

Academic institutions have responded positively to the *Profile* findings. In September 2006, the Environmental Health Liaison Committee met with area academic institutions



(Johns Hopkins, University of Maryland, Morgan State, and University of Baltimore) to identify existing course offerings and training opportunities. The establishment of scholarships for EPH professionals is being pursued. In addition, collaborative efforts to develop trainings and programs tailored to EPH professionals are being explored. Academic institutions and MCLEHD are working to address training priorities in areas such as investigation of groundwater contamination, food microbiology, and effective written communication.

MCLEHD has also initiated efforts to address the *Profile* findings. Possibilities for statewide recruitment efforts are being explored. A survey was conducted to identify mechanisms, such as bonus and on-call pay, to increase compensation. Furthermore, some directors are visiting academic institutions to highlight the public health significance of the profession and opportunities for students to pursue this rewarding line of work.

The Maryland Association of County Health Officers (MACHO) is very supportive of these EPH enhancements. The efforts

under way to enhance the EPH workforce, improve communication and interaction between agencies and local departments, improve enforcement capabilities through development of clear legal authority protocols, and create additional dedicated funding streams for EPH are critical to successful protection of the public against adverse health outcomes from existing and future environmental hazards.

### The Road Ahead

The progress documented in this article—strengthened communication and interaction between state and local agencies, collaboration among practitioners and academic institutions to improve EPH training opportunities, and workforce development efforts to address recruitment and retention challenges—provides a solid foundation for enhancement of the EPH infrastructure. Although significant progress has been made, much work remains. It is imperative that these efforts be continued and supported at all levels of government. Coordination and communication, as well as training, recruitment, and retention

of the workforce are critical to a strong and responsive EPH infrastructure.

Ensuring a healthful environment is vital to Maryland's well-being. State and local EPH protection efforts, while often taken for granted, are critical in the control of many factors that cause disease. From drinking-water safety to anthrax attacks, foodborne-illness outbreaks to air quality alerts, commitment to and support for a strong and responsive EPH infrastructure is essential to Maryland's future. 🐼

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