

public health preparedness



By William Roper, MD, MPH, Dean, School of Public Health, University of North Carolina at Chapel Hill

The average American understands what a medical school is, what a nurse and pharmacist do and what hospitals are for. But for most people, the who and the what of public health is a largely unknown territory.

The one constant in my public health career — which over the years has taken me from the local level to state and federal government, into the private sector, and now academia — has been the chorus of people who ask, “Tell me again, what is it that you do?” An extraordinary question, when one considers that almost every person in the United States has had their life touched by public health professionals and practices. Ironically, public health has not been readily seen as relevant to the daily lives of most of the very people we serve.

Sadly, in the aftermath of the autumn of 2001, explaining my work has become considerably easier. Although public health is much more than preparedness, today it is that aspect of the field that is foremost in people’s minds. The current relevance of public health to national security has made it easier to explain: “Public health is what’s on the news tonight, and it’s what you will read in *The New York Times* tomorrow morning. It’s chlorine dioxide in the Hart Senate Building and electromagnetic mail sanitizers. It’s ensuring the country has an adequate stockpile of smallpox vaccine.” All at once, everyone gets it, or at least part of it.

While public health preparedness may be the topic of the moment, it is certainly not a new concept. But it took the events of September 11, the anthrax threat and the fear of biological weapons to give the general public a reason to be concerned and to catapult the topic to the forefront of national discussion. It is gratifying to hear people in positions of leadership simply use the phrase “public health preparedness.” From the President of the United States to the Secretary of the Department of Homeland Security, to senators and congressmen, to governors and mayors, influential eyes have been opened to the importance of public health. And increasingly, the voting



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public is *insisting* on spending substantial amounts of federal, state and local money to ensure the highest level of public health preparedness possible.

In the early '70s, many respected and influential health professionals proclaimed that the era of infectious disease was over and that we should turn our attention to chronic non-communicable diseases and injury control.¹ We have learned, much to our regret, that the problems of infectious diseases have not gone away. They have simply adapted and evolved with the global community, continuing to threaten us as much — in some ways even more — than ever.

Despite the newness of the terrorist threat, we saw a spectacularly professional and integrated response to the attacks of 2001. Immediately after September 11 – well before the first case of inhalation anthrax was confirmed on October 4 — the CDC instituted a nationwide health alert system, putting state and local health departments and 81 laboratories across the country on high alert for people presenting any inexplicable or puzzling symptoms of any kind. By the morning of September 12, the CDC had a team of 35 epidemiologists in New York. In addition to the professionals, 50 tons of medical supplies also arrived in New York within seven hours of the aircraft attack. The existing National Disaster Medical System activated many of its 7,000 at-the-ready medical professionals and dispatched five Disaster Medical Assistance Teams to New York and three to Washington, also within 24 hours.²

This kind of response demonstrates that we are far more prepared for infectious outbreaks than many critics have suggested. At the same time, it is also true that we are far less prepared than many of us in the field desire.

In 1993, alarmed by a disturbing number of his patients showing unusual symptoms, an alert pediatric gastroenterologist prevented an *E. coli* catastrophe in the Pacific Northwest when he warned the Washington State Department of Health of a potential major outbreak. Within a week, the department had traced the infection to hamburgers at a fast food chain.³ While many people were infected, and several patients lost their lives, the spread of the deadly food was halted, and a much greater tragedy prevented. The incident was a testament to the high value of up-to-date knowledge and maximum attentiveness in front-line practitioners, and to the necessity of good lines of communication and the ability for regional health departments to deploy a rapid response.

When you stop and think about it, the threat of bioterrorism is not all that different from the threat posed by tainted hamburgers. Once again, professionals on the front lines — physicians, nurses, pharmacists, emergency technicians and ambulance personnel — stay alert for anything unusual to report to their county, state and federal public health authorities. Effective surveillance is always the first line of public health defense.

Once an outbreak is identified, natural or deliberate in origin, response is the next critical phase. Our facilities and capabilities for medical response at the local, first-responder level are strong, and we are working to make them stronger. Federal and state agencies are continuing to coordinate with local health departments for emergency response. The public health system is providing physicians and other medical professionals with continuing education and training. The CDC is also expanding the number of positions in the Epidemic Intelligence Service, a department essential to managing the process.

We are accelerating our research on infectious agents, enhancing our current laboratory methods for identifying them, and producing more and new vaccines and antibiotics. As the *E. coli* example demonstrates, protection of our food and water supply is also of paramount concern. Even without the threat of bioterrorism, there is the possibility of contaminants entering our food or water at nearly every point in its source, production and distribution. Thus active and continuous coordination between the public health infrastructure, and the food service industry and municipalities with reservoir responsibilities, is more essential than ever before.

Dry runs and drills can also help test our preparedness and assist us in refining old responses and creating new ones. In the winter of 2002, four organizations — the Center for Strategic and International Studies, the Johns Hopkins Center for Civilian Biodefense Studies, the ANSER Institute for Homeland Security, and the Oklahoma City National Memorial Institute for the Prevention of Terrorism — collaborated on a bioterrorism exercise named “Dark Winter,” which simulated a possible reaction to a deliberate release of aerosolized smallpox in the United States. The scenario, conducted at Andrews Air Force Base in Washington, D.C., was played out over three successive mock National Security Council meetings, in which former senior government officials took on the roles of NSC members. Over the thirteen days of the exercise, the participants reached several conclusions: the current public health infrastructure, especially in its organizational/communications

structure, is still not adequate for the task of dealing with such a deliberate attack; our ability to handle both a suddenly high number of infected patients and to vaccinate those not infected, also known as “surge capability,” is insufficient; and information management and control would be critical to handling the outbreak. While these conclusions underscore the need to make changes, there is no other country better equipped to face what is both a domestic and global health threat. Many public health careers will be made

as we take on this threat — the time is ripe, and the need is urgent.



Strengthening the nation’s public health infrastructure goes well beyond the need to be prepared for chemical or bioterrorism. The same tools will be of great value in identifying, tracking and treating naturally occurring infectious diseases. Much of what we learn will be applicable to other kinds of disasters, including

natural disasters such as floods, hurricanes and earthquakes. We are settling for nothing less than being at-the-ready with well-trained personnel, state-of-the-art communications capabilities, analytical resources and treatments.

Preparedness is everyone’s job. As such, it must include a readiness among public health professionals to take on new and unexpected tasks, not always within their zones of comfort. Physicians, for example, need to expand their roles. When dealing with infectious outbreaks, they will need to assume the epidemiologist’s role, and think in terms of vectors, numbers, locations and causes. Conversely, epidemiologists, pharmacists, and nurses in public health should cross-train wherever possible to be able to assist with direct medical care in emergency situations.

Preparedness is not only about taking on the duties you were trained to take on and those you were not, preparedness is also about awareness and maintaining an alert posture in daily life, on and off the job. Put most simply, public health professionals have to be ready, willing and able to act at the very first telephone call. The potential to be called to service at any time to be part of a mobilization effort is part of what makes this career so vital. Another part is the opportunity to be a leader when necessary.



Leaders must be team players able to work with first responder counterparts among police, firefighters and military personnel. We must develop and maintain our networks of communication with our partners throughout the nation, indeed throughout the world. Most of you reading this will already be familiar with and educated in the core competencies essential to being good public health leaders, such as training in teamwork, communications and tactical decision making. Perhaps all you will lack is the direct experience. These challenging times promise unprecedented opportunities for gaining new experience. Seize them.

Tragic events have drawn intense attention to the nation's public health infrastructure. Whether we'll see a waning of that intensity depends partly on situations well beyond our control, but partly on the commitment and action of all public health professionals. I'd like to believe that serious people, whether they are presidents, governors, mayors or journalists, will recall our level of public health indifference on September 10, 2001. We can't go back there again. Public health needs the attention and long overdue funding that appears to be coming our way. We need to make sure that both the government and the public maintain the current sense of urgency surrounding public health. Why? Because our lives depend on it.

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1 <http://www.abc.net.au/science/slab/antibiotics/history.htm>

2 <http://www.advanceforaod.com/previousdnn/aadnw0910.html>

3 <http://www.doh.wa.gov/topics/ecoli.htm>