

To The Honorable Richard Burr
U.S. Senator and Chairman
Subcommittee on Bioterrorism and Public Health Preparedness
Senate Health, Education, Labor, and Pensions Committee

The Honorable Edward Kennedy
U.S. Senator and Ranking Member
Subcommittee on Bioterrorism and Public Health Preparedness
Senate Health, Education, Labor, and Pensions Committee

Subject Reauthorization of the Public Health Security and Bioterrorism Preparedness and Response
Act of 2002 (PL 107-188)

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Public Health Preparedness in the 21st Century

From Elin A. Gursky, Sc.D., Principal Deputy for Biodefense
ANSER/Analytic Services Inc.

Thank you for the opportunity to respond to your questions regarding our nation's continued investment in preparedness for catastrophic and large-scale health emergencies, including acts of terrorism and pandemics. Civil unrest and anti-American sentiment in many parts of the world and the westward movement of H5N1 avian influenza across Asia, Africa, and Europe reinforce the urgent need to develop, install, and incorporate the technologies and systems that support the earliest possible detection, situational awareness, and mitigation of diseases that have the potential to cause high rates of morbidity and mortality and to erode our economic and social structures.

Thank you, too, for your leadership and support in the areas of health security and public health. Since 2001, the United States has instituted enormous structural and operational modifications to ensure the safety of its citizens from chemical, nuclear, radiological, and explosive threats to its borders, its airlines, and its critical infrastructure. The single most outstanding threat, however, as the Subcommittee well recognizes, is that of disease. In the hands of a biotechnologically sophisticated enemy or Mother Nature, the ominous combination of novel disease and susceptible human or animal hosts can swiftly reverse increasing trends in America's lifespan and standard of living.

The legacy of public health in the 20th century recalls the sanitation efforts that controlled typhoid and cholera and the development of vaccines that eradicated smallpox, eliminated poliomyelitis in the Americas, and erased from memory the childhood scourges of scarlet fever and rubella. Seatbelt legislation reduced highway fatalities, antibiotics controlled infections, and mass anti-tobacco campaigns reduced the numbers of youth who began smoking.¹ In fact, as public health's successes reduced the visibility of disease and illness in society, the agencies erected to fulfill the public health mission were successively retasked to address non-acute health issues. With the problem of infectious diseases "solved,"² a large component of the primary mission of state and local health departments was refocused

¹ "Ten Great Public Health Achievements—United States, 1900-1999," *Morbidity and Mortality Weekly Report*, 48(12), April 2, 1999.

² In the post-Depression days of the 1930s, a surge of progressivism engulfed national policy. This period of widening social responsibilities was embraced by the public health sector, which diminished its role in infectious disease fighting (especially as acute communicable diseases were viewed as a waning threat) to assume a larger



to address social and clinical services for the poor and vulnerable. The public health agencies now facing the threats of evolving pathogens and bioterrorism are generally ill prepared for this mission and attempt to balance these new responsibilities with an overflowing array of other responsibilities that include community outreach and health education, programs for the homeless, substance abuse services, and environmental health services.³

My responses to your questions reflect a broad base of research and operational experience as a clinical epidemiologist. I have held senior positions in governmental public health at the state and local levels and in the private healthcare–hospital sector. I was director of Epidemiology and Communicable Disease Control for Prince George’s County (Maryland) in the days when Parris Glendening was County Executive. Subsequently I served as deputy commissioner for Public Health Prevention and Protection in the New Jersey Department of Health and Senior Services under Governor Christine Todd Whitman. In this period, from 1986 through 1998, I enacted robust initiatives to reverse high rates of multiple-drug-resistant tuberculosis, sexually transmitted diseases, and vaccine-preventable diseases (among others). I developed successful programs to build and train the public health workforce (up to 530 professional medical and public health, paraprofessional, and support personnel), implemented systems of program and workforce accountability, installed new technologies and systems, and provided the citizens whose health we pledged to protect with a rapidly deployable and responsive effort 24/7. These initiatives were successful and forward-thinking in the pre-9/11 days when bioterrorism was unthinkable and state and local public health budgets were severely constrained. By installing strong leadership, pursuing public-private partnerships, and embracing a tenet well-founded in the military—unity of effort—our successes wrought professional satisfaction, increased funding, and decreased the incidence of communicable diseases.

Since those relatively halcyon days of public health practice, I have turned my attention to studying and writing about the new demands on the public health sector within the context of 21st-century health threats. Reports I authored in 2002 and 2003 examined our response to the first deliberate biological attack on a national scale (*Anthrax 2001: Observations on the Medical and Public Health Response*) and our efforts to build the public health infrastructure with the first wave of funding from Public Law 107-188, the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (*Progress and Peril: Bioterrorism Preparedness Dollars and Public Health*). Two more recent reports are based on studies of the public health sector’s ongoing efforts to build preparedness capabilities and capacities. One is titled *Drafted to Fight Terror: U.S. Public Health on the Front Lines of Biological Defense* (2004). The other and most recent, *Epidemic Proportions: Building National Public Health Capabilities to Meet National Security Threats* (2005), was undertaken on behalf of your Subcommittee.

By way of this background, let me preface my answers to your questions by stating my belief that this nation must view the preparedness challenge through a new lens. Although a number of this country’s 3,000 local and 50 state public health departments have made concerted inroads into revising practices and accommodating the preparedness mission, it has been at the expense of fulfilling their historic social compact with the communities to whom they ensure the provision of essential healthcare “safety net” and community health services. Our nation’s governors are fully committed to protecting the health of their citizens and the security of their states. Yet it seems unlikely that, within even the next five to ten years, the diversity of public health efforts and workforce capabilities resident within our 50 states can be

role in providing social and clinical services for the poor and vulnerable. See Elin Gursky, *Drafted to Fight Terror: U.S. Public Health on the Front Lines of Biological Defense* (ANSER, 2004).

³ National Association of County and City Health Officials, *Local Public Health Agency Infrastructure: A Chartbook*, October 2001.



harmonized to constitute uniformly responsive, robust, and durable capabilities to protect this *country*. With the preparedness experience of the past almost five years, it is appropriate to apply the lessons learned to our future efforts to protect the health security of this nation. Let me elucidate further.

- Our public health departments provide—in steady state—a range of routine health promotion, health screening, and medical services to many vulnerable populations, offering invaluable efforts to screen for asthma and hypertension, intervene in substance abuse and behavioral health problems, and reverse rising rates of obesity and diabetes.⁴ *Preparedness requires a rapid surge in response to investigate and identify a disease outbreak, deploy the strategic national stockpile, stand up mass immunization and prophylaxis clinics, and contain the spread of an epidemic.*
- Our public health departments aggregate the skill sets of over 24 professions, including nursing, social work, sanitation and restaurant inspection, and health education and outreach, to provide a wide range of health and human services.⁵ Few have a common educational background, licensing and credentialing requirements, or formal or unifying training in public health practice.⁶ *Preparedness systems must bring together the correct mix of skill sets, such as experts in infectious-diseases, epidemiology, and data analysis to rapidly identify, track, and contain disease transmission – who carry out this work in well-practiced synchrony.*
- Electronic health records will reduce medical errors, prevent costly duplication of medical services, and relieve the burdensome reimbursement process between payer and patient. *These same systems when employed for early disease detection will serve the critical needs of disease outbreak monitoring, health intelligence and surveillance, and situational awareness underpinning the preparedness and response effort. These systems will also play a critical function by linking the population health protection sector with the medical and hospital patient health sector to halt an infectious disease event.*
- Public health departments perform a vital role in crafting and disseminating health education information to promote healthy lifestyles and have been successful in efforts such as reducing teenage drinking and smoking and increasing breast and prostate cancer screening.⁷ *The preparedness effort requires the abilities to swiftly craft and disseminate an accurate risk communication message to reduce further exposure to pathogens, direct exposed persons to appropriate venues of urgent health care, and convey other time critical information to impede disease transmission.*
- The public health sector has historically served the needs of the medically disenfranchised, the indigent, and the vulnerable with an unwavering egalitarian approach.⁸ *The unprecedented challenges of deliberately disseminated and novel pathogens, combined with few or limited*

⁴ Ibid.

⁵ Lloyd Novick and Glen Mays, *Public Health Administration: Principles for Population-Based Management* (Sudbury, MA: Jones and Bartlett, 2005).

⁶ Ibid.

⁷ Council on Scientific Affairs, “Education for Health: A Role for Physicians and the Efficacy of Health Education Efforts,” *Journal of the American Medical Association*, April 4, 1990.

⁸ As the proportion of U.S. physicians providing charity care continues its decade-long decline, the public health sector will continue to become providers of last resort for uninsured patients and those Medicaid patients rejected by or simply beyond the reach of private providers and institutions. “U.S. Physician Charity Care Continues Decade-Long Decline,” Center for Studying Health System Change news release, March 23, 2006; <http://www.hschange.com/CONTENT/827/>.

supplies of vaccines and medical countermeasures, will require difficult ethical decisions, possibly denying protection to society's most vulnerable in order to assure protection of society's most critical.

- The preparedness mission has been broadly interpreted by our nation's governors with respect to the perception of their states' vulnerabilities and risks and the competing healthcare needs of their constituents. *The health security of the United States requires a common strategy and uniformly consistent capabilities to detect and deter catastrophic health events and assure continued social and economic functioning of the nation.*
- The overriding mission of our public health sector is to promote healthy Americans. *The threats of pandemics and terrorism demand a system capable of assuring secure Americans.*

The Public Health Security and Bioterrorism Preparedness and Response Act of 2002 has provided an invaluable benefit toward increasing awareness and education about the threat environment among the nation's state and local public health sector. To now move forward, we must shift our focus from individual local *communities* toward the health security of the *nation*. The *system* required to protect Americans against 21st-century threats must evolve from and hold harmless the *sector* that serves traditional public health needs. The *system* required cannot be retrofit on top of a *sector* widely acknowledged to have "fallen into disarray"⁹ and that has historically eschewed specific ("prescriptive") direction, guidance, and accountability from central organizations such as the CDC.¹⁰ In fact, leadership from a higher level within HHS is required to constitute a health security system that will protect fully and equally the nation's states, cities, and communities and that will work in harmony with other critical guardians of domestic security, such as the Department of Defense, the Department of Veterans Affairs, and the Department of Homeland Security.

The system of health security in which this country must invest, and which I humbly recommend as the focus of the reauthorization of the Public Health Security and Bioterrorism Preparedness and Response Act, will have several components.

- *Situational awareness.* The effectiveness of situational awareness stems from building on historical knowledge (such as what the background disease rates have been) with multisector, real-time, continually updated flows of new information to characterize disease escalation within a population. In most cases this approach will not demand new technologies but, rather, the systematic integration of existing technology, tools, and processes through cooperative efforts at the local, regional, state, national, and cross-border levels. These systems must be in place to serve day-to-day operations so that they also offer familiarity and scalability in the event of an outbreak. Some states and localities across the country have installed effective community-centric disease surveillance systems. Nationally, however, many fail to achieve the breadth and speed of data flows to support the widest and most timely situational awareness, to inform 24/7 decision making by key leaders, and to operationalize the response of appropriate professionals. Implementing this system – one of the most critical investments toward health security – will require rigorous oversight and sustained funding. A trust fund will ensure the wisest and swiftest use of federal dollars to fulfill this goal.¹¹

⁹ *The Future of the Public's Health in the 21st Century* (Washington, DC: Institute of Medicine, 2002).

¹⁰ See Elin Gursky, *Epidemic Proportions: Building National Public Health Capabilities to Meet National Security Threats*, Findings, p. 11.

¹¹ Trust funds are accounts established by law to hold receipts collected by the government and earmarked for specific purposes and programs as approved by the trustee. The Highway Trust Fund was created by the Highway

- *The workforce.* The health security workforce must be constituted by experts who bring to bear the education, training, and expertise in closely allied fields and specialties focusing on the detection and mitigation of disease threats. Medical and other clinical experts (nursing, laboratory, veterinary), epidemiologists, agriculture, food, water, and environmental specialists will both analyze and intervene in disease outbreaks and atypical disease events. Most of their professions already require terminal advanced degrees and national credentialing.¹² A foundation of uniform basic training could easily be built and offered to harmonize the effort of this highly skilled workforce. Recruitment and retention of this workforce will not be difficult: Many practicing public health officials and workers have been frustrated because the health security mission has had to coexist with other demands at local and state health departments.
- *Research.* In sad fact, unlike the practice of medicine, which is guided by best practices, and clinical pathways and is evidence-based,¹³ there is almost no body of research to affirm that our public health interventions and dollars expended have achieved their intended outcomes or that our monies have been well spent.¹⁴ Empirical evidence notwithstanding, the federal investment to prepare the nation against health security threats must be validated through objective confirmation of the accuracy and efficacy of our efforts. Health security must embrace a foundation of research that assesses the cost-benefit of our efforts, quantifies specific obstacles, guides the solution set, informs the interventions (medical and nonmedical) and best practices, analyzes and forecasts threats and vulnerabilities, and develops metrics for performance.

In closing, let me again thank the Subcommittee for its focus on this serious concern and for the privilege of lending my voice and perspective. Few issues facing this country are graver than that of health security. As Dr. Dale Klein, Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs, noted at a meeting to discuss the Quadrennial Defense Review,¹⁵ the issue of weapons of mass destruction, in which biology plays a large role, reflects the generational dimensions of a long war. This is true also of the war that health security experts must fight against deliberate and naturally occurring threats; the latter have resulted in 30 new or emerging pathogens in the past 20 years.¹⁶

The system we build for tomorrow, not that we conscript from yesterday, will lead us to successfully overcome the threats we face with the least impact on human lives, lifespan, and quality of life.

Revenue Act of 1956 to ensure a dependable source of financing for the National System of Interstate and Defense Highways and for the federal highway program. Funds are reserved for transit capital projects and related purposes. See the Northeast Midwest Institute, “What Is the Highway Trust Fund?”; <http://www.nemw.org/HWtrustfund.htm>.

¹² The 2005 CDC/Council of State and Territorial Epidemiologist draft document “CDC/CSTE Development of Applied Epidemiology Competencies” establishes core competencies for applied epidemiologists; <http://www.cste.org/competencies.asp>.

¹³ Center for Evidence-Based Medicine.

¹⁴ Within the evidence-based models, there is no or little attention paid to the best practices for population-based (public) health. See the Evidence-Based Practice for Public Health Project; <http://library.umassmed.edu/ebpph/>.

¹⁵ National Defense University, March 17, 2006.

¹⁶ World Health Organization, “Globalization, Trade and Health: Emerging Diseases”; <http://www.who.int/trade/glossary/story022/en/>.

