The Case For Transforming Governmental Public Health

The future public health system cannot afford to be dictated by outmoded tools, unworkable structures, and outdated staffing models.

by Eileen Salinsky and Elin A. Gursky

ABSTRACT: Changing threats to the public's health necessitate a profound transformation of the public health enterprise. Despite recent attention to the biodefense role of public health, policymakers have not developed a clear, realistic vision for the structure and functionality of the governmental public health system. Lack of leadership and organizational disconnects across levels of government have prevented strategic alignment of resources and undermined momentum for meaningful change. A transformed public health system is needed to address the demands of emergency preparedness and health protection. Such transformation should include focused, risk-based resource allocation; regional planning; technological upgrades; workforce restructuring; improved integration of private-sector assets; and better performance monitoring. [*Health Affairs* 25, no. 4 (2006): 1017–1028; 10.1377/hlthaff.25.4.1017]

THE PAST TWO CENTURIES HAVE IMPOSED staggering challenges on the public health sector. The infectious disease threat (once thought conquered) has reemerged with a vengeance.[1] Today's global-threat environment challenges the agility of public health organizations, the capabilities of the public health workforce, and the operational paradigm of traditional practices. Change is necessary to secure success.

The twentieth century was emblematic of transformative forces in most of the developed world. The Internet, the global economy, and an infinite climate of fast-paced knowledge acquisition and transfer have driven change in almost every enterprise. In contrast, most public health challenges during the past thirty to forty years have been accommodated by marginal modifications to operations and human resources. Fundamental restructuring of the system has not occurred. Despite attempts to plan for and respond to potential catastrophes, huge gaps in performance and questionable spending of preparedness funding have been chronicled during the past five years.[2]

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Why Has Transformation Been So Long In Coming?

The blame for failing to employ effective internal and external drivers of transformation in the governmental public health sector can be liberally shared. Resistance to transformation stems from competing priorities, rigidity in organizational structures and staffing models, and meager resources.

■ **Competing priorities.** Over the past several decades, public health (especially at the local level) was increasingly imposed on as a provider of last resort. Serving as a safety net for medical services otherwise unobtainable by some populations, the narrow clinical services provided by public health fragmented medical care and also relieved senior policy advisers and officials of the urgency of resolving the health care and health cost crises. Concurrent with this trend, as infectious disease threats began to wane midcentury, population-based public health activities became easier for policymakers to ignore. As a result, today the preparedness mission is often viewed as a distraction from public health's major focus.[3]

■ **Structural variability.** Although federal health experts at the U.S. Department of Health and Human Services (HHS) and the Centers for Disease Control and Prevention (CDC) provide guidance and major funding to state (and sometimes local) health departments, the authority for health matters constitutionally resides with state governments. State health departments craft policy and entrust the operational component to local health departments. The result is a nationally fragmented public health enterprise characterized by diverse practices across 3,000 local agencies charged with meeting varying missions under fifty state health departments. The patchwork of capabilities, agency sizes, lines of authority, and workforce training impedes public health's interoperability and surge capacity within and across states. Furthermore, the absence of nationally consistent systems hampers the public health effort to coordinate with other responder sectors (such as law enforcement and safety), especially during disasters that cross geopolitical borders.

■ **Outdated staffing models.** Health security demands the brightest, best-trained workforce, appropriately compensated, yet the compensation packages and "pipeline" structure for public health do not facilitate this result. Despite attempts to build relationships between academe and public health practice, disconnects still exist.[4] Most people who obtain advanced public health degrees pursue academic and research careers, instead of practicing in governmental public health. Government rarely remunerates highly skilled public health employees and, in recent years, has filled public health positions with contract or soft-money slots rather than career positions. Dedicated but often marginally prepared people function through on-the-job training. The continuity of the public health effort suffers as a sizable proportion of this workforce leverages its newly gained skills to obtain higher-paying positions in hospitals, private laboratories, industry, or academe.

■ **Resources.** Historically, as attention shifted to patient care, increasingly funded with federal dollars, states began pulling back funding for population-based services. Core public health activities such as disease monitoring, surveillance, out-

break investigation, and response received little consideration and even less dedicated funding. Public health's commitment to—and governments' dependence on—its care of the medically disenfranchised has been a major impediment to investing in a stronger public health protection role. Into this undervalued sector, investments in technology, workforce training and recruitment, and even facility build-out or renovation have come infrequently and with difficulty. Public health has often been last—far behind police, safety, and firefighters—to receive computers, cell phones, personal protective equipment, and other essential resources.

In Search Of A Vision

Failure to achieve momentum for major change is not surprising, given the barriers and the lack of clear and consistent preparedness priorities for governmental public health. Policymakers across jurisdictions and levels of government have not developed a shared, realistic vision of what public health should accomplish and who in the public health hierarchy should be held accountable.

■ **Directionless funding.** The $5 billion transfer of federal funds to the states beginning in 2002 to improve public health and medical emergency preparedness was largely an effort to bolster the existing infrastructure. Congress did not design the grant programs to reform the structure and orientation of public health. In fact, one difficulty that public health agencies faced early in the process was to garner dual benefit (preserving the traditional mission while refitting for the new) with these funds while strictly accounting for preparedness dollars. Moreover, federal preparedness funding for bulking up public health agencies (CDC) and hospitals (the Health Research and Services Administration, or HRSA) under the HHS umbrella lacked sufficient coordination, guidance, and oversight to constitute a logical, community-based health protection strategy. Although public health would not be able to "prepare" quickly, especially given decades of underfunding, some on Capitol Hill saw the initial appropriation as a one-time infusion of funds to aid states and localities in their public health responsibilities. The preparedness grants were designed, intentionally or not, to revitalize and fortify the status quo.

The prevailing logic was that states were in the best position to assess their own needs, and for the most part states extended this reasoning to their local counterparts. Federal funds were distributed yearly in a conventional manner. Although guidance accompanied the cooperative agreements and states were required to submit plans for how funds would be spent, states were given much discretion in making investments based on circumstances and perceived deficiencies.

States added capacity at the state level and distributed funds to local health departments and providers. Although states were allowed to retain only 20 percent of the funds designated for emergency medical services, no such restrictions were placed on the public health dollars. The proportion of funds distributed to local public health authorities varied greatly across states, as did the mechanisms for deciding allocations. States that attempted to apply novel thought to funding—

and to the possibility of reorganizing public health services (that might subsequently improve preparedness capabilities)—were resoundingly criticized by local agencies. The expectation was that preparedness funds would be quickly or "equitably" distributed. Despite the opportunity that preparedness funding presented to revitalize the public health sector in the climate after 9/11 and the anthrax attacks, it did not, from the outset, promote transformation.

Also, the preparedness funds were less of a financial windfall than hoped for and offered less opportunity than expected if novel approaches had ever been contemplated. Funding infusions took place at the same time that states were encountering the worst revenue shortfalls in decades. State funding of population-based public health services was sharply reduced as new federal funding for preparedness was distributed. Instead of building more capacity, public health agencies found themselves having to support ongoing services and the new preparedness mission with very little extra funding.

■ **Uncoordinated efforts.** Public health capabilities have certainly improved over the past four years. Laboratories have increased capacity and expanded testing capabilities for a wider range of disease agents. Communication equipment has been purchased, and the importance of information and surveillance systems has been illuminated. Public health professionals at state and local levels have received some preparedness training, and drills and exercises have been conducted. Relationships with emergency management and law enforcement agencies have been strengthened or, in some cases, built from scratch.

Across the country, public health agencies have engaged in creative efforts to strengthen preparedness capabilities. The National Association of County and City Health Officials (NACCHO) has highlighted local activities for special recognition in its Model Practices Database.[5] These efforts demonstrate innovation, but such improvements are hard won and relatively marginal in a national context, considering the profound increases in capabilities required to successfully respond to catastrophic health events. It is unclear whether such outcomes were ever feasible, given the relatively small level of resources invested and the lack of coordinated planning across federal, state, and local levels. A bottom-up approach to preparedness planning offered flexibility but imposed a heavy burden on individual states and local public health departments. Such approaches generally failed to provide mechanisms to pool resources and harmonize response plans.

Clearly, there was no vision (nor is there now) of how national health protection activities should be organized and operationalized. If the objective was to promote the nation's health security against catastrophic events, that goal has been compromised by funding local and state health departments that were left to determine their own goals and priorities.

■ **Fragmentation of public health authority.** The failure to strategically align resources across levels of government and geographic areas is attributable partly to a failure to fully envision the staggering scope of a catastrophic event (a lesson many

learned from the 2005 Gulf Coast hurricanes). Profound operational disconnects across public health authorities result in limited impetus and incentive to overcome political boundaries in the absence of a broadscale emergency.

The patchwork nature of public health practice is compounded by jurisdictional boundaries that in no way reflect population density, commuting patterns, vulnerabilities, or other characteristics one would logically consider in establishing geographic operating units for public health. The organizational framework of public health agencies does not provide rational loci for emergency response planning. State boundaries do not provide meaningful planning parameters, given that approximately 25 percent of the U.S. population lives in metropolitan areas that straddle state lines.[6] Many urban counties contain multiple municipal governments, each maintaining some level of public health capacity.

Preparedness concerns underscore the need for a cohesive public health infrastructure and highlight the murky and tenuous connections between agencies at federal, state, and local levels. Inconsistencies in structure and capabilities were poorly understood if considered at all. No one really knew how the pieces fit together, because no one had tried to put the puzzle together before.

Four years since the initial preparedness funding, federal leadership has been criticized for failing to give states and localities the guidance, resources, and tools to develop adequate preparedness capabilities. Federal initiatives—BioSense, BioWatch, the Cities Readiness Initiative, and reorganization of the CDC—attempt to explore new models for meeting the challenges of bioterrorism and emerging infections. The effectiveness of these isolated efforts could be jeopardized if they are not sufficiently integrated into the broader public health infrastructure.

Creation of the Department of Homeland Security (DHS) introduced additional complications to intergovernmental relationships. The role of the DHS relative to that of HHS continues to evolve and is not entirely clear to outside observers. State and local public health officials are perplexed by questions of funding streams and governance as the DHS and HHS continue to synchronize and harmonize their roles. The responsibilities of the Department of Defense (DoD) and the National Guard add complexity to the federal public health preparedness and response apparatus.

In addition, federal policymakers added tasks to public health's ever-growing to-do list with little realistic assessment of the resources and organizational shifts necessary to take on these diverse and important missions. Cooperation from states was assumed; states, in turn, typically passed these duties on to local jurisdictions, which have been left to make uninformed assumptions about how federal and state authorities will support them while they struggle to carry out their routine functions.

■ **Systemic failure.** While advocating additional funding, practicing public health officials have been reluctant to admit to shortcomings in the system. Political pressures and a legitimate desire to protect future funding encourage public health

officials to convey to policymakers a message that everything is under control. Absent a real, live test of public health capabilities (as experienced during Hurricane Katrina; the outbreak of severe acute respiratory syndrome, or SARS; and the anthrax attacks), the consequences of conflicting priorities, diffuse responsibility, and inadequate resources are not readily apparent.

The pervasiveness of these systemic inadequacies makes it questionable whether individual public health agencies can reasonably be held accountable for achieving preparedness. When events reveal substandard capabilities, an objective, knowledgeable observer can be hard-pressed to determine exactly what went wrong. Although it is tempting to blame the incompetence of individuals or particular organizations, these tragedies usually reveal systematic flaws that almost preordain an unsuccessful response.

Critical Dimensions Of Transformation

Today's system is arguably adequate for carrying out public health's traditional responsibilities but inadequate for the new demands of preparedness and health protection. The capabilities needed to meet these demands are fairly specialized. The activities it entails are not exercised during daily operations and generally require a high degree of interoperability with other public and private entities.

As Congress considers reauthorization of public health preparedness grants, recognition is growing that more fundamental transformation of the public health system will likely be required to achieve preparedness objectives. We do not presume to have a definitive prescription for how public health should be restructured, but we advocate a more constructive, open-minded dialogue regarding possible strategies and offer the following concepts for consideration.

■ **Formulate the vision.** An open, honest debate to create a vision for the appropriate role and configuration of governmental public health in its expanded health security role, although critical, has not occurred. Policy efforts to fund, train for, and evaluate the preparedness effort have lacked a clearly defined consensus as to what preparedness means. This lack of vision has been costly and frustrating to those on the front lines of public health, as well as to Congress. Continuing business as usual, even if it is well funded, will not achieve the desired goals in a global environment of shared diseases and growing threats.

■ **Dedicated resources.** Many functions inherent in effective public health emergency response rely on specialized capabilities and skills. We do not expect our armed forces to serve as a police force or to train for their national defense mission in off hours. Public health preparedness cannot be an add-on responsibility for the many or a part-time responsibility for the few. Achieving health-security preparedness means that we must fully train and continually exercise a cadre of professionals for whom vigilance, surveillance, detection, investigation, response, and control of infectious diseases and epidemic conditions is their day job.

■ **Regionalization.** The demands of dedicated resources put into focus the need

for a more rational approach to organizing and distributing public health capacity. It is not realistic to expect every local health department to maintain specialized capabilities that will be deployed infrequently. A number of organizations have called for greater regionalization in planning for public health preparedness.[7] A regional approach to capacity building will provide the scale of operations to mobilize resources effectively and efficiently. A regional approach would reduce the organizational fragmentation and inconsistencies that hamper interoperability with other government agencies and private-sector assets. These regions must be delineated using meaningful parameters that reflect daily life, work, and travel. Regionalizing selected functions of public health does not imply, however, that all activities would be consolidated into a regional authority.

Innovative legal authorities may be needed to create organizational models that can cross historical political boundaries at local and, perhaps, state levels. Interstate compacts, which are essentially contracts between states that carry the force and effect of law, provide a mechanism for creating such legal authorities. The U.S. Constitution requires congressional consent of interstate compacts, ensuring a federal oversight role. Historically, these compacts were largely used to settle boundary disputes. Since World War II, interstate compacts have proliferated and are now widely used to establish uniform standards across states and, less frequently, to create multistate regulatory authorities.[8] The first, and perhaps most widely known, of these is the Port Authority of New York and New Jersey. The Port Authority manages and has regulatory authority over the region's transportation network and seaport and even maintains a police force. It is governed by an independent board appointed by the two governors and is financed entirely through operating revenue. Many of the compacts that have been promulgated to create new interstate regulatory authorities have focused on transportation.

The creation of an interstate public health authority would probably be more controversial, given that self-sustaining financing is unlikely. Because states would need to reach agreements regarding how to allocate costs and distribute resources, the time frame needed to negotiate compact terms would likely be protracted. Even when joint funding is not at issue, compacts can take a long time to enact. The Council on State Governments reports that recent compacts have generally taken two to four years to become effective, but some compacts have been adopted in as little as thirteen months.[9] Federal coordination, mandates, or funding incentives could expedite compact negotiations.

Interstate compacts have the benefit of preserving state sovereignty, but regionalized approaches could be pursued through other mechanisms. Direct federal implementation of some operational aspects of preparedness could also be used to create regional focal points for public health. Direct federal control would have some obvious disadvantages. An active federal public health presence at the regional level would necessitate the creation of new bureaucratic structures, could engender resistance from states and localities, and would likely lead to addi-

tional challenges related to interoperability across levels of government. However, a "top-down" strategy could be achieved in a speedier fashion, assuming the political will required to make the necessary changes.

■ **Risk assessment.** Creating rational regions for preparedness planning raises the challenge of whether resources should be allocated solely per capita or whether risk assessment should play some role. This question is fraught with uncertainty, most pointedly regarding our ability to accurately determine relative risks across geographic areas. In some ways, the Cities Readiness Initiative represents a non-explicit, risk-based resource allocation model.[10] Although objections to this approach have been made, its merits are worthy of a more robust public debate.

■ **Workforce restructuring.** Analogous to a thoughtful restructuring of public health organizations is the need to develop a more rigorous approach to public health staffing. No educational or training standards exist for the public health workforce, and little attention has been given to differentiating the skills and competencies needed across job functions. Nurses represent the largest professional group among public health workers, but they are rapidly retiring and in short supply.[11] Moreover, a nursing background might not be optimal for preparedness competencies. Expertise in informatics, epidemiology, logistics, and risk communications and basic training in the tenets of public health practice and disease control are needed, as is more work to determine the ideal skill mix in the public health workforce and the training standards and credentialing mechanisms to ensure competency. Improved linkages between the public health practice community and degree-granting institutions will be required to ensure that academic curricula provide an appropriate foundation for public health workers. Better enumeration of staffing levels and needs will help identify the areas most in need of pipeline development, recruitment, and retention. Compensation levels available to public health workers should be explored to ensure that wages and benefits are competitive.

The public health practice community can garner lessons from other professions. Consider medicine, which once was dominated by physicians who engaged in surgery, pediatrics, internal medicine, and whatever else they were called upon to provide. As advancements were made in many fields of biological sciences, providing a scientific basis and method to medicine, this model became outmoded.[12] Medical training was slow to adapt to these changed circumstances. General practitioners could no longer keep up with the technological or knowledge advances in general surgery, for example, so physicians specifically trained in surgery were preferred because they could offer patients better health outcomes.[13] These developments necessitated the urgent need for a complete overhaul of medical school training to establish a set of minimum requirements for all medical schools and intended practitioners.[14]

In a similar development, long before the field of scientific psychology emerged in the nineteenth century, many practiced a more "social" psychology. As scientific knowledge expanded, so did the move of psychologists to distinguish, in the pub-

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lic's eye, the field based on science from so-called everyday psychology.[15] Although there were smaller, localized efforts to formally train psychologists, these were disparate, with little adherence to national standards. Not until the surge of progressivism in the 1930s, which created a growing awareness of the opportunities for work in applied psychology, did the issue of national standards for the doctoral degree in psychology undergo study.[16] The rationale to provide students formally trained in psychology a breadth of training ensures that they have the competencies to pass licensing exams, allows professionals the flexibility to specialize, and provides a common professional framework (a "core curriculum") and identity.

■ **Technological upgrades.** Remarkably, the public health sector continues operating in a sphere relatively devoid of the technological advances that have enabled almost every other enterprise. It has eschewed the tools that would facilitate its ability to notice unusual disease events; trace vulnerable populations; monitor cases of disease; catalog adverse-event reports; track the course of outbreaks; resupply critical resources; deploy personnel during an epidemic; and scrutinize spending. Public health's responsibility to promote and protect Americans' health is carried out using little more than pencil-on-paper counts of events. Although preparedness funds purchased cell phones and computers, the activities associated with information sharing lacked a well-conceived blueprint for a comprehensive health intelligence system. The most important building block for improving disease surveillance and timely outbreak response, and for optimizing efficiencies in public health's traditional community-based programs and delivery of personal health care services, will be realized through electronic information systems. The gains in accuracy, effectiveness, resource tracking, and cost savings (to name but a few) clearly justify sound and robust investments in the implementation of information technology (IT) solutions throughout the entirety of the public health sector. There are many examples of the importance such investments have made within the private sector. For instance, in November 1994, FedEx revolutionized the way it does business: It made its package-tracking database available on the World Wide Web. With each user having constant access to a standardized system, FedEx allowed customers to independently manage and track their own packages.[17] This small initial investment began saving FedEx upwards of $2 million a year, according to conservative estimates. Translate the FedEx experience to public health. Imagine empowering citizens through an online system, which would give them access to their personal health records and vaccination history, nutritional and dietary information, and air and water quality.

■ **Leadership and direction.** It remains unclear what agency is in charge of health security. Although HHS has funded the bulk of the preparedness mission, the

response effort entangles the DHS and possibly the DoD and National Guard. The CDC has limited operational authority over state and local disease control activities, acting mainly when formally invited by a state to participate or in the event of interstate movement of contaminated or infected disease vectors (human, food, or animal). Deliberate efforts should be made to identify one agency with the charge to prepare, oversee, coordinate, and be accountable for health security actions during a public health emergency, and the operational role of federal assets should be clearly defined.

■ **Mobilizing private-sector assets.** Just as the governmental focal point for organizing and directing medical assets is unclear, the reliability of medical assets remains equally uncertain. Emergency medical response rests on the willingness of health care personnel to volunteer their time and expertise, something assumed in light of the professional ethos they have historically embraced. A more systematic approach to using volunteer resources must be developed, allowing timely, efficient deployment of medical resources across state lines. State licensing and credentialing should be examined for ways to improved timeliness of information and improved interoperability. More must be done to coordinate health care organizations' planning, consider degraded capacity options, and develop alternative care sites.

■ **Performance measurement.** The lack of valid, objective, widely accepted performance indicators for public health preparedness is perhaps the most telling reason why more progress has not been made. Clear and fair accountability mechanisms ensure that all parties understand the objectives and priorities of an endeavor and can thereby gauge their contributions. Reform must incorporate rigorous evaluation and accountability to ensure system performance and identify problems that might have inadvertently resulted from resource redistribution. Preparedness performance should not be considered in isolation; rather, these capabilities should be examined in tandem with other public health functions so that crossover effects can be explored. Ideally, such performance measurement activities will use the after-action reports and lessons learned from drills and exercises to develop realistic assessments of public health capabilities.

Efforts are under way to explore developing standards for public health. The Association of State and Territorial Health Officials (ASTHO), NACCHO, and the CDC have worked collaboratively with support from the Robert Wood Johnson Foundation to examine the possibility of a national accreditation program for public health agencies. Building on state-sponsored accreditation activities, the program seeks to set core performance standards for a wide range of public health activities and would rely on third-party assessment of compliance. This offers a meaningful benchmark for public health performance and greater consistency in the level and quality of capabilities across jurisdictions. An accreditation program would not, however, obviate government-sponsored self-assessment, accountability mechanisms tied to funding streams, broader public health services research, or targeted evaluations of special initiatives. Not all transformative experiments

will be successful (think New Coke). Any major modification of the public health infrastructure and resource distribution should be carefully monitored.

Risk of failure should not prevent bold changes, but policymakers should be mindful of these risks, consider pilot implementation, and assess impact thoroughly. Appropriate accountability will ultimately rest with oversight by elected officials. Congress and state legislatures will need to devote more sustained attention to public health concerns.

Closing Thoughts

Health security threats and increased attention to public health preparedness have exposed the fault lines in the public health infrastructure brought about by decades of neglect. Substantive reform of the public health system is clearly needed to achieve health security objectives. Once the opportunity to transform the infrastructure is gone, it is likely to be gone for good. This pivotal opportunity to create a vibrant governmental public health system capable of achieving both its health promotion and health protection missions should be seized.

Until now, there has been no competitive market to drive transformation. But in a sector that has been largely ignored and underfunded for years, state and local public health agencies have finally confronted challenges they cannot overcome through business as usual. Homeland and health security objectives, and the transformed systems and strategies to attain them, remain ephemeral. Some believe that greater and sustained funding will allow public health agencies to carry out both their historical health promotion roles and their more recently imposed health protection mission. Others believe that the responsibilities placed on public health are just too broad. They point to professions such as law and medicine, which, because of explosions in knowledge, have transformed by adopting technology and selecting specialization. Finally, some experts argue that the threat of catastrophic disease from deliberate or natural events, along with new requirements to protect the homeland, demand wholly redefined capabilities, capacities, and organization.

The challenges of the twenty-first century require rethinking a new construct for public health and evolving from the strategies and systems that were defined and put in place more than 100 years ago. Although the past should inform our efforts, the future should not be dictated by outmoded tools, unworkable organizational structures, and an inflexible workforce. The risk of failing to anticipate and adapt to new and emerging challenges far outweighs the risk that these challenges will never materialize. Public health's ability to perform successfully now and in the future requires investments in systems development and extensive transformations of operational, technological, and performance practices. To have a meaningful impact, technological improvements must be coupled with organizational restructuring and realignment of the public health workforce. To fulfill health security objectives, governmental public health must redirect available resources

and achieve far greater strategic and operational interdependence with other sectors, including agriculture, animal health, environment, and defense. The urgency and magnitude of today's threats to current fragile practices necessitate profound transformation of the public health enterprise.

NOTES

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