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The Public Health Infrastructure: Rebuild Or Redesign?

Should we redesign our public health system for the twenty-first century using nineteenth-century templates?

by Nicole Lurie

Healthy People 2010, like its predecessors, has been termed a roadmap for public health in the next decade. It is ambitious, setting out some 467 objectives in twenty-eight focus areas. But in reality, it has only two overarching goals: to increase the number of years of healthy life, and to eliminate health disparities.

If, in fact, there is a roadmap for public health in the first part of the twenty-first century, it ought to be supported by an appropriate infrastructure. It is as absurd to think we can meet these public health objectives without one as it is to think we could drive from New York to California without roads in important places.

As it now stands, our public health system relies on a fragmented assortment of individual agencies, states, and communities to develop strategies for meeting the Healthy People 2010 goals and to identify and deploy the resources necessary to accomplish them.

It took the events of September 2001 for the nation to confront the reality that its public health system is in disarray. As Edward Baker and Jeffrey Koplan point out in this issue, the public still lacks a full understanding about what the public health infrastructure really is or is intended to do. But clearly, the expectation is that appropriate investments in it will result in a well-functioning public health system. Whether this is indeed the case remains to be seen.

Much has changed in America since the early development of our public health system. Bioterrorism notwithstanding, epidemics of acute infectious disease have, with the exception of HIV and newly emerging and re-emerging diseases such as tuberculosis and West Nile virus, given way to dramatic increases in complex, costly chronic disease. Individual and societal behavior now plays a more central role in the development of disease. Our personal health care delivery system has grown rapidly, while our public health infrastructure has decayed.

Rebuild or redesign? As we contemplate a multibillion-dollar federal investment in the public health infrastructure, it seems critical that we ask whether the task is simply one of rebuilding what was once there, or whether a major redesign is needed. In the personal health services delivery system, we have finally confronted the fact that putting more money into medical care is unlikely to achieve the desired goals without major system redesign. The same is probably true of public health. Outdated public health laws, regulations, and technologies create serious inefficiencies and disperse the functions of public health to other agencies. Public health authorities are bound by jurisdictional lines, but disease respects no borders.

Most of the recent discussion about the public health infrastructure has focused on re-
building surveillance and laboratory capacity to detect and respond to a bioterrorist event. Yet in many areas of the country, infectious disease surveillance has changed little since the nineteenth century, computers and fax machines notwithstanding. Do we want to rebuild a nineteenth-century system, even with twenty-first-century technology? I think not. Also, largely absent from the bioterrorism discussion has been the notion that we still need a system to prevent the development of naturally occurring disease, to promote health, to link people with appropriate health services, and to ensure the provision of health care when it is otherwise unavailable. An infrastructure must support those public health functions, too.

■ Can we bring medicine and public health together? There are several other issues to consider. First, the infrastructure must bring medicine (or the personal health care delivery system) and public health together. Although our needs in bioterrorism preparedness and response are reason enough to do so, we cannot run an effective, efficient system without a fundamentally altered set of relationships. While many have tried to do this in the past, the truth is that the systems, in both medicine and public health, haven’t supported or reinforced the need for interdependency. Simply rebuilding the old system won’t change that. If we are building a new system, that can and should change.

For example, no physician should be licensed to practice medicine without an onsite, Internet-linked computer capable of transmitting and receiving critical public health information. Similarly, no hospital or laboratory should be permitted to participate in Medicare unless it has these capabilities and unless its public health functions, at least with regard to surveillance and monitoring, are fully integrated into the delivery of care. Anecdotally, systems that have moved in this direction have noted additional benefits, especially in patient safety and quality of care. From the perspectives of both infectious and chronic diseases, such capacity to monitor and respond to health issues in a community has never been of greater importance. The public health infrastructure should be developed with such dual uses in mind.

■ Is reliance on “the market” impeding progress? Second, creating interdependent systems will require that we hold the medical care system responsible for its part. Emergency departments are closing to minimize the chance that a hospital will get “stuck” with uninsured patients. Now, many are rumbling that they will not vaccinate their first responders for smallpox, because they want to minimize the chance that they will become a “smallpox hospital.” And while we have placed great faith in “the market,” we will need to examine whether the public health infrastructure can deliver the necessary results while relying solely on market forces.

The impact of market failure in public health is profound. There has been virtually no investment in the development of new vaccines or in drugs and vaccines for infectious diseases seen only in the third world because there is virtually no business case for doing so. Even vaccines with unquestionable public health benefit, such as influenza vaccine, are underproduced because they do not return sufficient profit to their manufacturers, and no one has stepped in to sufficiently share the risk. In other areas we experimented with shifting responsibility for public health and prevention in “populations” to managed care systems. While there are some shining exceptions, most systems soon found that neither prevention nor the benefits of using tools of epidemiology and public health to manage the health of enrolled populations were sufficiently profitable, at least in the time frame demanded by investors. (However, in markets where managed care systems have consolidated, the value of prevention is rising once again.)

■ Can we build in accountability? Third, the infrastructure must support public health systems’ accountability for results. Here we can learn from the medical care system. For example, the goal of delivering patient-centered care is helping to break down stovepiped roles of generalists and specialists, doctors and nurses, and other health care professionals and
social service systems. We are beginning to demand that a patient entering a hospital be asked questions only once and that patients have access to their own medical records. The drive toward quality has led us to measure and monitor the delivery of care.\(^3\) We are appropriately outraged when we learn that the care one gets differs according to the color of one’s skin or the accent in one’s speech, and we are beginning to expect providers to be accountable for the components of disparate care over which they have control.\(^4\)

We should also expect public health systems to be accountable and must build an infrastructure that supports accountability. The parallels to the medical care system are obvious. Community-centered approaches are needed. We need to address problems of programmatic funding that reinforces interventions targeted at a given disease or health behavior rather than supporting a set of interventions aimed at the underlying social and environmental conditions. Communities, like individual patients, often lack timely (or any) access to data with which to understand the health of their residents, and in areas unrelated to infectious diseases, funding for measurement and monitoring continues to diminish. A little recognized fact is that there are insufficient data resources to assess our progress on many of the Healthy People 2010 objectives. We have tolerated a public health system whose performance in communities differs by the socioeconomic status or racial/ethnic composition of their populations. Ironically, such disparate public health performance can itself lead to disparate access to care in the medical care system.\(^5\)

**How can we improve quality?** It is time to bring the drive toward improved quality to public health.\(^6\) Just as creating health systems and responsive information systems has been key in health care, creating public health systems, rather than loosely affiliated programs, combined with appropriate infrastructure and responsive information systems is a good place to start. Increasingly, personal health care delivery systems that are not accountable for outcomes face negative consequences, such as losing market share, losing accreditation, or legal sanctions. There is, as of yet, no clear structure in which to enforce the accountability of public health systems. This should be a subject of serious public policy discussion.

**An immediate need** is accountability for the current massive infusion of federal funds into state public health systems. New federal outlays have come at a time when state governments and their health departments are facing large deficits. Will we allow this money to simply plug the latest hole in the dike? Or will we insist on building a system that meets the public health needs of the twenty-first century in an efficient, accountable, and equitable manner and that does, in fact, protect and promote the health of the nation? Will we be able to look back in 2010 and find that we really have achieved our public health goals?

The author appreciates the thoughtful comments of Robert Valdez.

**NOTES**

1. *Healthy People: The Surgeon General’s Report on Health Promotion and Disease Prevention*, first published in 1979 under the direction of Jules Richmond, provided a set of national public health goals. Its sequel, *Healthy People 2000*, released in 1990, identified health improvement goals for the next decade. *Healthy People 2010* follows in that tradition. It was developed under the direction of former HHS Secretary Donna Shalala, Assistant Secretary for Health David Satcher, and the former assistant secretaries for health.


6. National Public Health Performance Standards were recently released in conjunction with the CDC and the Public Health Foundation.