From the Editor-in-Chief

“Public Health Is Purchasable”

HOWARD MARKEL

AS I WRITE THESE WORDS IN THE EARLY WEEKS OF SUMMER, THE Ebola fever panic of 2014 has long since receded into our collective rearview mirror and the number of Zika virus cases, along with the discovery of more and more babies with Zika-induced microcephaly, is steadily increasing. By the time you read this column, swarms of *Aedes aegypti* and *Aedes albopictus* mosquitoes carrying the virus will have likely traveled from South America to points north, east, and west, accompanied by the predictable media hoopla that characterizes every American epidemic.

Sadly, the interregna between the many contagious crises of the still young 21st century have been characterized by a global amnesia. As the “epi curve” of each scourge descends, public health officials, elected leaders, and the population at large turn their attention to other issues at the expense of planning for the next newly emerging infectious disease. And just as predictably, the appearance of each new pandemic or epidemic inspires a situation in which our public health officials must waste valuable time and energy securing adequate government funding to fight and contain the new threat. Ironically, in 1983, the US Congress established a public health emergency fund, much like the one for the Federal Emergency Management Agency (FEMA) uses to rapidly respond to natural disasters. Yet the balance of that federal public health emergency fund, as of June 2, 2016, was a mere \$57,000!

This sorry situation serves to remind us of, perhaps, the savviest paragraph on public health ever composed; it is one I will quote in 2 parts as this essay progresses. Let’s begin with the opening lines of what ought to be memorized as public health gospel:

Disease is largely a removable evil. It continues to afflict humanity, not only because of incomplete knowledge of its causes and lack of adequate individual and public hygiene, but also because it is extensively fostered by harsh economic and industrial conditions and by wretched housing in congested communities. Those conditions and consequently the diseases which spring from them can be

removed by better social organizations. No duty of society, acting through its governmental agencies, is paramount to this obligation to attack the removable causes of disease.¹

The great irony is that Hermann Biggs, the general medical officer of the Department of Public Health for the City of New York from 1902 to 1913, wrote these words in October of 1911.

Dr. Biggs's illustrious career began when the causative agents of myriad infectious diseases were first being identified. He was a leading figure in the cohort of public health professionals who applied these discoveries to the thorough, if incomplete, cleansing of the grime and sickness characterizing late 19th- and early 20th-century America, Europe, and beyond.

Hermann M. Biggs circa 1921

After graduating from the Bellevue Hospital Medical College in 1883, Dr. Biggs embarked upon a meteoric rise at both Bellevue and New York City's Health Department. In 1887, working with T. Mitchell Prudden, a professor of pathology at the Columbia University College of Physicians and Surgeons, Biggs championed the use of bacteriology tests for public health surveillance of deadly infectious diseases. In 1892, during the cholera epidemic of that year, he was appointed as consulting

bacteriologist of the health department and was charged with organizing and directing the first municipal bacteriology laboratory, which not only tested the purity of food and water but also applied bacteriological methods and evidence in diagnosing contagious diseases among incoming immigrants and New York City citizens.

In May of 1889, Joseph Bryant, the city's commissioner of health, asked his consulting pathologists, Biggs and Prudden, to report on tuberculosis, which they did with great insight and political savvy. Four years later, in the winter of 1893-1894, physicians working in New York City public institutions were required to report all pulmonary tuberculosis cases they diagnosed, and privately practicing physicians were "requested to notify" the department of all such cases. By 1897, notification to the health department by *all* physicians of *all* cases of pulmonary tuberculosis became compulsory, amidst great protest among privately practicing physicians who worried that their livelihoods and patients' rights were being threatened.

Undaunted, Dr. Biggs and his colleagues used the mandatory notification and reporting procedures to attack the spread of tuberculosis with the bacteriological analysis of sputum cultures obtained from those thought to be infected with the "white plague," and care plans and facilities for those suffering from the disease, including the employment of health workers who spoke the languages and understood the cultures of the many foreign-born patients they treated. It was a set of laws, regulations, and procedures proclaimed by no less a tuberculosis authority than the microbe's discoverer, the Nobel laureate Robert Koch.²

Beginning in 1905, Biggs set in motion what many scholars believe to be a first in American government: a formal budget for his health department that took scientific evidence into account. His goal was to intervene in the natural history of leading causes of morbidity and mortality, and he applied the best available data to deciding which services would most improve the health of citizens. For example, in 1921, in his role as a member of the Milbank Memorial Fund's Technical Board, Biggs advised and supported the Fund's chief executive officer, John Kingsbury, on a demonstration project he was planning in upstate New York. Biggs noted the importance of linking science and politics to "definitively demonstrate whether TB can be controlled; and, if so, at what cost."³

An anecdote I often relate helps to explain the remarkable shift in medical thinking about scientific evidence and disease causation, treatment, and prevention during Biggs's lifetime. One spring afternoon in 1882, Biggs's pathology professor at the Bellevue Hospital Medical College, William Henry Welch (who later became one of the founders of the Johns Hopkins Hospital and the Johns Hopkins School of Medicine), demonstrated Robert Koch's discovery of the tubercle bacillus (now known as *Mycobacterium tuberculosis*) as the etiologic cause of tuberculosis. Inspired by Welch's elegant scientific proof, Biggs ran to tell another professor, Alfred L. Loomis, about it. A few days later, a doubting Loomis ascended the lecture platform of the Bellevue Hospital amphitheater and dramatically looked about the room, stating with much merriment, "People say there are bacteria in the air, but I cannot see them." The young medical students in the room, far less impressed with germ theory than Biggs was, did what medical students often do when their professor cracks a joke: they laughed loudly.

Later that day, Biggs reported Loomis's comments to Welch. The pathologist shook his head sadly and said, "That's too bad. Loomis is such a nice man." Dr. Welch understood, as did Biggs, that time had passed Loomis by and, more importantly, the older ideas of disease causation and prevention Loomis had spent his career espousing were about to be superseded by new ones. Those refusing to accept and practice these new principles of science were destined to become walking relics.^{4(p141)}

Today, in an era of globalism, rapid transit and communication, emerging infectious diseases, and the recrudescence of old contagious enemies, a new paradigm has evolved: an outbreak anywhere on the planet has the potential to go everywhere. Simply put, germs travel. It is a given that we can never conquer such foes. Yet with adequate surveillance, research, and action, we do have a chance at wrestling them to a draw. In order to achieve that draw, however, we must be constantly planning for such events, based upon the best available scientific sources and a steady stream of financial and human resources.

In 1914, Biggs began to attack a larger set of health problems as commissioner of health for the state of New York. For example, he created a "public health council" charged with governing how his department would regulate hospital care and physician services, and, in 1919, during Governor Al Smith's first term, he proposed to organize health care for the poor in New York by creating community health centers offering comprehensive care. Sadly, Hermann Biggs died in 1923 before he could

see this last idea come to full fruition; it was a death many of his colleagues ascribed to overwork. His former professor, William Henry Welch, eulogized Biggs as "tenacious of principles in which he believed, patiently perseverant and fearless, without aggressiveness, constructive and clear in vision, with a sure sense of the immediately attainable."⁵(pxii)

He was, in short, the very model of a public health officer, a talented communicator, scientist, physician, and politician who insisted that in every public health venture, the operative word was "public." Dr. Biggs understood that without developing a strong consensus among the citizens he served and obtaining resources and support from political leaders, little could be accomplished in the attempt to rein in disease. This strategy is most evident in the remaining lines of Dr. Biggs's prescient prescription:

The duty of leading this attack and bringing home to public opinion the fact that the community can buy its own health protection is laid upon all health officers, organizations and individuals interested in public health movements. For the provision of more and better facilities for the protection of the public health must come in the last analysis through the education of public opinion so that the community shall vividly realize both its needs and powers. The modern spirit of social religion, dealing with the concrete facts of life, demands the reduction of the death rate as the first result of its activity. The reduction of the death rate is the principal statistical expression and index of human and social progress. It means the saving and lengthening of the lives of thousands of citizens, the extension of the vigorous working period well into old age, and the prevention of inefficiency, misery and suffering. These advances can be made by organized social effort. *Public health is purchasable* [italics added].¹(p226)

We have long known that public health is purchasable even if it comes at a high price. Indeed, the refusal by policymakers to purchase prevention and effective intervention not only ignores the long history of applying scientific evidence to our eternal struggle against disease; but also, it is morally wrong. The containment of an epidemic, from anthrax to Zika, typically costs more *after* it has spread its wings and taken flight. The same argument can be made for many chronic diseases as well.

As the Zika virus threatens to spread, as new microbial threats lie in wait, as preventable and treatable maladies are allowed to fester or worsen, as the cost of health care increases for individuals without appreciable benefits to the population's health, and as our poorer

citizens continue to experience worse health simply because of the zip code they were born in, we must take heart in reminding ourselves and others of Dr. Biggs's simple but hardly simplistic dictum.

Public health is purchasable.

We begin our Op-Ed section with a guest contribution by Louis Sullivan, the former US secretary of health and human services in the George H.W. Bush administration and president emeritus of Morehouse School of Medicine, on the need for diversity in the health care professions. Our regular columnists buttress Dr. Sullivan's astute observations with superb contributions of their own: Gail Wilensky outlines the current structure and governance of the Veterans Health Administration's health care system in the United States; Jonathan Cohn discusses the expansion of Medicaid in Louisiana; Catherine DeAngelis writes about the value and problems associated with quality measures in the primary care clinic; Sara Rosenbaum describes civil rights rules written into the Affordable Care Act; John McDonough predicts how Democrats might seek to improve and expand the Affordable Care Act in 2017; Joshua Sharfstein proposes a re-examination of the term "stakeholder" in health policy matters; and Lawrence Gostin writes about the influence big food manufacturers have had on the obesity epidemic.

In this issue, we feature a fine slate of peer-reviewed studies.

Our lead article by John P.A. Ioannidis investigates the mass production of redundant, misleading, and conflicted systematic reviews and meta-analyses. This article is followed by a commentary by Matthew J. Page and David Moher.

Elizabeth Cox, Rachel Ann Barry, and Stanton Glantz discuss the thorny topic of e-cigarette policymaking by local and state governments in the United States from 2009 through 2014.

We proceed to an article by Antonia K. Bernhardt, Joanne Lynn, Gregory Berger, James A. Lee, Kevin Reuter, Joan DaVanzo, Anne Montgomery, and Allen Dobson entitled "Making It Safe to Grow Old: A Financial Simulation Model for Launching MediCaring Communities for Frail Elderly Medicare Beneficiaries."

Hector P. Rodriguez, Rachel M. Henke, Salma Bibi, Patricia P. Ramsay, and Stephen M. Shortell discuss the "exnovation" of chronic care management processes by physician organizations.

Finally, Marsha Gold and Catherine McLaughlin look back at the Health Information Technology for Economic and Clinical Health Act's

experience in the first 5 years to assess its implementation, remaining challenges, and lessons learned.

References

1. Biggs H. Public health is purchasable. *Monthly Bulletin of the Department of Health of the City of New York*. 1911;1(10):225-226.
2. Fox DM. Social policy and city politics: compulsory notification for tuberculosis in New York. *Bull Hist Med*. 1975;49(2):169-195.
3. Fox DM. The significance of the Milbank Memorial Fund for policy: an assessment at its centennial. *Milbank Q*. 2006;84(1):5-36.
4. Flexner S, Flexner JT. *William Henry Welch and the Heroic Age of American Medicine*. New York, NY: Viking Press; 1941.
5. Winslow CEA. *The Life of Hermann M. Biggs, M.D., D.Sc., LL.D.: Physician and Statesman of the Public Health*. Philadelphia, PA: Lea and Febiger; 1929.

Acknowledgments: I am grateful to my colleague Daniel M. Fox, president emeritus of the Milbank Memorial Fund, for sharing his vast knowledge and historical insights on Hermann Biggs as I composed this editorial.