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The CDC at 60

CDC, an institution synonymous around the world with public health, turns 60 this summer. The Communicable Disease Center –as it was originally known—was established in Atlanta, Georgia, on July 1, 1946. Its founder, Dr. Joseph W. Mountin, was a visionary public health leader who had great ambitions for this small and comparatively modest branch of the Public Health Service (PHS). Its original staff of 369 employees –engineers, entomologists and a scant seven medical officers—were mosquito-fighting veterans of the health services unit known as 'Malaria Control in War Areas' and had been successfully charged with keeping the southeastern states malaria-free during World War II. The new institution would expand its reach to include all communicable diseases and would serve all 48 states of the Union, providing logistical and medical help during emergent outbreaks.

CDC's laboratories soon teemed with distinguished scientists and scholars, and many medical institutions, in the States and abroad, sent their public health staffs to Atlanta for training. Any tropical disease that was insect-borne and all those of zoological origin fell within its purview. Dissatisfied with his team's early progress, Dr. Mountin was notorious for pushing his staff to exceed their objectives. He reminded them that, with the exception of tuberculosis and venereal disease, the CDC was responsible for every communicable disease identified in the United States. To survive, CDC had to become a center for epidemiology.

60 years ago, medical epidemiologists were a scarce commodity, and it was not until 1949 that Dr. Alexander Langmuir arrived to head up the Epidemiology Division. He saw the CDC as "the Promised Land," full of hope and possibility for theretofore unimagined breakthroughs in disease control. Within months, he launched the first-ever disease surveillance program, which confirmed his suspicion that malaria, on which CDC spent the lion's share of its budget, had long since been vanquished within the United States. Subsequently, disease surveillance became the foundation on which CDC's mission was built and, in time, changed the practice of public health management.

In 1950, the Korean War was the impetus for creating CDC's Epidemic Intelligence Service (EIS). The threat of biological warfare loomed, and Dr. Langmuir, the residing expert in the PHS on what was then a seemingly arcane subject, saw an opportunity to train epidemiologists who would guard against ordinary threats to public health while watching out for alien bacterial and viral agents. The first class of EIS officers arrived in Atlanta for training in 1951 and, like missionaries of health, pledged to go wherever they were called for a two-year hitch. These "disease detectives" drew great acclaim for their "shoe-leather" approach to epidemiology, leaving no stone unturned as they ferreted out the cause of disease outbreaks.

But the survival of the CDC as an institution was far from certain in the 1950s. In 1947, Emory University donated land for a proposed, modern new headquarters, but construction did not begin for more than a decade. PHS was so intent on research and focused on the rapid growth of the National Institutes of Health that it showed little interest in what happened in distant Atlanta. Despite the many delays in appropriating money for new buildings, at least Congress was more receptive to CDC's pleas for support than the Public Health System.

But as fate would have it, it was two major health crises in the mid-1950s that established CDC's credibility and ensured its survival. In 1955, when poliomyelitis appeared in children who had received the recently approved Salk vaccine, the national inoculation program was immediately halted. The cases were traced to contaminated vaccine from a sole laboratory in California. The problem was solved and the inoculation program, at least for first and second graders, was resumed. The resistance of these six- and seven-year-olds to polio, compared to that of older children, proved the efficacy of the vaccine. In 1957, Dr. Langmuir's methods of surveillance were used again to trace the course of a massive influenza epidemic. From the data gathered throughout that year, and in subsequent findings, the national guidelines for influenza vaccine were developed.

Its reputation now assured, the CDC and its spectrum of services rapidly expanded. The U.S. Health Department's venereal disease program came to Atlanta in 1957 and with it the first Public Health Advisors—non-science college graduates destined to play an key role in making CDC's disease-control programs effective. The tuberculosis program moved in 1960, immunization practices and the publication of the epidemiology digest, *Morbidity and Mortality Weekly Report* (*MMWR*), in 1961. The Foreign Quarantine Service, one of the oldest and most prestigious units of PHS, came aboard in 1967; many of its functions were soon re-purposed in better ways of doing the work of quarantine, primarily through overseas surveillance.

The Federal Government's long-established nutrition program also migrated to the CDC, as well as the National Institute for Occupational Safety and Health, and the work of already established units doubled and trebled. Immunization tackled measles and rubella control, while Epidemiology added family planning and surveillance of chronic diseases. When CDC joined the international malaria-eradication program and then accepted responsibility for protecting the Earth from potential pathogens brought back from the Moon, CDC's mission stretched not only overseas, but into space.

The CDC played a key role in one of the greatest triumphs of public health management—the eradication of smallpox. In 1962 it established a smallpox surveillance unit and, a year later, tested a newly developed air-powered, needle-free injector and vaccine in the Pacific island nation of Tonga. After refining new immunization techniques in Brazil, CDC began work in Central and West Africa in 1966. After millions of people there had been vaccinated, CDC's thorough surveillance of results significantly speeded the work along. The World Health Organization used this "eradication escalation" technique elsewhere with such success that global elimination of smallpox was achieved by 1977. The United States spent only $32 million on the project, the equivalent cost of treating an outbreak for only two and-a-half months.

As the scope of CDC's activities expanded far beyond its original charter, its name was changed from the Communicable Disease Center to the Center for Disease Control in 1970. In the realm of infectious diseases, CDC maintained its preeminence, identifying the Ebola virus and the sexual transmission of hepatitis B, and isolating the hepatitis C virus and the bacterium causing Legionnaires disease. Other studies included the linking of Reye syndrome with aspirin use, the relationship between liver cancer and occupational exposure to vinyl chloride, and the harmful effects of popular liquid protein diets.

In the 1980s, the decade began with a national epidemic of Toxic-Shock syndrome, the clinical documentation of its association with a particular brand of tampons, and the subsequent withdrawal of that product from the market. CDC's collaboration with the National Center for Health Statistics (NCHS) resulted in the removal of lead from gasoline which, in turn, has significantly improved air quality and reduced numerous toxic agents in the environment linked with cancer and respiratory illness. But the major public health event of the 1980s was the emergence of AIDS. CDC helped lead the response to this epidemic, including characterization of the syndrome and defining risk factors for its transmission.

In collaboration with the National Cancer Institute, the CDC assessed the risks for breast, cervical, and ovarian cancers associated with both oral contraceptives and estrogen replacement therapy. And at the request of Congress, CDC undertook a series of studies of the health effects of service in Vietnam on veterans and their offspring, which led to the development of a serum test for toxicants in measures as microscopically minute as one part per quadrillion.

A new millennium may have dawned, but at least one 60-year protocol remains vital as the CDC continues to employ the classic field-oriented epidemiology pioneered by Drs. Mountin and Langmuir. And alongside those traditional practices are new methodologies. Modern-day disciplines of Health Economics and Decision Sciences have merged to create a new area of emphasis –Prevention Effectiveness—as an approach for making more rational and cost-effective choices for public health interventions.

From its humble origins –really not so long ago—controlling the scourge of mosquitoes in the South to its role as one of the preeminent public health organizations in the world, the CDC's first 60 years have been truly remarkable. Officially rechristened by Congress in 1992 as the Centers for Disease Control *and Prevention* to recognize CDC's expanded leadership role in matters of domestic and global health, the CDC remains ready to address the challenges to its mission of healthy people in a healthy world through prevention.