

In Memoriam: Joshua Lederberg

[Announcer] This podcast is presented by the Centers for Disease Control and Prevention. CDC — safer, healthier people.

[Peter Drotman] Hi, I'm Peter Drotman, Editor-In-Chief of the Emerging Infectious Diseases journal. I'm speaking today with Dr. Jim Hughes, who's Professor of Medicine and of Public Health at Emory University. He is also a former Assistant Surgeon General of the U. S. Public Health Service and we're here to talk about an article in the June 2008 issue of Emerging Infectious Diseases about Dr. Joshua Lederberg. The world of emerging infections lost a valuable friend and inspiring leader earlier this year when Dr. Lederberg died. The global recognized scientist, educator, national and Presidential scientific advisor, and Nobel Laureate sadly died of pneumonia on February 2, 2008 at the age of 82. Dr Lederberg's early work in bacterial genetics virtually established the discipline of molecular biology, earning him a Nobel Prize in Physiology or Medicine in 1958 when he was only 33 years old. Jim, what are some of your memories of Dr. Lederberg?

[Jim Hughes] Peter, to those of us working in the field of emerging infectious diseases, Dr. Lederberg will be most remembered for his pioneering role in recognizing the threats posed by emerging and reemerging infections and their implications for public health and national security.

[Peter Drotman] Dr. Lederberg is well known to readers of Emerging Infectious Diseases, both because he contributed to the journal and also because of his leadership as Co-Chair, along with the late Dr. Bob Shope, to the Institute of Medicine's landmark 1992 report called *Emerging Infections Microbial Threats to Health in the United States*. Can you tell us a little bit about that report?

[Jim Hughes] Certainly. This was a landmark report that defined the concept of emerging and reemerging infections, identified factors contributing to disease emergence and reemergence, and emphasized the current and future challenges posed by infectious diseases. The report also highlighted deficiencies in our nation's public health infrastructure and made a number of recommendations on the need to strengthen domestic and global infectious disease surveillance systems, address new priority areas of research, provide multidisciplinary training for the next generation of scientists and public health workers, and establish new and enhance existing disease prevention and control programs.

[Peter Drotman] One could say that Emerging Infectious Diseases owes its genesis to that very report.

[Jim Hughes] Yes, Peter, that's true. Dr. Lederberg and Dr. Shope were extremely effective in communicating the committee's observations and recommendations to the scientific, public health, and public policy communities, generating broad and renewed interest in infectious diseases. The report really had a profound impact on the CDC, the National Institute of Allergy and Infectious Diseases (NIAID), and the Department of Defense, as well as other federal agency programs involved in addressing emerging infectious disease threats. The report's emphasis on the need for interdisciplinary strategies and coordinated approaches led to the establishment of

the Working Group on Emerging and Re-emerging Infectious Diseases under the auspices of the National Science and Technology Council in the White House. This Working Group was chaired by CDC Director at the time, Dr. David Satcher, and its deliberations led to vastly improved communication and collaboration among the federal agencies.

[Peter Drotman] What was the impact of the IOM report on CDC?

[Jim Hughes] For CDC, the impact of the IOM report and Dr Lederberg's contributions were dramatic. CDC worked with a number of partners to develop new domestic and global strategies to address emerging infections, including specific efforts to respond to the IOM recommendations. Dr Lederberg served as an advisor on the development of these strategies, the first of which was published in 1994, with an update 4 years later. From 1994 through the year 2004, CDC's funding for infectious diseases grew nearly 200-fold, from \$1 million in 1994 to more than \$190 million in 2004, enabling development and implementation of numerous programs to build epidemiology and laboratory capacity and improve preparedness and response capacity for infectious diseases and other public health threats. Examples of these programs include the Emerging Infections Programs with activities such as FoodNet and Active Bacterial Core surveillance; the International Emerging Infections Programs; the Epidemiology and Laboratory Capacity for Infectious Diseases cooperative agreement; the Emerging Infectious Diseases Laboratory Fellowship Program; this journal; and the International Conference on Emerging Infectious Diseases, which was first held in 1998 with Dr Lederberg serving as the inaugural plenary speaker.

[Peter Drotman] Much of the impact was inside the United States, but internationally there were significant impacts as well.

[Jim Hughes] Dr. Lederberg was an extremely effective advocate for strengthening national and global programs to address emerging infectious diseases. He consulted with the World Health Organization as they were developing their emerging infections program. And he personally met with the Director-General of WHO at the time, Dr. Hiroshi Nakajima, and advocated with him directly for the importance of establishing and supporting this program.

[Peter Drotman] Can you tell us a little bit about your interactions with Dr. Lederberg?

[Jim Hughes] Yes, Peter. I first encountered Professor Lederberg in the late 1960s, when I was a medical student and he was the chairman of the Genetics Department at Stanford. His stature and accomplishments were already legendary, and I and my fellow medical students were really in awe of him. Over the course of my CDC career, I was fortunate to have many interactions with him and came to know him as Josh and to greatly benefit from his insightful questions, keen observations, and constructive comments. In fact, in talking with him, I learned to anticipate hearing questions I had never heard before and rarely, if ever, knowing the answer. However, he was very approachable and consistently available to discuss a broad range of issues, having an uncanny ability to readily span from basic science, to applied science, to public health, to policy, and to national security. He was a mentor, a friend, and a colleague to many, many people around the world.

[Peter Drotman] Including those of us at Emerging Infectious Diseases journal. He was a great friend of ours and an early champion of EID, supporting the journal from its very first issue back in 1995. He helped us in specific ways, such as obtaining credibility by recruiting editorial board members. He supported our application for early listing at the National Library of Medicine's databases, and encouraging authors and reviewers of our newborn journal. We profiled him briefly when he published his plenary lecture at the inaugural ICEID that you mentioned earlier back in 1998, and in that profile, we compared his far-seeing work to that of one of the founders of modern medicine, Rudolf Virchow, because both of those esteemed scientists wrote reports that called attention of the central governments to the manifold contributions to the web of causation of emerging diseases. And how will Dr. Lederberg be remembered?

[Jim Hughes] He'll be remembered for his scientific vision and contributions, his integrity and credibility, and his unwavering commitment to advocate for the highest quality science and evidence-based public policy. He was a firm believer in the need for scientists and public health officials to communicate clearly and concisely with policy makers and with the public on scientific and public health issues. His influence and impact reached broadly, across areas of expertise and around the world. He worried considerably about the next influenza pandemic and constantly reminded everyone of the need to work on improving national and global preparedness for the next pandemic. He also felt that we would certainly continue to experience unexpected infectious disease challenges and problems, including the identification of previously unidentified diseases. His wisdom and counsel will be greatly missed.

[Peter Drotman] Our discussion today with Dr. Hughes was prompted by an article about Joshua Lederberg, published in the June 2008 issue of Emerging Infectious Diseases. This article, and others on emerging bacterial and viral diseases, can be read online at www.cdc.gov/eid. Again, that's www.cdc.gov/eid. You can submit comments on this interview to ededitor@cdc.gov. For the Emerging Infectious Diseases journal, I'm Peter Drotman.

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