

Public's Health and the Law in the 21<sup>st</sup> Century  
5th Annual Partnership Conference

Plenary Session

*"Escaping the Flu"*

*A Historical Assessment of Nonpharmaceutical Disease Containment Strategies Employed  
by Selected Communities During the Second Wave of the 1918-1920 Influenza Pandemic*

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12:00-1:30 pm

In the absence of adequate stocks of an effective vaccine and/or antiviral drugs, the United States may have to rely on nonpharmaceutical interventions (NPI) to contain the spread of an infectious disease outbreak until pharmacological means become available. Because many of these NPI are costly and socially disruptive, their effectiveness and practicality need to be understood before their implementation or incorporation into a response plan.

Dr. Markel and colleagues undertook a historical evaluation of these NPI as employed by American communities during the second wave (September-December 1918) of the 1918-1920 influenza pandemic. A team of medical historians from the University of Michigan Medical School's Center for the History of Medicine visited these communities to access and collect available primary source material from libraries, archives, and other private and public holdings. They selected 7 communities that reported relatively few, if any, cases of influenza, and no more than one influenza-related death, while NPI were enforced during the second wave: San Francisco Naval Training Station, Yerba Buena Island, California; Gunnison, Colorado; Princeton University, Princeton, New Jersey; Western Pennsylvania Institution for the Blind, Pittsburgh, Pennsylvania; Trudeau Tuberculosis Sanatorium, Saranac Lake, New York; Bryn Mawr College, Bryn Mawr, Pennsylvania; and Fletcher, Vermont. The researchers labeled these "provisional influenza escape communities." "Provisional" means the researchers could not definitively determine on the basis of the historical evidence if these communities sustained low morbidity and mortality rates because of policy decisions made by their community leaders and public health officials, because the virus skipped some communities altogether and varied in its behavior in other communities (viral normalization patterns), or because of other factors such as population density, geography, and good fortune.

Historical research is fraught with all the problems and limitations of retrospective studies. The researcher may be helped or hindered by numerous investigators, recorders, and collectors of information who

preceded him or her and generally performed their work without a common reference framework or even sets of uniform definitions and concepts. The historian must also rely upon archivists who may or may not have preserved this material and cataloged it in a way that aids retrieval. These issues are some, but hardly the only, limitations of any historical study, including this one. Nevertheless, history represents an essential arrow in the quiver of human inquiry.

One would like to think that the 7 communities fared better than others because of the NPI they enacted. That cannot be proved for any of them, although the case is, perhaps, strongest for the Naval Training Station at Yerba Buena Island and, possibly, Gunnison, Colorado. A further complication is the fact that some of these communities were sparsely populated and geographically isolated, and all of them were subject to the vagaries of how the influenza virus normalized in affected populations.

Limited by these factors, the researchers reached two major conclusions:

(1) Protective sequestration (the shielding of a defined and still healthy group of people from the risk of infection from outsiders), if enacted early enough in the pandemic, crafted so as to encourage the compliance of the population involved without draconian enforcement measures, and continued for the lengthy period of time at which the area is at risk, stands the best chance of protection against infection. When implemented successfully, protective sequestration also involves quarantine of any outsider who seeks entry, self-sufficiency in the supplies necessary for daily living, enforcement of regulations when necessary (including fining and jailing), and the ability of those sequestered to entertain themselves and maintain some semblance of a normal life.

(2) Available data from the second wave of the 1918-1920 influenza pandemic fail to show that any other NPI (apart from protective sequestration) was, or was not, effective in helping to contain the spread of the virus. American communities engaged in virtually the same menu of measures, including: 1) the isolation of ill persons; 2) the quarantine of those suspected of having direct contact with the ill; 3) social distancing measures, such as the cancellation of schools and mass gatherings; 4) reducing an individual's risk for infection, (e.g., face masks, hand washing, respiratory etiquette); and 5) public health information campaigns and risk communications to the public. Despite these measures, most communities sustained significant illness and death; whether these NPI lessened what might have been even higher rates had these measures not been in place is impossible to say on the basis of available historical data. Moreover, the researchers could not locate any consistent, reliable data that would support the conclusion that face masks, as available and as worn during the 1918-1920 influenza pandemic, conferred any protection to the populations that wore them.

However inconclusive are the data from 1918, the collective experiences of American communities from the pandemic are truly noteworthy, especially in light of the fact that faced with a pandemic today we would likely rely on many of these same NPI to attempt to contain the spread of the infection until pharmacological supplies of vaccine and antivirals were available.

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Dr. Howard Markel was born in Detroit, Michigan in 1960 and grew up in Oak Park and Southfield, Michigan. Dr. Markel was educated at the University of Michigan (A.B., in English Literature, *summa cum laude*, 1982; M.D., *cum laude*, 1986) and the Johns Hopkins University School of Medicine (Internship, Residency, and Fellowship in General Pediatrics and Adolescent Medicine, 1986-1991; Ph.D., History of Science, Medicine and Technology, 1994). He joined the faculty at the University of Michigan in 1993.

A prolific writer, Dr. Markel is the author of several books including [The H.L. Mencken Baby Book](#), the textbook [The Portable Pediatrician](#) and, [The Practical Pediatrician: The A to Z Guide to Your Child's Health, Behavior and Safety](#) (written with Frank A. Oski and published by W.H. Freeman/Scientific American

Books). In 1996, The Practical Pediatrician was named "Best Book of the Year" by Child Magazine. He is the co-editor of two books including, Human Diseases and Conditions (Scribner's, 2000) and Formative Years: Children's Health in America, 1880-2000 (University of Michigan Press, 2002) and, with Alexandra M. Stern, the co-editor of a series of books called "Conversations in Medicine" for the University of Michigan Press.

His critically acclaimed study of immigration and public health in the United States during the 19th century, Quarantine! East European Jewish Immigrants and the New York City Epidemics of 1892 was published by the Johns Hopkins University Press in June, 1997. In a review for The New Republic, Dr. Sherwin Nuland, the 1994 National Book Award winner, described Quarantine! as "a remarkable book, uniting the best of the two worlds of social history and clinical history and yet so gripping in narrative style that it kept me fascinated until the very end. Markel is to be congratulated on his ability to write engagingly for a wide variety of readers, while making a major scholarly contribution to the field". Quarantine! was released in paperback by Johns Hopkins University Press in spring of 1999 and in 2003, it won the American Public Health Association's Arthur Viselstear Prize for best book in the field of public health.

His most recent book, When Germs Travel: Six Major Epidemics That Have Invaded America Since 1900 and the Fears They Have Unleashed, a history of the American immigration experience with disease and public health in the 20th century, was published by Pantheon/Alfred A. Knopf Books in May, 2004 and as a trade paperback by Vintage/Random House Books in May, 2005. It was named one of the "Ten Most Important Books of 2004" by The Globalist Magazine. The New York Times Book Review described the book as "vivid", The St. Louis Post-Dispatch noted that "his ability to make medicine accessible and understandable to readers is remarkable", Dr. Abraham Verghese, author of My Own Country, wrote "Markel writes beautifully, and his perspective as both a trained historian and a dedicated physician make him a writer like no other, and The Wilson Quarterly urged "Everyone who considers the United States a nation of civilized people should read this book".

Dr. Markel is a frequent contributor to The New York Times. His articles, essays, commentaries, and reviews have also appeared in The New York Times Book Review, Harper's Magazine, The Atlantic Monthly, The New Republic, The Wall Street Journal, The International Herald Tribune, The American Scholar, The Washington Post, The Baltimore Evening Sun, The Forward, Redbook, ELLE, Child, and Good Housekeeping and on National Public Radio's "Morning Edition" and Public Radio International's "Marketplace". He also served as the guest co-editor of the February 16, 2000 issue of The Journal of the American Medical Association and a regular contributor to the Perspectives section of The New England Journal of Medicine. He is also the author of over one hundred articles, essays and reviews on pediatrics and the history of medicine in the scholarly academic literature such as The New England Journal of Medicine, The American Journal of Public Health, The Journal of the American Medical Association, The Lancet, and Bulletin of the History of Medicine, in addition to being a contributor to The Encyclopedia of New York City, The Oxford Companion to United States History, The American National Biography, and The Encyclopedia of Microbiology.

Professor Markel sits on or has sat on several editorial and executive boards of scholarly publications and academic societies and is a Fellow of the American Academy of Pediatrics, an elected member of the American Pediatrics Society and the Society for Pediatric Research, and a member of the American Association for the History of Medicine.

Dr. Markel is the recipient of numerous awards, fellowships, and honors including the Robert Wood Johnson Generalist Faculty Scholars Award, the James Shannon Director's Award of the National Institutes of Health, the National Institutes of Health National Research Service Award, the Commonwealth Fund, the Burroughs-Wellcome Fund 40th Anniversary History of Medicine Award, and a National Library of Medicine/National Institutes of Health Award. In 1999, Mayor Rudolph Giuliani named Professor Markel a

Centennial Historian of the City of New York for his scholarly study of New York City and the history of public health and immigration.

During the academic year of 1999- 2000, Dr. Markel was an Inaugural Fellow and Scholar at the Center for Scholars and Writers of the New York Public Library. From 2005 to 2006, he served as a historical consultant on Pandemic Influenza Preparedness Planning for the United States Department of Defense. For the academic year 2006-07, he is the John Rich Professor at the Institute for the Humanities at the University of Michigan.