

Smallpox Vaccination — The Call to Arms

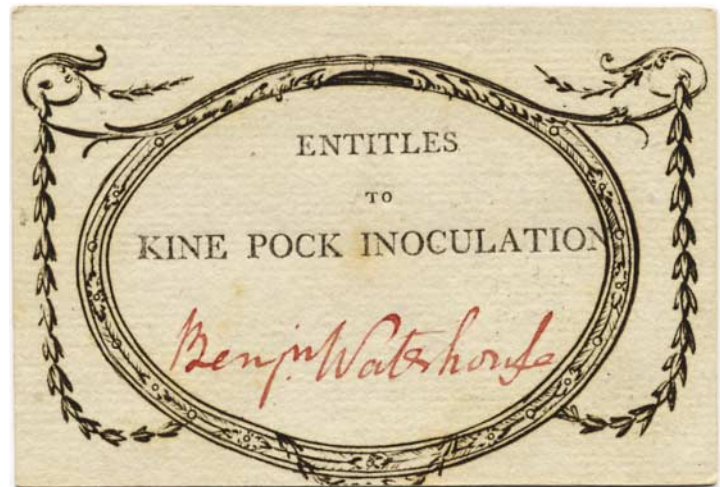
Terry L. Schraeder, M.D., and Edward W. Campion, M.D.

The possibility of biologic warfare has entered the national psyche. Vaccination against smallpox has begun. For physicians and other health care professionals, the current call to arms means more than rolling up our sleeves for the prick of a bifurcated smallpox-vaccine needle. It means making sensitive decisions for ourselves and giving important education and advice to our patients. After all, we have faced fearful uncertainties before, and we do have wisdom from past experience.

Our government is basing the current smallpox response and vaccination plan, in part, on mathematical modeling of smallpox-attack scenarios such as that performed by Bozzette et al. A report on their research and recommendations appears in this issue of the *Journal* (pages 416–425), along with several other informative reports about smallpox. But no statistical model can predict the thoughts of a terrorist. And no analysis can tell how individuals or countries will act in a time of crisis. The public health question has changed from “Are we at risk from a smallpox attack?” to “Whom should we be vaccinating?”

Health professionals are familiar with risk. Doctors and nurses have responded during past crises to provide care for patients and help protect the public health, even when there has been significant personal susceptibility. From epidemic tuberculosis to radiation and contaminated blood, occupational hazards have always been part of treating patients. The complications of the smallpox vaccine will be both real and random. Fortunately, they will also be rare. Even for those of us who decades ago received vaccinia, there is now more concern about decisions to use this vaccine, with greater awareness of the risks and less trust in recommendations about vaccines in general.

Although physicians may be familiar with risk, the public is not. A risk of disease and death from a vaccine, no matter how small, may be unaccept-



Card Signed by Benjamin Waterhouse, the Physician Credited with Introducing Smallpox Vaccination to the United States in 1800.

The card allowed the bearer free or reduced-rate vaccination against smallpox. (Courtesy of the Boston Medical Library, Countway Library of Medicine.)

able. The public needs to understand the risks associated with vaccinia, including possible transmission to others. In this issue of the *Journal* (pages 426–432), Blendon et al. reveal that only 27 percent of the public understands that someone who has physical contact with a recently vaccinated person can contract a serious infection. The more people we vaccinate, the more likely we are to see serious complications. Media coverage and public outcry will most likely follow the first severe reactions to the vaccine. The information and perspective that physicians provide will affect how the public responds. Some may demand immediate access to the vaccine, and others may refuse it altogether. A core group of first responders, who are being vaccinated, have accepted the small degree of risk to help protect the health of the public.

The best decisions are made when all the facts are known. Many health care workers and much of the public still appear to be ill informed about smallpox and the smallpox vaccine. And with the threats of terrorism, just as in many medical emergencies, all the facts cannot be known. In his Sounding Board article (pages 460–463), Mack discounts the alarmists' scenarios. He concludes that an introduction of smallpox could produce a substantial number of cases but not widespread disease. Given past experience, he believes that "our greatest concern should be about transmission within hospitals." Sepkowitz (pages 439–446) reviews the literature on secondary transmission of vaccinia and cautions against a self-inflicted epidemic of vaccine-transmitted vaccinia.

The articles we are publishing make it clear that education is just as important as plans for prevention and treatment. Whether or not the world ever sees another person with smallpox, plans for vaccination and response must be based on sound science and rational understanding. Decisions should be based not on rumor, political pressure, or reactions to media reports but on advice from those with knowledge and experience. As in clinical medicine, one always wants to ensure the best outcome, but at times, one is forced to make a decision that merely averts the worst.

As vaccination programs move forward, there are important principles to keep in mind. We need effective teams ready to respond to any kind of bioterrorism, including that involving the many dangerous agents other than smallpox. The world's developed countries must be prepared to help with outbreaks, perhaps accidental ones, in underdeveloped countries that are ill prepared to respond. And we must be prepared to hold to a steady course, with a rational response plan and vaccination policies, even if there is wide publicity about adverse effects of vaccinia or an outbreak of smallpox somewhere in the world.

Many public health decisions rely on theoretical data. With the smallpox-preparedness plans, we will know whether our decisions are right or wrong only on the basis of the eventual outcome. As physicians and health professionals with the responsibility to protect the public health, we must trust our heads and our hearts. We must give informed guidance to our patients, peers, and policymakers. And if necessary, we must also roll up our sleeves and be vaccinated.

From the Department of Medicine, Mount Auburn Hospital, Cambridge, Mass. (T.L.S.). Dr. Schraeder is an editorial fellow at the *Journal*.

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