

Homeland Security Insurance

SMALLPOX, ONE OF MANKIND'S DEADLIEST SCOURGES, has killed more people in the 20th century than warfare. One hundred and eleven million people died in war; smallpox killed between 300 million and 500 million people.

There is no medicine to treat it. The transmission rate is high. And it's fatal in more than 30 percent of the cases.

The use of smallpox as a terrorist's weapon of mass destruction poses a very real threat. Yet we have an opportunity and the means to prevent the disaster that would result—if we act now. We have plenty of the vaccine, more than enough to begin a voluntary vaccination program.

At the close of the 18th century, Dr. Edward Jenner, an English physician, developed a vaccination for smallpox, which conferred immunity without causing the severe effects of the disease itself. This vaccine has evolved into what we now know as vaccinia. Through the widespread practice of vaccination through most of the 19th and 20th centuries, smallpox was virtually eradicated around the world. By the 1980s, teams of doctors from the Centers for Disease Control and Prevention (CDC), the USSR, and other countries eradicated smallpox in nature. Most of the international community had resolved to discontinue vaccination, though many countries saved a limited supply of vaccinia virus as a safety measure.

Now, the rising threat of biological terrorism has revived the danger of smallpox. Because we stopped vaccinating in 1972, and immunity from vaccination lasts no longer than 10 years, few under the age of 30 are immune. Even adults who were vaccinated as children no longer have immunity. And there is no such thing as hereditary resistance. Today, our nation is as vulnerable as the unvaccinated American Indians who, in 1802, suf-

fered death rates as high as 66 percent because they had no history of the disease.

Until recently, the supply of vaccine against smallpox has been too small to cover the total population, or even all those who would opt to take the vaccine if it were offered. Recently, the government has acquired new supplies, and it has determined that the vaccine can be diluted without seriously impairing its effectiveness. A gift of about 85 million doses of vaccinia from Aventis-Pasteur Pharmaceutical, which can be diluted 5 to 1, provides enough to cover every American who wants the vaccine.

Though vaccination with vaccinia is safe and effective for most people with healthy immune systems (most of the population), there is some risk for people with weakened immune systems. These immune-compromised people, who make up a small minority of the population, should not be forced to take the vaccine. Even they, however, would benefit from the widespread immunity afforded those who participate.

Even so, the U.S. government's Advisory Committee on Immunization Practices has recommended against mass vaccinations. Rather, the committee advocates withholding vaccine from the general public and following a "ring vaccination" policy. Ring vaccination involves contact tracing of every reported smallpox case, then quarantining, vaccinating, and monitoring every case and contact.

Under the conditions of a terrorist attack, however, ring vaccination would be impractical. The public would be in a state of pandemonium, demanding a large-scale vaccination program. Ring vaccination is folly, an idea that belonged to a time when vaccinia was believed to be in short supply.

Health and Human Services Secretary Tommy Thompson is now re-examining whether to continue the policy of withholding vaccines from those who wish to be vaccinated. Any such review should consider the advantages and disadvantages of a pre-emptive vaccination program similar to the programs in effect before the disease was eradicated in nature.

One prerequisite to making the vaccine available is to limit the extent of liability lawsuits arising from the consequences of the vaccination. The government should re-



Dr. Edward Jenner

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quire each vaccine recipient to sign an informed consent and liability release. It would eliminate awards for adverse consequences, or at least make prescribed payments out of a fund created for that purpose. The program for vaccination will be successful only if the manufacturers are protected from uncontrollable legal actions.

Once the matter of liability for adverse vaccine effects has been defined, those adverse effects must be weighed against the advantage of being protected from the detrimental effects of contracting smallpox.

While there are some imponderables, some parts of the problem can be quantified, although there can be disputes as to what the statistics mean and how to apply them. For example, what is the probability of a successful terrorist attack? The CDC says the probability is extremely low; The secretary of defense puts it at near certainty. Dr. Donald A. Henderson, chief of the Johns Hopkins Center for Civilian BioDefense Studies in Baltimore, says that smallpox is at the head of the list of potential biological agents, with the greatest degree of virulence and transmissibility. And experience shows that bioterrorism has already been employed in this century by the spreading of anthrax spores through the U.S. mail.

A second difficulty in quantification is estimating the fatality rate. This rate depends on the nature of the pox virus. Which of several strains is likely to be used? A highly virulent and transmissible strain would be more deadly than a weaker strain.

The case fatality rate also depends on the vaccination status of the population. Past statistics, drawn from an era when vaccination was widespread, won't apply to a population containing a large cohort of people who have never been vaccinated. However, even the most ardent opponents of vaccination admit that the smallpox case fatality rate can amount to

at least 30 percent, perhaps much more.

It would then be necessary to estimate the number infected. This is a function of the number initially infected, the rate of spread, and the speed with which the government enforces quarantines and makes vaccine universally available. The rate of spread has been estimated as from two to 38 new cases from one person initially infected. Whatever the rate of spread, we know it will be high.

If 80 percent of the population with normal immune systems were immunized, the total number of deaths from vaccine would be about 150, which is about the same as the number of auto deaths on a given day. The CDC's model assumes it would take an agonizing year before a hostile-engendered epidemic would be brought under control, even with quarantine and contact vaccination within the ring.

What would that year be like? We would be left in a state of martial law for months or years. Our economy would be unable to sustain the military in combat readiness, leaving us vulnerable. Assuming that 10 million cases of smallpox arise before the government gets the spread of disease under control, upwards of 3 million deaths would occur. This is a heavy price to pay for the initial decision to hold back vaccination to avoid 150 vaccine-related deaths.

As if that's not enough, there would be other consequences. A widespread smallpox epidemic would generate a multitude of life insurance claims that could overwhelm the capacity of company surplus, even if backed by state insolvency funds. The cost of health care of those affected, both the living and the dying, would also be considerable.

Admittedly there would be some cost of caring for those who get sick from vaccination, and for their loss of time from work. But that cost pales in comparison with the alternative.

President Bush says we must pre-empt terrorist strikes. Smallpox is one terrorist threat we can pre-empt, not by attacking anyone else but by protecting ourselves with vaccination. Voluntary vaccination now, backed up by a robust quarantine system, is the surest way to contain the epidemic. Each American should have the right to make his own informed choice to be vaccinated.

The government has been, and so far continues to be, unwilling to allow us to protect our families and ourselves from this dread disease, even though the means is now at hand. Officials can be persuaded if enough of us who care about protecting our families and ourselves speak up. Let's tell Congress we are now ready for the vaccines the government is holding in storage for us. ●

RESOURCES

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