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## SCENARIO PLANNING ASSUMPTIONS: METHOD OF SMALLPOX ATTACKS

### Smallpox Biological Weapons

Seed stocks of variola major virus (the causative agent of smallpox) were obtained by Al-Jihad Al-Jadid from a bioweapons facility in the former Soviet Union. The Al-Jihad Al-Jadid scientists received training in microbiology at Indian and U.S. universities. These scientists received additional training when the group hired a scientist who was part of the former Soviet Union's offensive biological weapons program. This scientist taught the Al-Jihad Al-Jadid scientists how to grow a number of biological agents, including variola major, Bacillus anthracis, Ebola virus, and Burkholderia mallei (glanders). The terrorist group combined this knowledge with publicly available technical information to develop dry powder preparations of the viruses. Then, with their own microbiology training, the terrorist group was able to acquire all the required laboratory equipment to grow and process the Variola major seed stock they had acquired into a relatively high-quality dry powder that was then used in the attacks.

The attacks were carried out by vaccinated terrorists who walked throughout the target locations for several hours during periods of peak occupancy. A commercially available dry powder dispenser the size of a small fire extinguisher was hidden in a backpack and used to disseminate the agent.

- Based on reports from former Soviet scientists, variola virus stocks are believed to exist in at least two, and possibly three, biological weapons laboratories in the former Soviet Union. Many of those who once worked in these laboratories are now working in other countries, but little information is available as to where they are or what they are doing.<sup>1</sup>
- The former Soviet Union made smallpox biological weapons in industrial-scale (i.e., tens and hundreds of tons) quantities.<sup>2</sup>
- Smallpox virus can be grown in embryonated eggs and in a variety of tissue cell culture systems.
- If one were to make a dried powder preparation of a virus, one would have several sources for information on methods. Variola virus can be processed to a stable dried form just as vaccinia virus is dried to make a vaccine. There is a significant amount of open source technical information on the creation of dry powder bioaerosols.
- There are many commercial freeze-dryers available; a simple internet search will pull up a bench-top model that would be adequate.
- The amount of smallpox virions required to infect humans is presumed to be very low.<sup>3,4</sup>
- Disseminating bioaerosols via dry powder dispensers and sprayers is possible, and a number of these devices are commercially available.

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<sup>1</sup> Alibek K, Handelman S. Biohazard: The Chilling True Story of the Largest Covert Biological Weapons Program in the World—Told from Inside by the Man Who Ran It. New York: Random House; 1999.

<sup>2</sup> Ibid.

<sup>3</sup> Henderson DA, et al. Smallpox as a biological weapon: medical and public health management. JAMA 1999;281(22): 2127–37.

<sup>4</sup> Wehrle PF, et al. An airborne outbreak of smallpox in a German hospital and its significance with respect to other recent outbreaks in Europe. Bull World Health Organ 1970;43(5):669–79