

“Dark Winter,” I will discuss how to properly respond in the event of an outbreak. In the “Dark Winter” exercise, numerous deficiencies were found in current response methods and training of providers, which would ultimately lead to a large-scale epidemic with the potential to infect people globally.

Results: This discussion is only hypothetical in nature, and its ideas will only be put into practice in the event of an outbreak. However, by drawing from the deficiencies found in the outbreak exercise “Dark Winter,” changes are suggested in the response and training of medical personnel to better identify the disease and roll out a vaccination plan.

Conclusion: Through more thorough training, medical providers can be better prepared for the possibility of a biological attack involving smallpox. If an attack did occur, there would most certainly be chaos and civil unrest, tied with a public frightened from the disease. By employing lessons learned from previous outbreaks, and tying in modern ideas, the chances of a global pandemic forming can be reduced if applied appropriately and quickly.

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CBRN Information Appropriate - We May be Wiser,

But is it Useful?

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Study/Objective: Information is power, especially when first responders are dealing with hazmat Chemical, Biological, Radiological, and Nuclear (CBRN) incidents, when time is of the essence and there could be multiple casualties, including themselves. A usability study was conducted to see whether one of the main hazmat CBRN tools was providing appropriate information and capabilities, in a format that was useful to users. The feedback is being used to improve the tool.

Background: The National Library of Medicine has a suite of Hazmat CBRN tools and applications for first responders: WISER, CHEMM, and REMM. The most widely known tool, WISER, compiles information from many trusted sources and provides identification support, physical characteristics, human health information, containment and suppression advice, and mapping capabilities. Due to its extensive user base spanning public safety health, health care, and planners/trainers, a usability study was conducted to determine whether the tool was providing users with the types of information needed, in the format needed, and on the devices needed.

Methods: A usability study was performed on five user groups (First Responders, Hazmat Specialists, EMS, Hospital Providers, Preparedness Planners) for WISER. Nine participants from each group were tested on the tool, delving into the information sources/structure, unique features, tools, etc. - testing utility and functionality.

Results: Many users knew WISER and had downloaded it, but few knew all capabilities offered. Most knew how to search for substances and found the information helpful, but only the Hazmat specialists were familiar with the unique features. The tool was easy to use, but navigation and conciseness of information was an issue.

Conclusion: User feedback has provided the necessary direction to make the tool more comprehensive and user-friendly. Some changes have been incorporated, others are pending. Such studies should occur periodically on all public safety/health/medical tools and applications to ensure they evolve with the field's demands.

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Bio-Weapons Testing: History, Ethics, and Values

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Study/Objective: An inquiry into open-air testing of biological weapons, by the United States and the United Kingdom, and the changed understanding of the propriety of such tests.

Background: During World War II and the Cold War, US and UK military authorities conducted hundreds of open-air tests with pathogens, and also with less dangerous microbes described as “simulant” agents. The causative agents of diseases including anthrax, plague, and brucellosis were released in largely unpopulated areas to assess their effects on test animals. Simulants including *Serratia marcescens* and *Bacillus globigii* (*Bacillus subtilis*) were released in population centers to study the dispersal patterns of potential warfare agents in a human population.

Methods: included development of information, based on past open-air biological weapons tests, review of current relevant literature, and of the evolution of ethics and values regarding human subject research.

Results: Besides providing information about the efficacy of biological weapons, the open-air programs left a legacy of unintended consequences, including lawsuits against the government for concealing information about the tests and their possible dangers. The simulants, *S marcescens* and *B globigii*, previously considered by some to be harmless, are now deemed human pathogens.

Conclusion: Western political culture has changed since the early days of the American and British testing programs. People have become less reluctant to question authority, and institutional review boards must now pre-approve research involving human subjects. Further, the heightened stringency of laboratory containments has accentuated the safety gap between a confined test space and one without physical boundaries. All this makes it less likely that masses of people would again be unwittingly subjected to secret, open-air, biological warfare tests.

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Improvements that FP7 European Projects Provide to CBRN SOPs and Responder Protection

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