

A Case Study in Assessment

**BUILDING SURGE CAPACITY
IN RESPONSE TO A
SMALLPOX OUTBREAK**

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Suspected Smallpox Scenario Strains Surge Capacity

- **Introduction: The Current Situation**
 - Heightened tensions in United States concerning possible bioterrorism attack. Department of Homeland Security has put the nation on high alert status.
 - War in the Middle East has begun March 20; prior to war, weapons inspectors have found evidence of smallpox samples.
 - Since December, State and local public health departments have been receiving and conducting training for their smallpox response teams.
 - Among the first phase of smallpox response teams who were offered vaccination, 80-90% chose not to be vaccinated. In addition, several major hospital systems have chosen not to participate in the initial vaccination efforts.
 - Within the local smallpox response teams, one-third of those not vaccinated were unable to receive the vaccine due to their own or family members' health condition which contra-indicated vaccine.
 - Rocky Shores Health Department, headed by Jan Assurance, has been working on a county wide bioterrorism plan which is not yet completed and has also been providing smallpox vaccinations to first phase volunteers since the second week of March. Only about 25 individuals have been vaccinated. The department has been strained both staff-wise and financially by these efforts.
 - A suspected smallpox case has been identified and is now straining surge capacity.

- **Information on cities and counties we are using in this case study:**
 - Our total population at risk by geography in our primary state is 5,831,953 people. The population in the airport area is the largest point of population concentration.
 - Our total population at risk in our secondary state is 259,094 people.
 - Our staff capacity assessment in our primary is statewide 226,952 who could under current statute provide vaccinations. (Most live in the low exposure area of the airplane landing.)
 - Taking an extremely conservative approach, it would be safe to estimate that approximately 29,716 individuals are legally licensed to administer vaccinations, if those individuals are trained to administer the smallpox vaccine.
 - Of this number, there are 450 professionals identified in the initial county of diagnosis.
 - In the initial county of diagnosis, 28% of the population is Hispanic/Latino with 10% of that population speaking only Spanish.

- Average number of people in and out of O'Scare Airport daily is 184,789 people from airplanes alone, not including ground staff or terminal staff.
- Our flight was only one of the 204 international flights daily at O'Scare.
- Average staffing at an Oasis, where our travelers stopped for a meal, is 20 people at all shops and stations.
- Our county of diagnosis and emergency response has a population of roughly 150,000 of the roughly 6 million in the multiple site of possible exposure.

Day 1: 17 Days post-exposure

- At 2:30 PM on Monday, November 11, 2002, John Dingledorf (JD) arrived at O'Scare International Airport in Metro City, IL, the largest city in Illinois, on a non-stop flight from Frankfurt, Germany where he had been traveling on business. JD was with two of his work colleagues. JD had been in Frankfurt and neighboring cities for 2 weeks. John was feeling flu-like symptoms and had been running a fever for the past day. In addition, he also had a sore in his mouth that he thought was the result of an infected tooth. John retrieved his car and along with his two co-workers headed home.
- At 3:30 PM on the same day, JD and his co-workers stopped at the I-90 Oasis in McAdoodle County, IL. There he ordered a BigMac, Fries and a Coca-Cola, ate at the McDonalds for about 30 minutes and then continued his journey home. JD dropped his colleagues off at their respective homes, and JD got to his home in Sandra Dee, IA. His wife Sally and two children, Molly and Ted, were home to greet him.

Day 2

- The next morning, still feeling like he had the flu. JD headed out to see Dr. Achey, his dentist, for his toothache. Dr. Achey's office is located in Rocky Shore, IL, a county across the river from Sandra Dee, IA. With a full waiting room, JD waited over an hour to be seen.

11 AM

- As Dr. Achey's hygienist peered into JD's mouth to see what the problem was, she became alarmed about what she was seeing. Several lesions were present on the posterior pharynx. The hygienist asked Dr. Achey to examine JD. Dr. Achey did not feel that there was cause for alarm and believed it could be an abscess. The hygienist was not appeased by Dr. Achey's dismissal of her concerns and asked a co-worker to take a second look. He, as well, was concerned about the lesions, and recommended that they call Dr. Smiley, the dentist at the Rocky Shore Public Health Department. The hygienists reached Dr. Smiley and described the lesions they had seen. Dr. Smiley, having recently attended a 3 day training on bioterrorism, was alarmed by the symptoms and asked to speak to Dr. Achey. Together they agreed that they would call Jan Assurance, the head of the Rocky Shore Public Health Department. Dr. Achey asked JD to wait in her office while she made the phone call.

- Dr. Assurance, having attended the same 3 day training on bioterrorism sponsored by the IL Department of Public Health, was concerned but not alarmed by Dr. Achey's call. She asked Dr. Achey to not allow JD to leave the premises until she and several staff could get there to assess the situation.

12 noon

- Dr. Achey tells JD that he may have been exposed to an infectious disease and that the head of the public health department is on her way.

1 PM

- Dr. Assurance, along with the department epidemiologist, bioterrorism planner and communicable disease investigator arrives. Dr. Assurance meets with JD. Dr. Assurance examines JD's lesion and takes a brief health history of his other symptoms. She then consults a CDC manual on infectious diseases. Not finding the manual a sufficient resource, she calls her office to request a faxed copy of additional information and utilizes the internet in Dr. Achey's office to research the symptoms. After reviewing the additional information, she becomes alarmed by the symptoms and begins to believe it may be smallpox. She is, however, a bit hesitant to believe it really could be smallpox and doesn't want to cause a panic. The investigator, with assistance from the epidemiologist, begins to question JD to assess, in depth, his health history and possible exposure and contacts. They request masks from the dentist and wear them while investigating.

2 PM

- Dr. Assurance calls the CDC hotline number, the local hospital's infectious disease specialist and a public health colleague for additional consultation. When speaking with the CDC, they advise her to call the state health department and the CDC smallpox expert to alert them to a possible case of smallpox. With the recommendation of CDC, Dr. Assurance collects a sample to send to the Illinois Department of Public Health lab. The sample will be transported to Springfield, the state capital, a distance of nearly 200 miles. The lab will still take 12 hours to test the specimen.
- One staff member (an errant dental hygienist) overhears one of Dr. Assurance's phone calls and calls the local TV station, stating that a patient with smallpox is at the dentist's office. A TV crew arrives at the front door of the clinic 30 minutes later.

5 PM

- Dr. Assurance calls Dr. Assessment, head of Illinois DPH, to alert him to the situation and request support. Upon learning that JD lives in Iowa, Dr. Assurance calls Dr. Frank Avalon, Director of the Sandra Dee County Health Department in Iowa and he also calls the Iowa Department of Public Health offices in Des Moines.
- Dr Assurance advises the patients and staff remaining in the clinic (about 15 patients, including 5 children and 10 staff members) that they should not leave the building. While not wanting to create panic, she stresses the urgency of the situation and urges

those in the office to heed her request. Cell phones come out of purses, backpacks, and briefcases and people start calling their employers and families.

- Leaving the dentist office, Dr. Assurance and the emergency response coordinator return to the health department to activate the emergency response plan, which had been partially put together but was not finalized. They had had no drill. Since no definitive diagnosis had been made yet, Dr. Assurance is concerned about the potential impact of activating the emergency response plan, but feels that this is her best course of action based on the information she knows thus far.
- Rocky Shores Health Department's pre-event vaccination program for the smallpox response team had started on March 3. Of approximately 150 hospital and health department personnel in the county identified in this plan, nearly 90% of them had opted not to be vaccinated and one hospital indicated it would not participate in this initial vaccination effort.
- The county had assessed its own nursing staff, including those who were not part of the original response team, to determine who had been vaccinated and thus who in turn could vaccinate. A training session on March 1st had trained 9 health department RN's and 12 RN's from Healthworks System, the major healthcare system in the county, to give vaccinations. These staff had all been vaccinated as well. Dr. Assurance alerted Healthworks system about the possibility of initiating the smallpox vaccination. She also notified her contact with the media, Dan Writewell. Staff begins to call representatives from Healthworks, ESDA, county mayors, health department staff including RN's, and clinic coordinators to apprise them of the situation and set up a meeting for later in the day. Many staff are needed to man the phones for these calls.
- The six surrounding county health departments were notified of the possibility of smallpox via calls to after-hours numbers. They had already been notified by the State Bioterrorism Coordinator.
- Dr. Assurance meets with staff to update them on situation, requesting anyone that can stay to please stay, asking rest of staff to schedule 12 hour shifts to cover 24 hours. All time off and vacations over the next two weeks are cancelled. Staff is both frightened and angry. Some begin to cry and say they need to get home to families. Staff in the Animal Control and Environmental division state they have no knowledge of smallpox and thus don't feel they will be of any help and want to leave.
- Olga Efficient, Dr. Assurance's administrative assistant, came in and said a staff member had heard a report of a smallpox case in the county on the radio station.
- During this same time period, one of JD's co-workers, Polly O'Leary, who lives in McAdoodle County visits her doctor complaining of fever and a rash. (2nd case).

- At 7 PM an emergency meeting is held with health system, public health, mayors and law enforcement to discuss the current situation. The State Police reports a mass exodus of people out of the county, headed north to Wisconsin. The Wisconsin State Police closes the state's borders at 8:30 PM.
- The Health Department's 24 hour answering service calls to say it cannot handle incoming calls from public. Health Department and Healthworks agree to set up a 24 hour hotline, staffed by health department and hospital staff. When they call the local phone company to request additional phone lines to handle the volume, they are told any new lines will take 3 – 5 days to install.
- At 8 PM, Health Department and Healthworks staffs hold a meeting to discuss setting up training clinics. Based on the CDC plan, approximately 1,872 staff would be required over a nine day period in order to vaccinate everyone in the county within 2 weeks.
- At 9 PM, Dr. Assurance returns to the Dr. Achey's office where the frightened patients and staff await their release. She tells the patients and staff that they may have potentially been exposed to an infectious disease and that they will need to remain in the office for the night. Cots and food are brought in for everyone. The restrooms are out of toilet paper and towels, and Dr. Assurance promises the patients and staff that she will have a delivery of needed supplies made later that evening.

Day 3: 4 AM

- Dr. Assurance is notified by Dr. Assessment, the head of IDPH, that the smallpox vaccine is in place and can be on site within 2 hours of IDPH positively identifying the specimen as smallpox. Only two staff members from the IDPH Rapid Response team are available for assistance, as there is another possible case in a McAdoodle County.
- Health department staff and emergency response staff from Healthworks assess the supply situation. Between the three hospitals and health department, 2500 pairs of gloves are immediately available. Only 500 of these are non-latex. Another 1000 pairs of latex gloves could be obtained within 24 hours; however, another 5400 boxes of gloves would be needed. The glove suppliers contacted stated that they were shipping gloves to three surrounding counties and Iowa. It would take at least 3 days to obtain additional gloves, if they were still available. Approximately 50 sharps containers were on hand with 5,000 more needed. Additional containers, far short of the total number needed, would take 48 hours to arrive. Only 250 2X2's were on hand to cover vaccination sites. It was decided to check with IDPH to see if vaccination sites could be left open to air. Supply staff also determined that there would not be enough biohazard bags for waste disposal. Emergency approval was obtained from the county board to bypass purchasing department protocols and allow health department to directly purchase necessary supplies.

- Vaccine would be stored in the coroner's refrigerator; however, upon checking, it was found that only one bay would be available. This would hold one third of the vaccine. The two area hospitals had the capability to refrigerate approximately one third of the vaccine. Supply coordinators began to contact refrigeration services and manufacturers of the Vaxicool system.
- Health department staff begins to copy vaccination intake and consent forms. The copier runs out of toner and paper by 6 am, and none is available till later that morning when the supply clerks arrive and can open the supply closet.
- At 8 AM, the Health Department begins contacting potential volunteers. Healthsystems says many of its employees live across the river in Iowa. Some are refusing to come to work; others have indicated that they have volunteered to give vaccinations in their own county, where another probable case has been identified. Healthworks states that their hospital staff of 2500 needed to be vaccinated first, which Healthworks said it could accomplish itself but would probably take 24-36 hours. After they were vaccinated, they felt that probably 25 nurses would be available for 8 hour shifts. School nurses are contacted through phone calls and broadcast fax to attend training that afternoon. Only 14 out of 60 respond that they would attend.
- Approximately 30% of scheduled staff at the health department do not arrive at work. Some that live across the border in Wisconsin said they forgot to bring their ID badges home with them and State Police would not let them cross the border into Illinois to come to work. Others stated their families needed them.
- Training for clerical staff and educators that did arrive at work begins at 9 AM. Most of the clerical staff is anxious about being in a clinic setting where they might potentially be exposed to smallpox. When assessment was done on who could receive vaccination, several stated they could not as they had underlying health conditions. RN's begin education with them, explaining that since there is an actual case, everyone needs to be vaccinated, including those that have these health conditions. At this point, they were already angry and defensive. Some were concerned about going home and bringing their families in for vaccination first. It was clear that additional volunteers to assist with screening and education were required. Potential volunteers to fill these roles had not yet been identified or recruited.
- Pharmacists, Dentists, Veterinarians, and Vet techs are contacted to attend an afternoon training for additional screeners and educators. 50 said they could attend, but they also said that they had to be available for their patients and could only work 1 or 2 eight hour shifts at the clinic that week.
- EMS personnel are contacted. Of those not on duty that afternoon, about 20 individuals would attend the training, but they also said that they would only be able to work sporadically, when not on duty.

- The Volunteer Medical Reserve Corps, developed in McAdoodle County through the Bioterrorism Grant, were contacted. However, their volunteers had been requested by several counties. Only 6 could be sent to Rocky Shore County.
- Local Community Mental Health Centers begin contacting their local Public Health Departments. They report receiving many calls and walk-in visits from worried residents. These Mental Health Centers had not been included in any of the initial training scenarios, so they are not sure how to respond.
- The Medical Waste hauler is contacted and asked to provide daily pickups from the clinic sites, as there was no room to store the large amounts of waste. The hauler told Rocky Shores HD that they would not be able to do any pickups, as they provide service to most of the counties in Northern Illinois and Wisconsin and were overwhelmed with requests and had drivers who refused to come in.
- The Rocky Shore Mental Health Center offers to deploy two counselors to the Health Department Office to provide assistance to staff who are feeling overwhelmed.
- Healthworks contacts its pool of 400 private physicians. Many had closed down their offices and were directing emergencies to the hospital. Approximately 100 volunteered to vaccinate, providing an average of 24 hours time. They agreed to come to the training that afternoon.
- Translation staff was needed for the Spanish-speaking population of the county. The health department was only able to supply 6 bilingual staff; Healthworks provided 12. The migrant council, free clinic, and schools and community college were called to recruit bilingual staff. Several individuals were fearful to come and be exposed to possible cases; requesting that their families also be vaccinated prior to them volunteering.
- At 12 noon, Dr. Assurance receives a phone call from IDPH confirming that the specimen is smallpox and that the vaccine will arrive within 2 hours at the designated dropoff site. CDC will be sending members of its epidemic intelligence team. Numbers would be limited as 5 other counties in US were reporting possible cases, with similar exposure of having been in the Frankfurt, Germany area two weeks prior.
- In searching for a training site of volunteers and staff, a large enough room was not found in the health department. The Director of Nursing calls the community college, which will open its facility. Two trainings to be held at 4 PM, one for vaccinators and assistants, one for screeners and educators. 250 people are expected but only 200 attend.
- Approximately 150 people, who were not attendees, arrive at the training site, stating that they want to be vaccinated. This group demands to be vaccinated immediately.

All of this is captured on TV by CNN and Fox News, who have begun 24 hour coverage of the event.

- Both local and state police arrive to control traffic. They, however, lack the equipment to coordinate communication and traffic control strategies. A number of people arriving late for the training are turned away by police, who state that the area is restricted.
- Dr. Assurance and Dr. Assessment each call their respective state Governors to prepare them for a potential state of emergency.
- Staff continues to work 12 hour shifts at their health department offices. The snack and soda machines are empty and restaurants refuse to deliver for fear of contracting smallpox. The Director of Operations in Rocky Shore arranges with a local grocery store to pick up beverages and food for the staff. Staff become tired and are looking for a place to lay down for a brief period of rest. No rooms or cots are available for this. A few of the staff brought in sleeping bags and are able to lay on the floor. Staff that have been at work since the beginning of the crisis want personal hygiene items.
- At 7 PM, Dr. Assurance is notified that a foodborne outbreak affecting 200 people in McAdoodle County has occurred. Because the state requires the investigation of all foodborne outbreaks, Dr. Assurance deploys a bare bones crew of 2 investigators and epidemiologists to investigate. The other 2 investigators are involved with interviewing smallpox cases.
- Training of the initial group of screeners, educators and vaccinators concludes at 8 PM. Vaccinations will begin the next day at 7 AM.

Conclusion

Day Three: 11PM

- Dr. Assurance, the clinic managers and three other key staff return to the health department, where staff are answering phones, preparing supplies for the next day's clinic and sleeping at desks and on the floor. They discuss the tasks ahead, whether they will accomplish their vaccination goals and how to best support staff.

Discussion Questions

1. How could staff fears have been handled?
2. Did staff that was not involved in the health department bioterrorism or Communicable Disease program have adequate education about smallpox or other bioterrorist events?
3. How could the LHD and hospital contact the large number of potential trainees to notify them of the trainings?
4. What are some ways the supply situation could have been handled prior to an actual event?
5. Should a designated media spokesperson have been identified as a part of preparedness? If so, how could they have assisted in allaying the fears (and lessening the confusion) of the community?
6. Describe collaborative preparedness training efforts which could have been in place prior to the bioterrorism event.
7. Identify potential volunteers who could be recruited to assist with screening and education.
8. What are some incentives to get staff to come to work in a disaster situation?
9. What are some methods to ease movement of staff if areas or roadways are closed?
10. Could the problem of getting supplies from vendors have been addressed before a crisis situation?
11. What would be the potential implications if the emergency response plan was activated but small pox was not diagnosed?
12. Of the public health core functions, which ones were effective and which were not?
13. What leadership characteristics were displayed by the primary players? Which leadership functions were needed but not utilized?