Severe Acute Respiratory Syndrome (SARS): A university-based tabletop exercise

Tomás Aragón, MD, DrPH
Director/Medical Epidemiologist
Center for Infectious Disease Preparedness
UC Berkeley School of Public Health
http://www.ucbcidp.org

Modified 8/22/03

Created using free software: http://www.openoffice.org

Acknowledgements

- UC Berkeley Chancellor's SARS Task Force
- SARS Public Health Response Working Group
- City of Berkeley Health Department
- Alta Bates Summit Medical Center
- California Department of Health Services
- Northwest Center for Public Health Practice, University of Washington School of Public Health and Community Medicine, http://nwcphp.org

Purpose

This tabletop learning activity is an opportunity for us to gain skills in preparing for and responding to emerging infectious disease threats through the recognition of related policy needs and issues.

DISCLAIMER:
This tabletop exercise is based on a fictitious account of a possible and plausible SARS outbreak. These scenarios were constructed to provoke honest thinking about policy gaps and vulnerabilities, and were not intended to reflect negatively or positively on how a real person, department, or agency may or may not respond in a real outbreak.

What is a Tabletop Exercise?

- Informal group discussion stimulated by a scripted disaster scenario
- No time pressures, low stress, designed to promote free and open exchange of ideas
- Identifies issues (e.g., policies, resources, communication, data, coordination)
- Familiarizes participants with roles, functions, plans, and procedures

Objectives of the Exercise

- Identify and discuss the policy issues
- Identify and understand local measures
- Recognize the roles of various officials
- Illustrate the need for intense teamwork and communication
- Identify gaps in local preparedness policies
- Build relationships with participants
- Identify additional resource and training needs

Background

- Schedule:
  - Introduction and overview: 20 minutes
  - Exercise: 2 hours, 40 minutes
  - Debriefing: 30 minutes
- Roles:
  - Facilitator
  - Note taker
  - Observer
  - Participants

Setting the Scene

- Participation
  - Play own role in department or agency, if possible
  - Not all will participate equally
  - Take notes for debriefing
- Policy Issues
  - Focus on who, what, and when vs. how
  - Identify gaps and strengths of the system rather than individual knowledge
  - Respond in real time, if possible

Description of Exercise

- Fictional account of emergent microbial threat
  - Background
  - Events
- Pauses for discussion
- Debriefing
  - The events of the exercise
  - Identification of policy and resource gaps
  - Identification of effective responses
  - Next steps

Center for Infectious Disease Preparedness
UC Berkeley School of Public Health
www.ucbcidp.org

Instructions to Remember

- Respond as a group as the information emerges
- Maintain your department, agency or community role throughout the exercise
- Focus on policy issues rather than specific procedures
- Take notes for debriefing discussion
- Decision-making should occur in real time
- Lack of active participation does not mean lack of learning

QUESTIONS?

Background

University of California at Berkeley (UCB) is a large campus with over 30,000 students. Although most students are California residents, UC Berkeley attracts students from areas throughout the United States and the world. Students live in residential housing, the surrounding community, and in nearby cities. UCB students, staff, faculty, and visitors come to Berkeley on foot, and by automobile, bus, or subway. The City of Berkeley has its own health department. Students begin school in the third week of August.

Thursday, August 21, 2003

It's a very hot day. The temperature is above 95°F. Dr. John Balmes from UCSF is heard on KGO News Radio reminding listeners that on “Spare the Air” days commuters should limit automobile travel and take public transportation whenever possible. He states that on high air pollution days there is an increase in emergency room and urgent care visits for asthma exacerbations.

Monday, August 25, 2003

It's the first day of instruction on the UCB campus. Over-enrolled courses are packed with wait-listed students who are hoping to get into courses. Tracy, a 2nd year pre-med student, is coming down with a cold but feels well enough to go to all her classes. She lives in a student co-op where she works twice weekly in the co-op kitchen preparing for dinner by cutting vegetables and fruit, and preparing salads. On Thursdays she volunteers at Berkeley Community Hospital emergency room. Last Thursday she helped care for a Chinese-speaking patient with an “asthma attack.”

Tuesday, August 26, 2003

Tracy develops a low-grade fever, a dry cough, and loose stools. She decides she has the "stomach flu" and takes over-the-counter medications to treat her symptoms. She attends her crowded classes that day and has a persistent annoying cough. That night after preparing dinner salad and fruit salad for the co-op she is too tired to study and goes directly to bed immediately after dinner. On Wednesday 4am, she wakes up with chills, drenched in sweat, and with body aches. She decides to wait a few more hours until morning before seeking medical care. She tells no one that she is ill.

Wednesday, August 27, 2003

At 4am, Duty Officer of the Day at the state health department receives a phone call from the San Francisco Department of Public Health that a Chinese-speaking male with Chronic Obstructive Pulmonary Disease (COPD) was admitted with his wife and brother-in-law to SF General, all with atypical pneumonia and difficulty breathing. The patients recently visited family in southern China and returned to the U.S. on Wednesday, August 20th. The family lives in Oakland but commute to San Francisco for their medical care, but on occasion use Berkeley Community Hospital ED. They have no health insurance.

Wednesday, August 27, 2003 (cont'd)

The state health department Duty Officer consults with her supervisor and the CDC. They decide to notify local health officers about the cluster of atypical pneumonias under evaluation in San Francisco and associated with a recent traveler to southern China. They ask local health departments to increase their surveillance. By Wednesday afternoon, the CDC learns that outbreaks of atypical pneumonia are being reported from southern China. The causal agent has not been determined.

Wednesday, August 27, 2003 (cont'd)

Tracy wakes up too sick to go to classes and decides to visit her Oakland-based HMO hospital emergency department. There she sat in a waiting room full of patients for about on hour with a persistent cough and no face mask. Upon evaluation, her oxygen saturation was 88% and the chest radiograph showed diffuse pneumonia. She was admitted to the hospital and placed on oxygen and antibiotics.

The evening news is reporting that WHO teams are traveling to southern China to evaluate the outbreaks.

Thursday, August 28, 2003

In the morning, based on news reports of SARS-like outbreaks in southern China, the Chancellor's office is flooded with calls from the press and concerned parents wanting to know the following:

- What is UC Berkeley doing?
- Is UC Berkeley prepared?
- Will UC Berkeley restrict travel to and from China?
- How many isolation rooms are ready?
- How will policy decisions be made and who has input?

PAUSE FOR DISCUSSION #1

Friday, August 29, 2003

In the morning WHO confirmed by electron microscopy and PCR that these outbreaks are highly likely attributed to the SARS-associated coronavirus. At 3pm, the CDC announces a Travel Advisory for southern China. Because there was no evidence of community transmission in the U.S., the CDC asks state and local health departments to re-institute the previous SARS case definition based on recent travel to southern China or exposure to a known SARS patient. It is Labor Day weekend: students, staff, and faculty leave early.

PAUSE FOR DISCUSSION #2

Saturday, August 30, 2003

Tracy takes a turn for the worse. She develops acute respiratory failure requiring intubation and mechanical ventilation. Her doctors get an infectious disease consultation. Pulmonologists perform bronchoscopy, bronchial alveolar lavage, and transbronchial biopsy. All cultures and stains are nondiagnostic. Her clinical status deteriorates and she expires at 7:31pm. Her parents, both lawyers in Los Angeles, were at her bedside.

Saturday, August 30, 2003 (cont'd)

At Berkeley Community Hospital Emergency Room, the attending physician notices during her shift that 3 students from the same UC Berkeley co-op presented with diarrhea, cough, and low grade fevers. The students reported that several co-ops members were developing a diarrheal illness, some with a cough. The physician told them this was most likely a viral gastroenteritis and that they should get better within 48 hours. Over the next 24 hours, 5 ED nurses did not come to work; 3 were hospitalized with atypical pneumonia, 2 of them at outside hospitals. The ED and hospital infection control did not have this information.

Sunday, August 31, 2003

A male student living in a campus dormitory called UC Berkeley Police to complain that an "Asian" student in an adjacent room has a persistent hacking cough and was exposing other students in the dormitory. The residential adviser was unavailable. The complainant reported that the sick student arrived from China 7 days ago, one day before the start of classes, and that he thinks the student may have "SARS."

PAUSE FOR DISCUSSION #3

Sunday, August 31, 2003 (cont'd)

From the HMO Hospital, Tracy's parents called the Alameda County Public Health Department to report that they just learned from Tracy's friend that at least 10 students from Tracy's co-op were sick with a flu-like illness. They are concerned that this is the source of Tracy's pneumonia. They also called Channel 2, Oakland Tribune, and the San Francisco Chronicle. Alameda County Public Health called the City of Berkeley on-call person to report the outbreak. Unable to immediately reach a UCB official, a Channel 2 news reporter calls the UC Berkeley Police to ask what UC Berkeley is doing about the co-op outbreak associated with a fatality.

PAUSE FOR DISCUSSION #4

Sunday, August 31, 2003 (cont'd)

On the KTVU 10 O'clock News, the news anchor reports a mysterious outbreak of a flu-like illness at a UC Berkeley co-op leaving one student dead. They also learned that 5 health care workers from Berkeley Community Hospital have now been hospitalized with pneumonia, 1 of them is in critical condition. The press quoted an unidentified state official as saying "our investigation is ongoing; however, none of these cases meet the case definition of SARS, so I would not recommend isolation or quarantine at this time." The UC Berkeley Chancellor is contacting his available management team.

Monday, September 1, 2003

The Chancellor calls an emergency 9am meeting of the SARS Task Force. Several key members are out-to-town for Labor Day. Not all of them carry a nationwide pager. Because of the holiday, the City of Berkeley Health Department is under-staffed and overwhelmed initiating the Berkeley Community Hospital and co-op outbreak investigations. Dr. Poki Namkung, City of Berkeley Health Officer, is paged during the meeting and notified that Tracy's lab work up is preliminary positive for the SARS-associated coronavirus. KGO radio is reporting the breaking news.

PAUSE FOR DISCUSSION #5

Monday, September 1, 2003 (cont'd)

Dr. Namkung outlines some of the investigative and disease control issues for the SARS Task Force:

- Where and how was Tracy infected?
- How many students has she exposed?
- Are we prepared for an explosion of SARS cases?
- Could this be intentional microbiological release (bioterrorism)?
- Should we quarantine the university?
- City of Berkeley and Alameda County do not have any available staff to assist UC Berkeley.

PAUSE FOR DISCUSSION #6

Monday, September 1, 2003 (cont'd)

The City of Berkeley Police Department have been informed by the Federal Bureau of Investigation (FBI) that an unidentified group has contacted Channel 7 News claiming to have acquired the SARS-associated coronavirus in a liquid culture medium and is threatening to contaminate Bay Area universities and dormitory food service facilities unless their demands are met. UC Berkeley Police has not been notified yet.

PAUSE FOR DISCUSSION #7

Monday, September 1, 2003 (cont'd)

By late Monday afternoon, Bay Area hospitals are reporting the evaluation and admission of UC Berkeley students with atypical pneumonia consistent with SARS (about half the students live in the dormitories). Berkeley Community Hospital is on total diversion because their hospital beds, ICU beds, and respiratory isolation rooms are full with infected health care workers. Students not requiring admission are being told to return to their homes or residential housing, to stay in their rooms, and that they will be contacted by the local health department.

Monday, September 1, 2003 (cont'd)

On Monday evening, Associate-Chancellor and Chief of Staff John Cummins convenes the SARS Task Force to discuss these emergent issues (partial list):

- Where and how do we isolate all these students?
- Do we cancel classes tomorrow? close the university?
- Do we have a supply of face masks and personal protective equipment?
- Should the university be disinfected? Who will do it?
- Who will educate and train workers?
- Who will conduct the epidemiologic field investigations, contact tracing, surveillance, disease control interventions, data entry and analysis? Who will coordinate this massive effort? Local, state, and federal health authorities resources are overwhelmed responding to "similar" incidents around the country.
- How can we rapidly mobilize, education/train, and deploy existing UCB expertise to assist in the outbreak response? Do we have existing plans in place for this type of emergency?

PAUSE FOR DISCUSSION #8

Debriefing Discussion

- Strategies to prevent/control outbreaks or BT threats
- Interactions between affected department, agencies
- Evaluation of incident response (lessons learned)
  - Gaps in human and material resources for planning, preparation, training, and practice
  - Gaps in communication planning
  - Gaps in information management systems
  - Methods of evaluation

Are we ready?

- Address policy, organizational, planning and human/material resource gaps
- Preparedness and response planning, preparation, training, practice, evaluation = readiness
- SARS Prevention and Response Plan
  - plan
  - train to the plan
  - exercise to the plan
  - revise the plan