

Sino-US Conference: November 7, 2003
SARS: Crisis and Opportunity of Global Public Health
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One subset of the Texas A&M University Sino-US Conference was exploration of the issues arising from the recent SARS epidemic. The issues crossed the breadth of medical care, the shrinking world from a public health perspective as well as lessons learned from a global research response to the emerging international crisis. Presenters came from the American Medical Association, the Centers for Disease Control and Prevention, several US academic institutions, the Texas Department of Health, and the Peking University Health Science Center.

SARS (severe acute respiratory syndrome) first occurred in Foshan City, Guangdong Province, China, in November 2002. The first case was reported from Heyuan City, Guangdong Province, China, in January 2003. From January to June, 2003, 5,327 cases were reported and 349 patients died with the peak of the epidemic occurring in April, 2003. Patients appeared to be the primary source of transmission through respiratory droplet spread or other close contact and demonstrating hospital and family clustering. The disease has a 3-10 day incubation period and no response to antibiotics. Four to 20% of those exposed actually contracted the disease.

Primary issues for exploration appeared to be: lessons regarding biosecurity and preparedness with regard to emerging infectious diseases; successes and concerns with regard to global collaborative research processes; potential lessons with regard to public health and infectious disease in a "smaller" world due to travel; and the phenomenal economic impact not only from costs of the disease process but on tourism, travel, and other economic measures.

The rapidity with which the disease spread around a very large country and across international boundaries was a deadly reminder of our shrinking world and that diseases have no respect for borders or boundaries. The epidemic perhaps served to remind the general public about the potential for biohazards and bioterrorism. It was also a reminder to health professionals of the extraordinary resilience and adaptability of microbes and the continued difficulties of translating existing medical knowledge and tools into action accessible to all who might be in need.

Though the first case was not reported until January 2003, the World Health Organization (WHO) was able to issue an alert regarding a flu-like illness on March 12, 2003. By March 19, 2003, scientists in Germany and Hong Kong had detected a virus of the Paramyxovirus family. On March 24, the U. S. Centers for Disease Control (CDC) identified a Coronavirus family and on March 27, WHO announced it was a Coronavirus.

There was confirmation of many tried and proven public health tools like isolation of victims and quarantine of persons who were not ill but had presumed exposure. There were new challenges such as how to deal with international travel and travel-related risk and how to protect emergency department staff and patients who had non-infectious illnesses from those who might ultimately prove to have a highly contagious and potentially fatal disease.

One of the demonstrated successes of the SARS epidemic from the perspective of the United States physician was the rapidity with which information was made available from a variety of sources and at widely varied destinations due to web sites, journal publications, and ongoing public health education like the CDC efforts. With adequate amounts of information available, clinicians felt more confident they would successfully diagnose, report, and treat the potential patient.

Opportunities for and the absolute need of international cooperation was a repetitive theme. The U. S. Centers for Disease Control mobilized more than 800 persons to serve on a rotating basis for the SARS response. Nearly 100 individuals were deployed to assist with domestic and international investigations in 11 countries. Staff were deployed to supplement WHO and national teams. CDC played a key role in developing evolving guidance documents. The responsiveness of public health institutions was a contributor to the success of early identification and response. However, many lessons were learned including identification of a shortage of skilled responders; the need for logistics for specimen collection, transport and processing; the need for someone to play a coordinating role (as WHO did in this case); and the need for coordination and collaboration in creation and dissemination of accurate, timely, consistent information.

One of the lessons learned has powerful potential for influencing research for the future. Between WHO and the CDC, a global network of 11 leading laboratories were linked using a secure website and frequent conference calls. This process was credited with the extraordinarily rapid identification of the causative agent and diagnostic tests. Whereas research and academic endeavors are often criticized as existing in silos, unlikely to communicate with one another or to share progress that might allow someone to move ahead in the discovery process, the global laboratory network immensely shortened the discovery process. Because the labs were scattered across the breadth of the world, there were literally continuous investigations occurring with one group of scientists sharing their progress before they shut down for the day with a group that was just getting up and running. Despite the collaborations, special care was taken that individual labs and scientists could be given credit when their particular work led to a key discovery.

In summary, the existing success stories can perhaps be listed as:

1. Benefits of multi-site, simultaneous investigative process with regular, frequent information sharing and preservation of individual key accomplishments.
2. Identification of the positive impact of pro-active communication to the general public, the health care work force, and the institutions providing care.

Collaborative projects for the future might focus on:

1. Vaccine development
2. Development of antiviral therapeutics
3. Develop and share best practices utilizing new technology for surveillance, rapid reporting, data pattern identification for early recognition
4. Share best practices with regard to curriculum for a multitude of health professional training including veterinary medicine, human medicine, public health, etc.
 - a. Cross disciplinary training
 - b. Epidemiology training

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