SARS and Public Health Systems in China

Jesse Huang, MB, MHPE, MPH, MBA
Assistant President and Dean for Continuing Education
Professor of Epidemiology
Chinese Academy of Medical Sciences
Peking Union Medical College
Email: pumcjesse@yahoo.com.cn
Tel: 6529-5986 13366029153
I will...

- Describe 2003 SARS chronology in China
- Analyze China’s public health system
- Propose a framework for improving public health systems in China
- Share my observations re: 2004’s system testing by SARS.
What is SARS?

Originally an atypical pneumonia of unknown etiology, was recognized at the end of February 2003 by WHO as Severe Acute Respiratory Syndrome (SARS).
What is SARS’s Impact?
According to Associated Press:

One SARS Pandemic Is Equal to Five "9.11"
What is SARS’s Impact on China’s Public Health System?
Total Cases: 8,422
Total Deaths: 916
Accumulative # of SARS cases and deaths, China and USA, March 19 to May 27, 2003

China: Cases: 5,327
Deaths: 349
USA: Cases: 33
Deaths: 0
Chronology of SARS

- **2002**
  - 11/16: 1st case of atypical pneumonia of unknown etiology (AP), Fushan city, Guangdong, China
  - 12/17-22: 2 AP pt. transferred to Guangzhou from Heyuang. 7 HCWs: infected. Information: blocked

- **2003**
  - 1/2: Population panic in Heyuang city. People rushed to buy herbal medicine.
  - 1/3: Heyuang Newspaper: There is no epidemic in Heyuang…. cough, fever and other symptoms are caused by cold whether,
  - perhaps this is the first article on SARS in China’s media.
Chronology of SARS

• 2003
  – 1/14: Provincial CDC was informed an outbreak in Zhongshan city, characterized by fever, lung infection, unknown etiology. Several pts quickly progressed to respiratory failure and die. Outbreak also among HCWs.
  – The early February, epidemic reached peak in Guangzhou. Rumors: fetal diseases, bio-terrorism, etc.
  – People rushed to buy vinegar and herbal medicine. The epidemic news occurred in Hong Kong’s media
  – 2/11: News Conference: 305 cases, 5 deaths since 11/16, 2002. The epidemic is under control
Chronology of SARS

• 2003
  – 2/11 and 2/14: PROMED issued the global warnings
  – 2/18: Xinhua New Agency reported that Chinese CDC has discovered the cause the disease: chlamydia
  – The clinicians and epidemiologists in Guangdong disagreed: the cause is the virus
  – 2/21: Dr. Liu arrived Hong Kong, checked in at Metropol, room 911. It was in Metropol, Dr. Liu passed the virus to 7 persons. Consequently, the virus was disseminated around the world
  – 2/26: a businessman who was infected at Metropol carried the virus to Vietnam, infected 20 persons, including Dr. Urbani
What is atypical pneumonia?

1. What is atypical pneumonia?

   Atypical pneumonia is typically pneumonia not caused or associated with the classical pneumonia. It is caused by the infectious agents such as bacteria (Streptococcus pneumoniae, Mycoplasma pneumoniae) or viruses (influenza, parainfluenza, respiratory syncytial virus).

   Clinical symptoms include fever, cough, chest discomfort, shortness of breath, and other respiratory tract symptoms. The disease is usually mild, but in some cases, it can be life-threatening.

   Treatment is often with antibiotics or antiviral medications, depending on the cause of the pneumonia.

3. Clinical manifestation

   Due to the incubation period of 1-11 days, most patients experience symptoms 4 days after infection. Symptoms include fever, cough, shortness of breath, and other respiratory symptoms.

   Some patients may develop atypical pneumonia, characterized by respiratory distress and other symptoms.
Chronology of SARS

- **2003**
  - 3/1: Beijing had 1st SARS case from Shanxi, who was infected while visiting Guangzhou. SARS began to spread in the capital. The information was blocked again.
  - 3/12: WHO issues a global SARS alert.
  - 3/29: Dr. Carlo Urbani, 1st Dr. who identified the SARS outbreak, died of the disease in Thailand.
  - 3/26, Guangdong released its February number: probable cases increased from 305 to 792, and the death toll increased from 5 to 31, which made people begin to suspect the previous claim that the epidemic is under control.
Chronology of SARS

• 2003
  – 4/3, Health Minister announced that the SARS spreading is under control. Beijing had 12 cases and 3 deaths. A retired military doctor revealed the truth that Beijing’s epidemic is not under control.
  – 4/20: 2 top gov officials were removed from their post.
  – 4/25: Vice-Premier Wu Yi was appointed as the Heath Minister and the commander-in-chief of the National Task Force to combat SARS
  – Measures were taken to contain SARS spreading
  – 5/23: WHO took Guangdong and Hong Kong from its travel warning list.
  – 6/24: WHO took Beijing from its travel warning list.
Chronology of SARS suggests...

- China does not have a prepared public health system.
- The central command system: not working
- Information systems: not functioning
- Rapid diagnosis capacity: lacking
- Field epidemiologists: lacking
- Pharmaceutical stockpile: not enough
- Hospital and HCWs: not prepared
- Risk communication skills: poor
A Framework for Improving Public Health Systems in China
Principles

- Needs based system improvement approach, using developed countries models as reference.

- Evidence-based system development approach, using modern public model and bio-socio-psycho medical model.
Priorities

• Prevention first. 99.9% of public health crises should be controlled at local level with enough capacity to handle NBC of significant health, social, economic, and political impact.

• Manpower development is the key to the success of the system.

• The state-of-the-art information technology with sustainability should be employed.
System components

- Central command and coordination system
- National electronic disease surveillance information system
- Metropolitan syndrome surveillance system
- Public health-clinician linkage information system
- Nation-wide rapid public health lab diagnosis system
- Field epidemiologist team and network system
- Pharmaceutical stockpile
- Metropolitan medical response system and medical education system
- Risk communication and risk management systems
- Crisis management monitoring and evaluation system
2004’s system testing observed

• Guangdong: 1/5-31
  – 4 sporadic cases
  – Quick response, complete control
  – Investigation is undergoing

• Beijing: 4/22-5/7
  – 9 cases, clear transmission chain
  – Quick response, complete control
  – Investigation is undergoing
Guangdong, 1/5-31
Onset and Treatment of 4 SARS Cases, Guangdong, 2004

- Case1: suspected 27-Dec-03, confirmed 5-Jan-04
- Case2: suspected 8-Jan-04, confirmed 17-Jan-04
- Case3: suspected 9-Jan-04, confirmed 17-Jan-04
- Case4: suspected 24-Jan-04, confirmed 31-Jan-04
宿主？
载体？

Civet cat
果子狸？

医院

Infection sources

果子狸？

灭鼠
啮齿类？

Wild Animal market
...

医院

Hospital

Early discover
Early report
Early isolation
Early treatment

Environmental contamination

隐性感染人群传播？
环境污染、宿主扩散？

四早：早发现 早报告 早隔离 早治疗

Drumstick market

Early discover
Early report
Early isolation
Early treatment

Humans

Droplet

Human being

飞沫传染（近距离）

严格管理野生动物

饲养 销售 运输 屠宰 制作烹调

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment

Early discover
Early report
Early isolation
Early treatment
Beijing: 4/22-5/7

Be prepared
Keep distance
from AP
Onset and diagnosis time of 9 SARS cases and two transmission chains, Beijing, 2004
Observations

• System is working, more improvement opportunities are identified; early detection, lab quality control, etc
• I am positive China will have a good public health system - it takes time.
  – Strong national leadership
  – Responsible governments at all levels
  – Social mobilization and organization abilities
  – Economic foundation
  – The existing public health system
  – Popularity of prevention concept
  – Experience from the war against SARS
  – International resources

• **Manpower is the key.**
“The GNP tells you everything about a country that is not important. It does not inform about the beauty of the countryside, the joy and value of its music and art --- or the health of its children…”

Margaret Catley-Carlson,
UN Children’s Summit, 1990
LESSTONS FROM SARS

• Infectious diseases do not respect national boundaries - global security depends on the competence of local responses in countries around the world.

• Honest and accurate information is essential for early warning and for making effective health policy.

• Effective Responses depend on well functioning Health Systems

• Creating National and Global Health Surveillance Early Warning and Laboratory Networks must be given high priority.

• Investing in global health, beyond just SARS or AIDS, would protect every country from emerging diseases, save millions of lives, and improve the quality of life of billions of people.
Thank You

Q & A