

SARS Reflection: A Framework for Improving Public Health Systems in China



I will...



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



Why we pay attention to SARS ?

- SARS threats to our health and well-being
- SARS control is a mirror to tell us if public health systems are working



What is SARS's Impact?



How does SARS threat to our health and well-being?

According to Associated Press:

一場SARS等於五次「9.11」

全球旅業遭空前打壓 職位料減600萬個

【美聯社華盛頓十五日電】世界旅遊及觀光理事會(WTTC)指出，沙士對全球旅遊業造成的打擊，將加劇全球旅遊業的困境。

WTTC指出，沙士對全球旅遊業造成的打擊，將加劇全球旅遊業的困境。

亞洲區兩年後始

WTTC指出，沙士對全球旅遊業造成的打擊，將加劇全球旅遊業的困境。

WTTC指出，沙士對全球旅遊業造成的打擊，將加劇全球旅遊業的困境。

One SARS Pandemic
Is Equal to Five “9.11”

21

1:59 AM

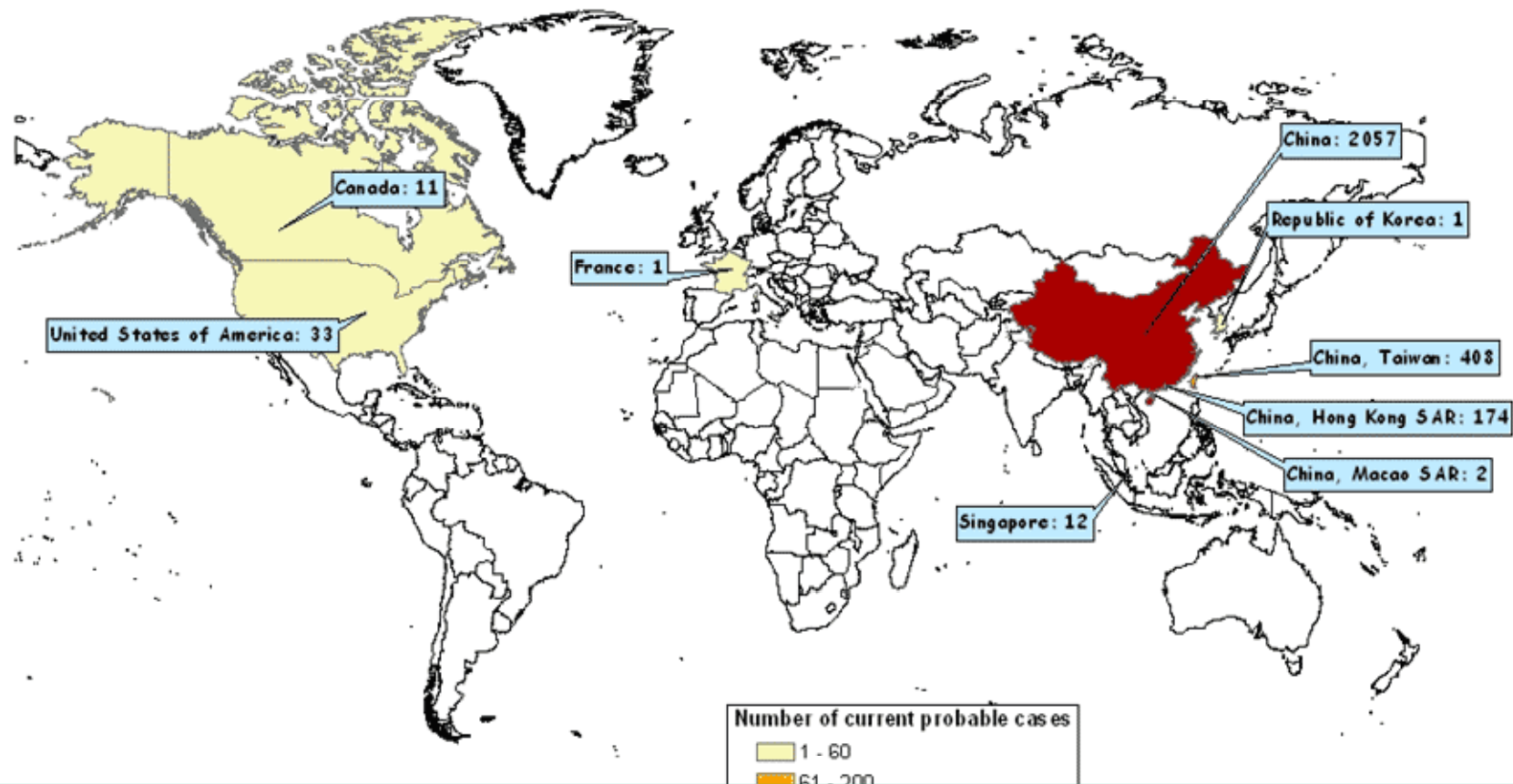
9-11



What is SARS's Impact on China's Public Health Systems?

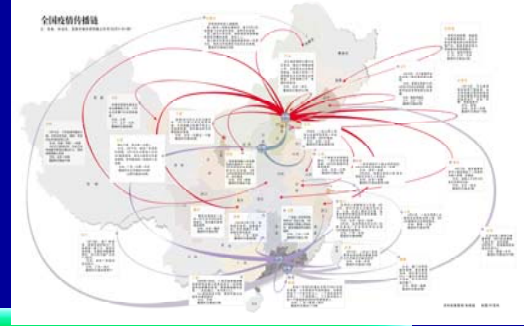


SARS: Number of Current Probable Cases as of 27 May 2003, 18:00 GMT+2



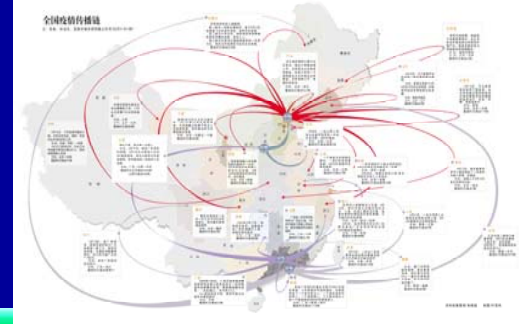
Total Cases: 8,422 (Mainland China: 5,327)
Total Deaths: 916 (Mainland China: 349)

AS A Mirror...



**Chronology of 2003 SARS
crisis will tell us if
China's public health
systems are working**

Chronology of 2003 SARS



- 2002
 - 11/16: 1st case of AP of unknown etiology, Fushan, 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, Heyuang reported 1st Cases
 - 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 2003 of SARS



- 2003
 - 1/14: Provincial CDC was informed an AP outbreak in Zhongshan. Several pts quickly progressed to respiratory failure and die. Outbreak also among HCWs.
 - The early February, epidemic reached peak in Guangzhou.
 - 2/8: Cellular phone short text message circulated 40 m times X 3 days, Rumors: fetal flu, bt, etc. 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

A collage of nine photographs illustrating SARS events. The images show healthcare workers in full protective gear, people in quarantine, and individuals wearing masks. A large red text overlay reads "A Reflection on SARS Events".

- 2003
 - 2/11 and 2/14: PROMED issued the global warnings
 - 2/18: Xinhua New Agency reported that Chinese CDC has discovered the cause of the disease: chlamydia, Guangdong disagreed: the cause is the virus
 - 2/21: A Dr. arrived HK, stayed in Metropol, room 911, passed the virus to 7 persons and consequently spread the virus around the world
 - 2/26: a Metropol guest carried the virus to Vietnam, infected 20 persons, including Dr. Urbani, died of the disease in Thailand on 3/29

非典型肺炎重在早预防、早发现、早治疗

What is atypical pneumonia ?

1、什么是非典型肺炎

非典型肺炎是相对典型肺炎而言的，典型肺炎通常是由肺炎链球菌或肺炎双球菌等常见细菌引起的。非典型肺炎是由病毒、支原体、衣原体、立克次氏体或其他微生物引起的传染性疾病，症状、肺部体征、血象相对没有典型肺炎感染那么明显。

3、临床表现

非典型肺炎潜伏期为1-11天，大多数人感染4天后发病。部分病人偶有血丝痰，出现呼吸加速、气促等呼吸困难症状，

Chronology of 2003 SARS



- 2003
 - 3/1: Beijing had 1st SARS case from Shanxi, (infected in Guangzhou). SARS spread in the capital. The information was blocked again
 - 3/12: WHO issues a global SARS alert
 - 3/26, GD released Feb. number: cases increased from 305 to 792, the death toll increased from 5 to 31
 - people begin to suspect the previous claim that the epidemic is under control

Epidemic chain

全国疫情传播链

注：各省、自治区、直辖市确诊病例截止时间为5月21日10时



Chronology of 2003 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: Health Minister
 - Measures were taken to contain SARS spreading
 - 5/23: WHO took GD and HK from its travel warning list.
 - 6/24: WHO took Beijing from its travel warning list.

From Chronology of 2003 SARS...

**Were China's public
health systems working?**



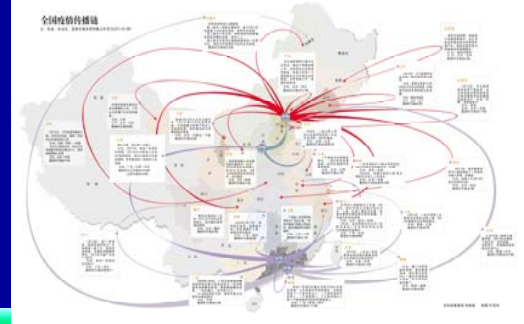
Chronology of 2003 SARS suggests...

- China did not have prepared public health systems
- The central command system: not working
- Information systems: not functioning
- Rapid diagnosis capacity: lacking
- Field epidemiologists: not prepared
- Pharmaceutical stockpile: not enough
- Hospitals and HCWs: not prepared
- Risk communication skills: poor



This realization led to huge efforts to improve PH systems in China

AS A Mirror...



SARS returns to test us again...

2004

- **Guangdong: 1/5-31**
 - 4 sporadic community-acquired cases
 - Quick response, complete control
 - $\frac{3}{4}$ cases were likely to be caused by Civet cat.
- **Beijing/Anhui: 4/22-5/7**
 - 9 cases, 2 clear transmission chains
 - Quick response, complete control
 - Lab contamination is the source of outbreak

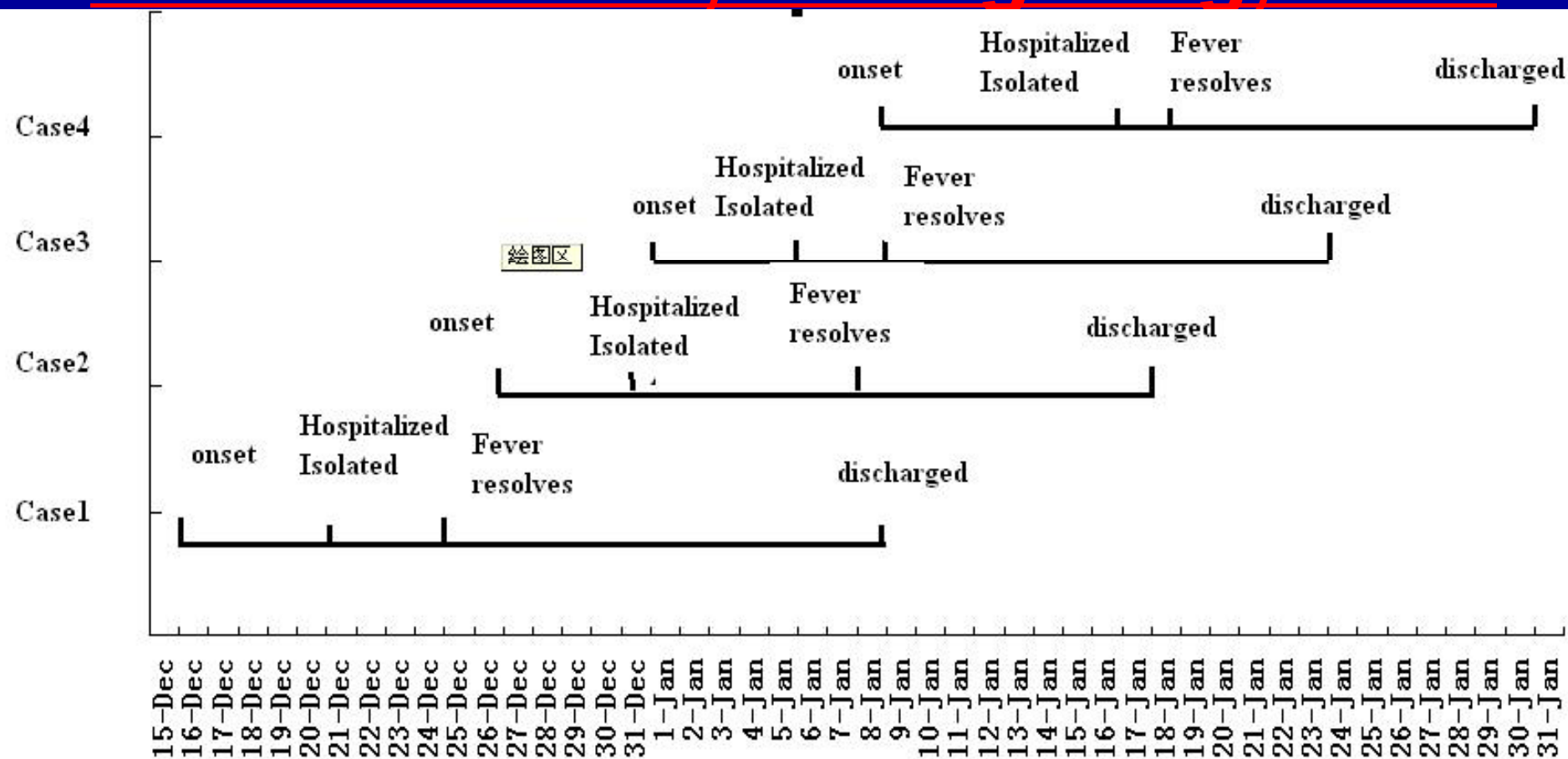


Guangdong, 1/5-31



Acknowledgement to Dr. Luo Huiming of GD CDC for using the following 5 slides

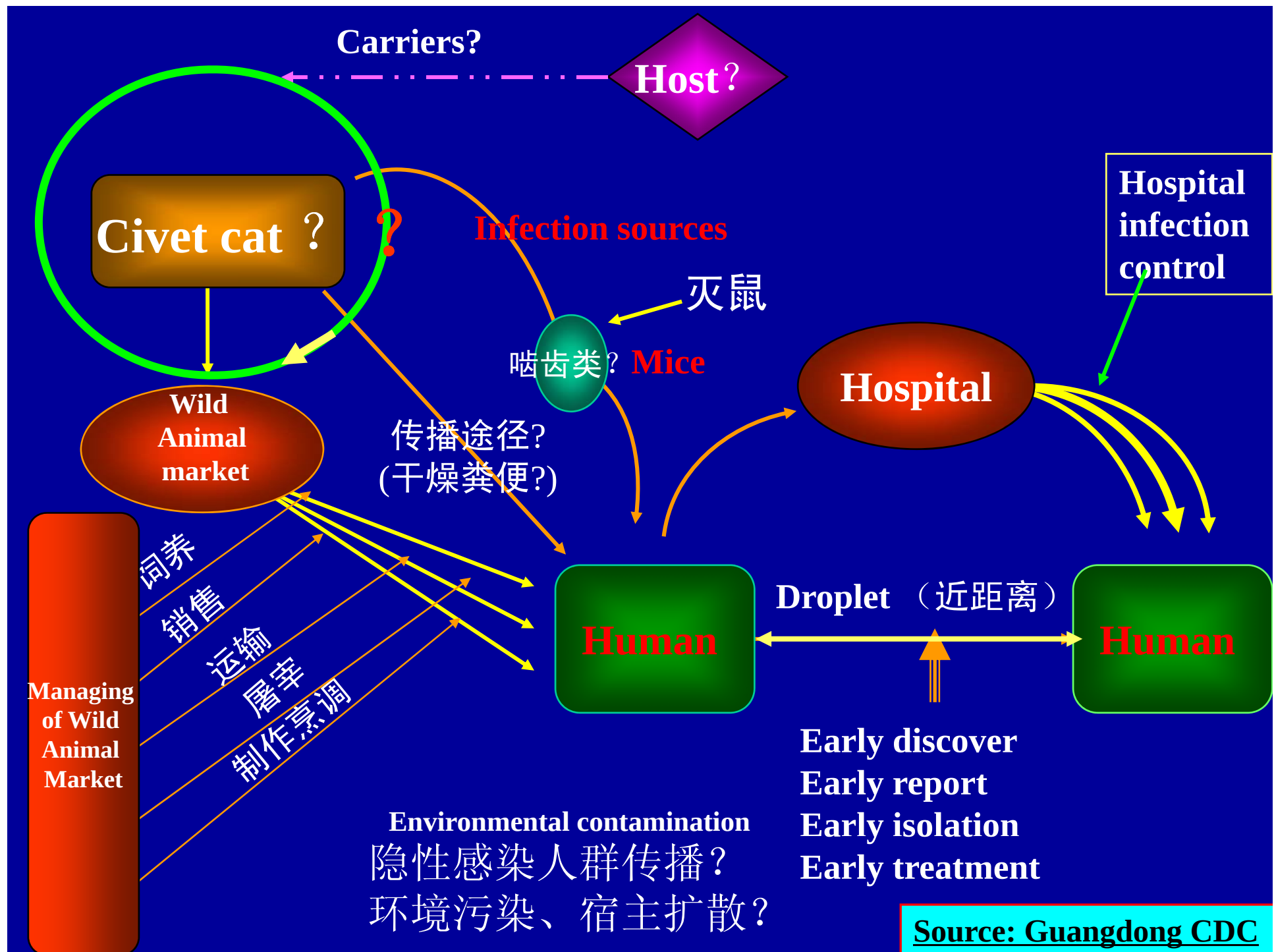
Onset and Treatment of 4 SARS Cases, Guangdong, 2004



	suspected	confirmed
Case1:	27-Dec-03	5-Jan-04
Case2	8- Jan- 04	17-Jan-04
Case3	9- Jan- 04	17-Jan-04
case4	24-Jan-04	31-Jan-04







Beijing: 4/22-5/7

Be prepared
Keep distance
from AP



Sources: Beijing CDC

Chronology of Beijing 2004 SARS



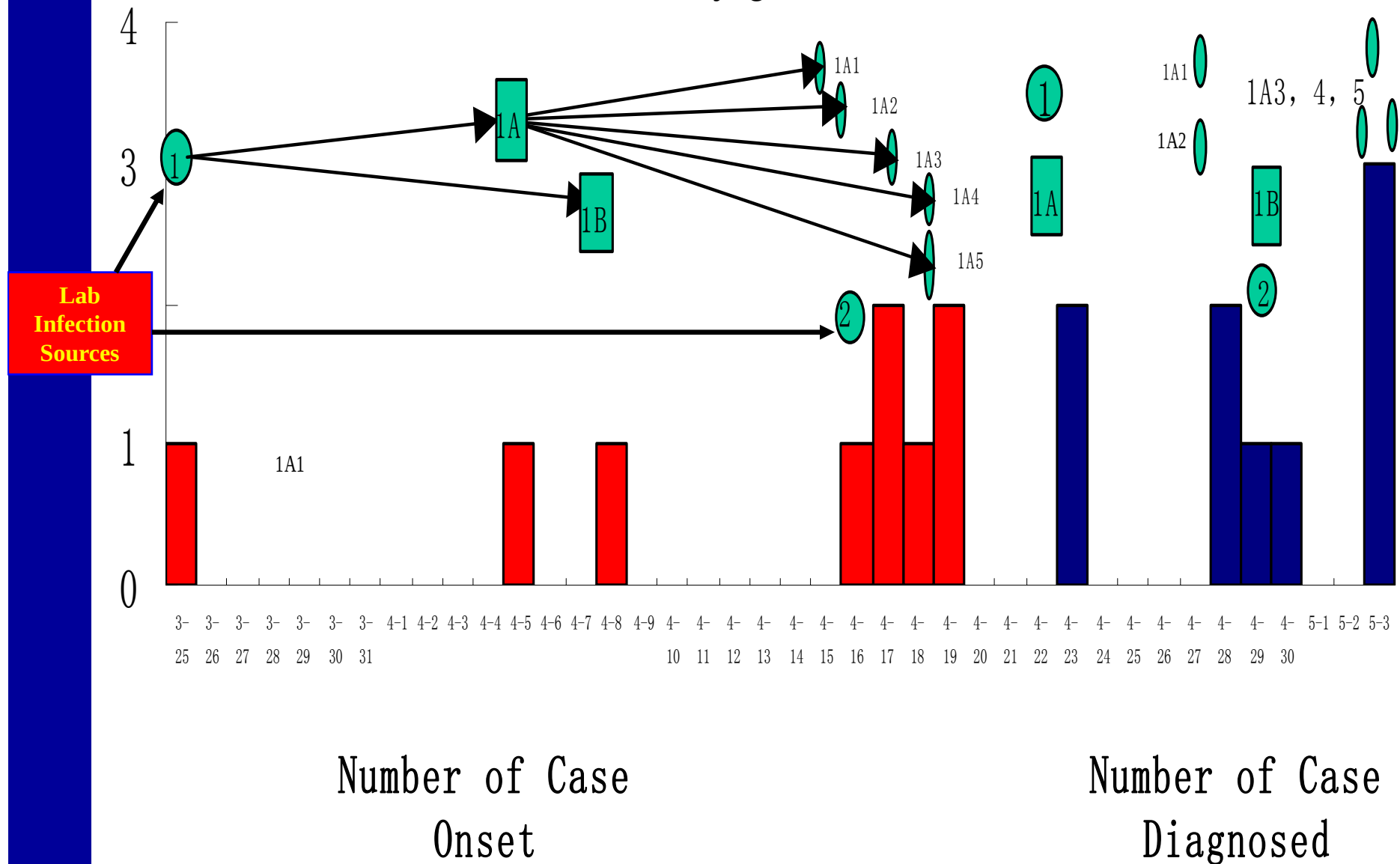
- 2004
 - 4/21, 5:00 PM: a suspected SARS case report received, isolated and field investigated began 40 minutes later
 - 4/21 night, SARS lab network began to operate
 - 4/22, evening, lab confirmed diagnosis
 - 4/22, 7:00PM, MOH released epidemic info to public
 - 4/22-23, closed three potential epidemic sites



Chronology of Beijing 2004 SARS

- **2004**
 - 4/22, Ditan hospital: ready to take SARS pt.
 - 4/23, Central command system began to work
 - 4/24, isolated and investigated 80% of 747 close contacts.
 - 5/10, isolation of 719 close contacts ended
 - 5/23, all isolation ended, no more new case.
 - 7/1: released investigation results to public: Cause of outbreak: lab contamination, CDC director resigned.

Onset and diagnosis time of 9 SARS cases and two transmission chains, Beijing, 2004





Source: Dr. Cui xiaobo



Source: Dr. Cui xiaobo



Source: Dr. Cui xiaobo



Source: Dr. Cui xiaobo

Comparison of 2003 and 2004 SARS in China

Public health system	2003 SARS	2004 SARS
Central command system	Not working	Working
Information systems	Not functioning	Functioning
Rapid diagnosis capacity	Lacking	Working/improving
Field epidemiologists	Not prepared	Well prepared
Pharmaceutical stockpile	Not prepared	Prepared
Hospitals and HCWs	Not prepared	Prepared to treat Not prepared to alert and report
Risk communication skills	Poor	Good



MD: not prepared to alert and report

Case	Onset date	Suspect SARS date	Time interval
Song X	3/25	4/20	27 days
Li X	4/5	4/22	12 days
Yang XX	4/17	4/22	6 days





Observations



- System is working but need improvement
- Two critical improvement opportunities:
 - Paradigm shift: From biomedical model to modern public health model and bio-socio-psycho medical-environmental model
 - Public health system capacity building is the key



Paradigm shift

- Public health community only has about 10% of resources to address issues of public's health
- Different disciplines within public health community need to learn to work together. Field epidemiologists, for example, need to work closely with laboratory professional and public relation experts.
- Public health and medicine need to be integrated. MD is a very important part of public health system, from surveillance to control
- Different gov. sections need to work together.



Paradigm shift

- **Public's health should be nation's priority: Current gov system is not designed for addressing public's health. Funding mechanism, for example, through MOH and MOST is not working well. No gov turf is needed when facing health challenges**
- **Public health issues are not just “bio-medical” issue, nor pure sciences or technology issues. AIDS is a typical example. Health education is the best vaccine for AIDS prevention and control, however, under current system, China's very limited AIDS control resource is not best utilized.**



Capacity building

- Nation-wide rapid lab diagnostic and reference network is of paramount importance , we also need:
 - Field epidemiology response team network
 - Applied research capacity
 - Public relation and risk communication team
 - Emerging and re-emerging diseases surveillance system s
 - ...

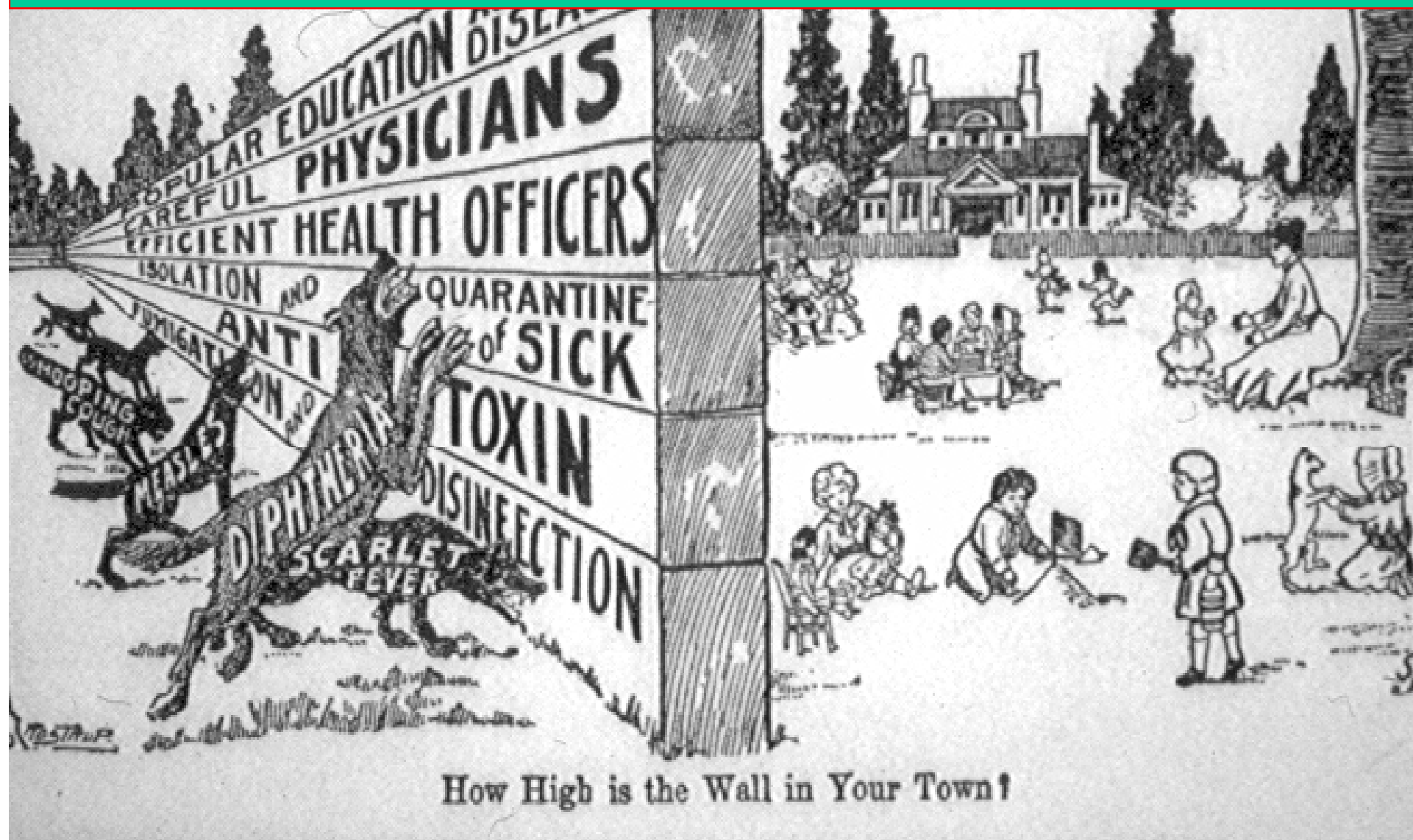
Without software, hardware is useless.



Observations

- **Communicable diseases do not respect geographical boundaries – though all diseases are local**
- **Investing in public health system, beyond just SARS or AIDS, would protect every citizen from diseases, and improve the quality of life.**

A Framework for Improving Public Health Systems in China



Principles



- Chinese needs based system improvement approach, using developed countries models as reference.
- Evidence-based system development approach, using modern public health model and bio-socio-psycho medical-environmental model.

Priorities



- Prevention first. 99.9% of public health crises should be controlled at local level with enough capacity to handle NBC crisis of significant health , social, economic, and political impacts
- Manpower development and capacity building 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



Observations

I am positive China will have a good public health system- it takes time.

- Strong national leadership**
- Good legal framework for disease control**
- 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**

“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**

Thank You
Q & A