SARS (Severe Acute Respiratory Syndrome)  
The Singapore Experience

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INDEX CASE

23 year old Chinese female  
Was in Hong Kong 20-25 Feb 03  
Developed fever and headache 25 Feb 03  
Dry cough 28 Feb 03  
Admitted to hospital on 1 Mar 03

SARS transmission pattern, Singapore  
(Reclassification n=238)

Patient Zero  
TTSH cluster 109 + 16  
Orange Valley Cluster 7  
SGH cluster 52 + 4  
Social Group Cluster 7  
PP Market Cluster 12 + 2  
NUH cluster 10 + 4  
2 + 5 unlinked

Epidemic Curve of SARS Cases in Singapore  
as at 16 July 2003 (n=238)
Seminar on Health and Migration, 9-11 June 2004
Session IIA: Public Health and Migration
The case of SARS: Lessons learnt, Assoc. Professor Suok Kai CHEW

FIGURE 2. Probable cases of severe acute respiratory syndrome, by reported source of infection* — Singapore, February 25–April 30, 2003

* Patient 1 represents Case 1; Case 6; Case 2; Patient 35; Case 3; Patient 130; Case 4; and Patient 127. Case 5. Excludes 22 cases with either no or poorly defined direct contacts or who were cases translocated to Singapore and the seven contacts of one of these cases.


FIGURE 1. Number of direct secondary cases from probable cases of severe acute respiratory syndrome — Singapore, February 26–April 30, 2003

Transmission Dynamics and Control of Severe Acute Respiratory Syndrome

A National Response

Ministerial Committee on SARS
supported by an Executive Group on SARS
- Public Health Measures
- The Economy
- The Society

SARS Combat Unit
- The Healthcare System
**3-Pronged Strategy**

**Prevention & control in hospitals**
- Centralising all SARS cases in one hospital
- Restriction of movement of healthcare workers and patients across hospitals
- Strict infection control procedures in hospitals (and medical, dental and TCM clinics)
- Mandating protective gear for all workers in all hospitals
- Close monitoring of healthcare workers
- Restrictions on visitors

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**Designated SARS Hospital**

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**3-Pronged Strategy**

**Prevention & control in community**
- Public education e.g. symptoms, mode of transmission of SARS, social responsibility
- Travel and health advisories
- Temperature taking, early detection and isolation
- Rigorous contact tracing
- Mandatory home quarantine under the Infectious Diseases Act
PM’s Open Letter to All

Appealed to Singaporeans to exercise personal responsibility in our fight against SARS
All must play a part to ensure that there are no holes in our ring-fence against SARS

FACTS YOU SHOULD KNOW ABOUT SARS

Preventive Actions by Ministries
- Clean and disinfect public areas (ENV, MND)
- Temperature taking for Food Handlers (ENV)
- SARS education package and personal thermometer for every student (MOE)
- Hygiene precautions for child-care centres and kindergartens (MCDS)
- Quarantine measures for foreign workers from SARS affected regions (MOM)
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3-Pronged Strategy
Prevention of transborder spread
- health screening at border checkpoints with thermal imaging scanners - airport, seaport and land
- health declarations requirements
- health alert notices
- transborder contact tracing
- working with WHO and other health authorities

$230 million relief package
Help for the hardest-hit tourism and transport industries

Thermal imaging scanner
- Fever
- Normal
International Collaboration I
- WHO’s leadership in the fight against SARS
- International and regional forums
- ASEAN and ASEAN+3
- APEC
- Bilateral cooperation with neighbouring countries

International Collaboration II
- Sharing of information and best practices
- Agree on measures to adopt to contain SARS
- Common protocols for travellers to keep borders open and prevent international spread
- Cooperation in disease surveillance and treatment
- Multi-sectoral, involving health, transport, immigration and other agencies

International Collaboration III
- ASEAN+3 initiatives
  - Strengthening epidemiological capacity
  - Strengthening laboratory capacity
  - Information management
  - ASEAN+3 Emerging Infectious Disease Programme

Singapore was removed from WHO list of areas with local SARS transmission on 31 May 2003
“…efforts have made Singapore a place safe from the risk of SARS for both residents and visitors.”
Moving forward –
The Need for Vigilance

- The key preventive and control measures which need to be continued for the longer term are:
  - Prevention of cross border cases
  - Continued good surveillance for SARS, early identification and isolation of all suspected cases
  - A high state of vigilance in hospitals and other health care institutions with all preventive measures put in place

Cost to societies goes beyond health

- Hugh economic and trade impact
- Impact of travel advisories
- Decline of tourism
- Reduced demand for services
- Cancellation of major events
- Closure of schools

“Every dark cloud has its silver lining”

3 areas in which something good has come out of the SARS outbreak

- Global cooperation is enhanced
- Transparency is valued
- Good public health defence capability is much appreciated
Thank you