

# **SARS Epidemiology for Public Health Action**

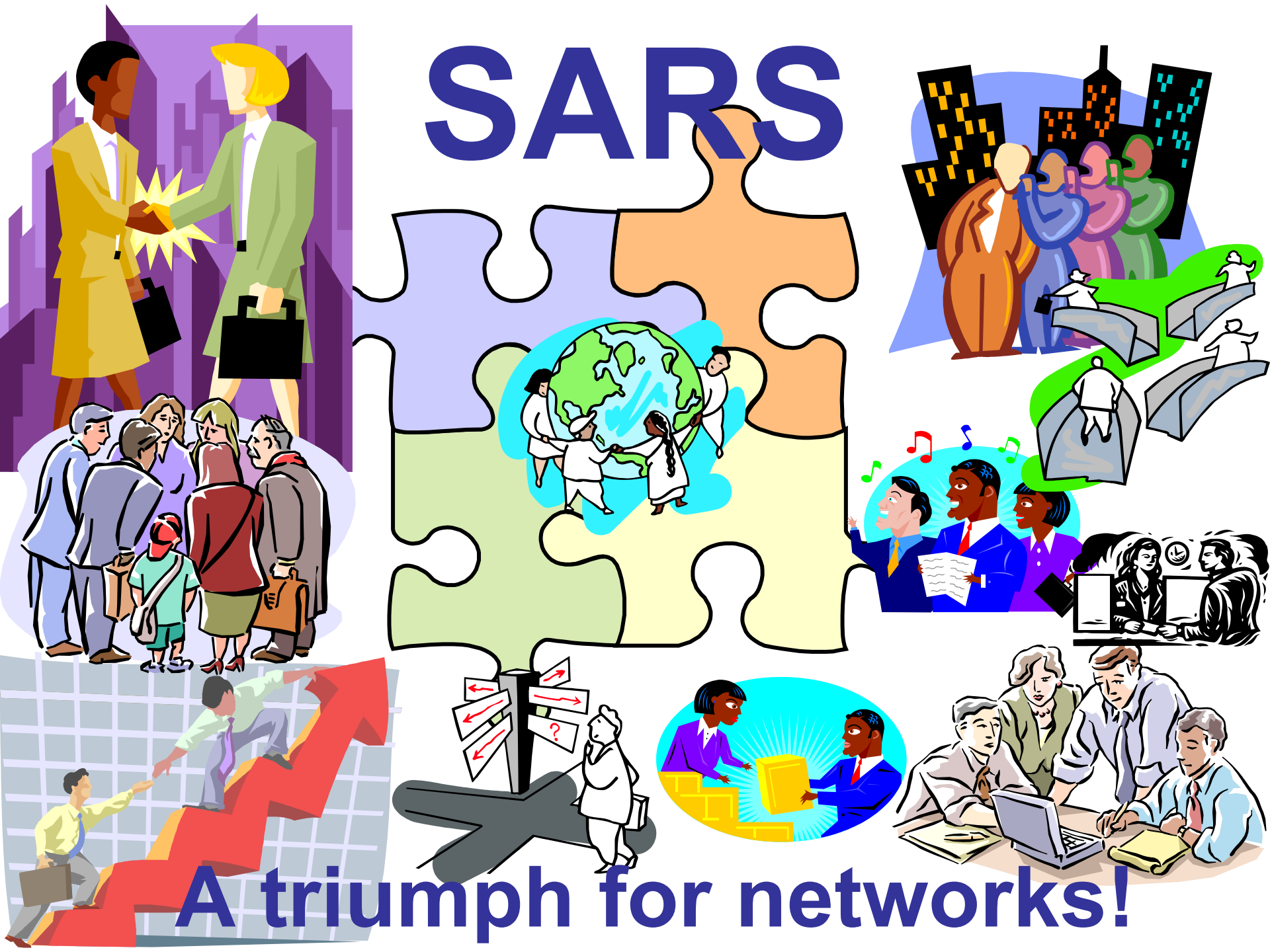
---

**Aileen J Plant**

*on behalf of*

**The Global Network for SARS Epidemiology**  
**With thanks to Angela Merianos, Angus Nicoll and all the**  
**SARS epidemiology people around the globe!**

# SARS



**A triumph for networks!**

# Today

---

**Brief description of epidemiology**  
(Who? When? Where? Why? How?)

**Epidemiology for public health action**

**Highlight the unknown**

**The challenges ahead**



# The initial challenge

---

**No name**

**No clear-cut clinical diagnosis**

**No test**

**No idea of clinical course**

**No idea of long term implications**

**Not much idea how it spread**

**When does infectiousness start?**

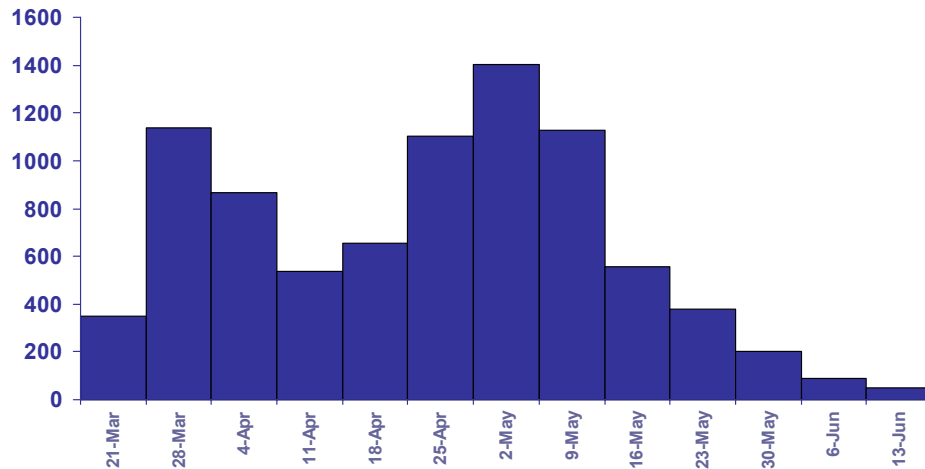
**When does infectiousness finish?**

**Is there any short term immunity?**

**Is there any long term immunity?**

# Notifications of SARS to WHO by week (21 March-13 June, 2003)

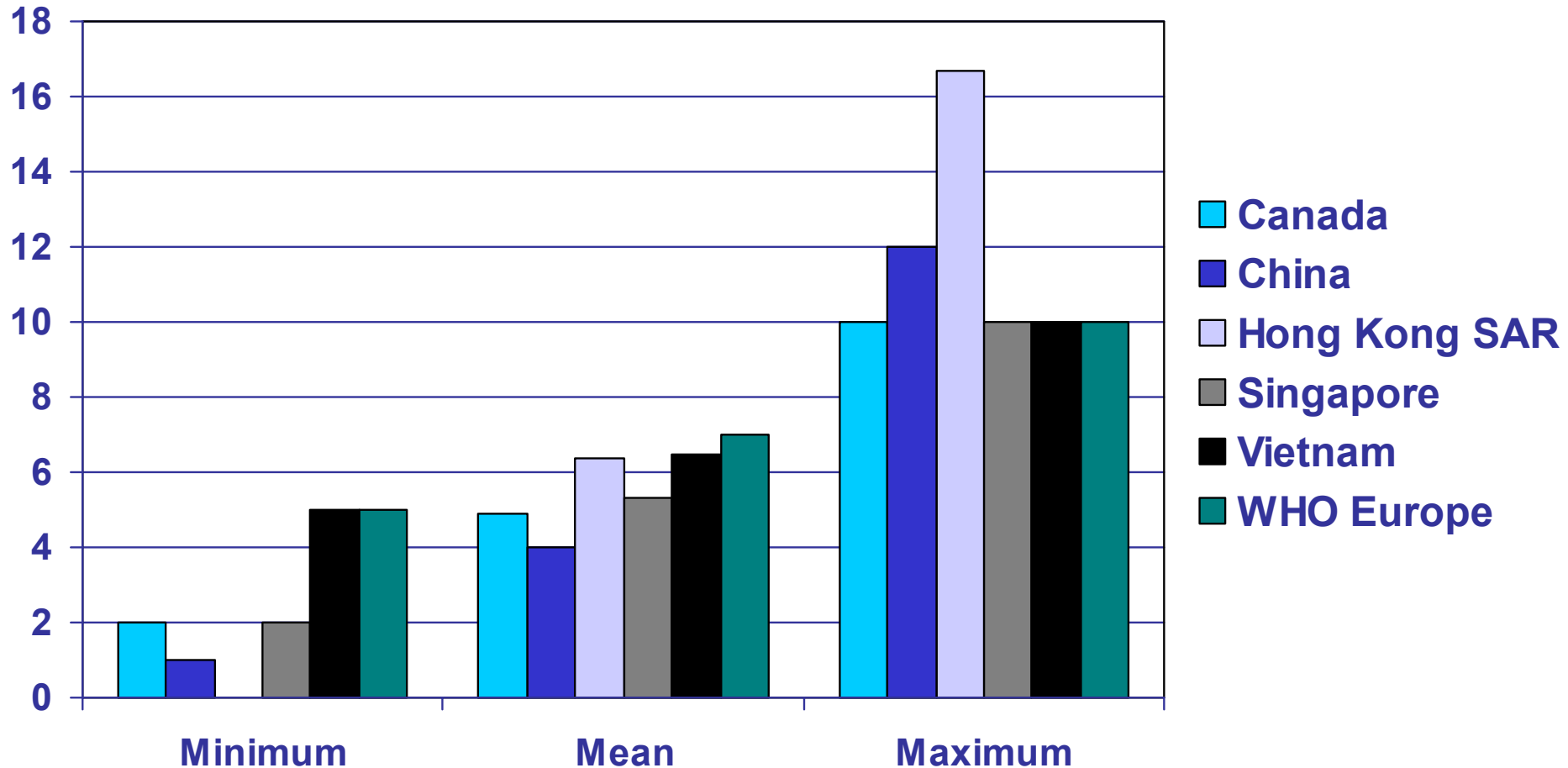
---



Source: [www.who.int](http://www.who.int)

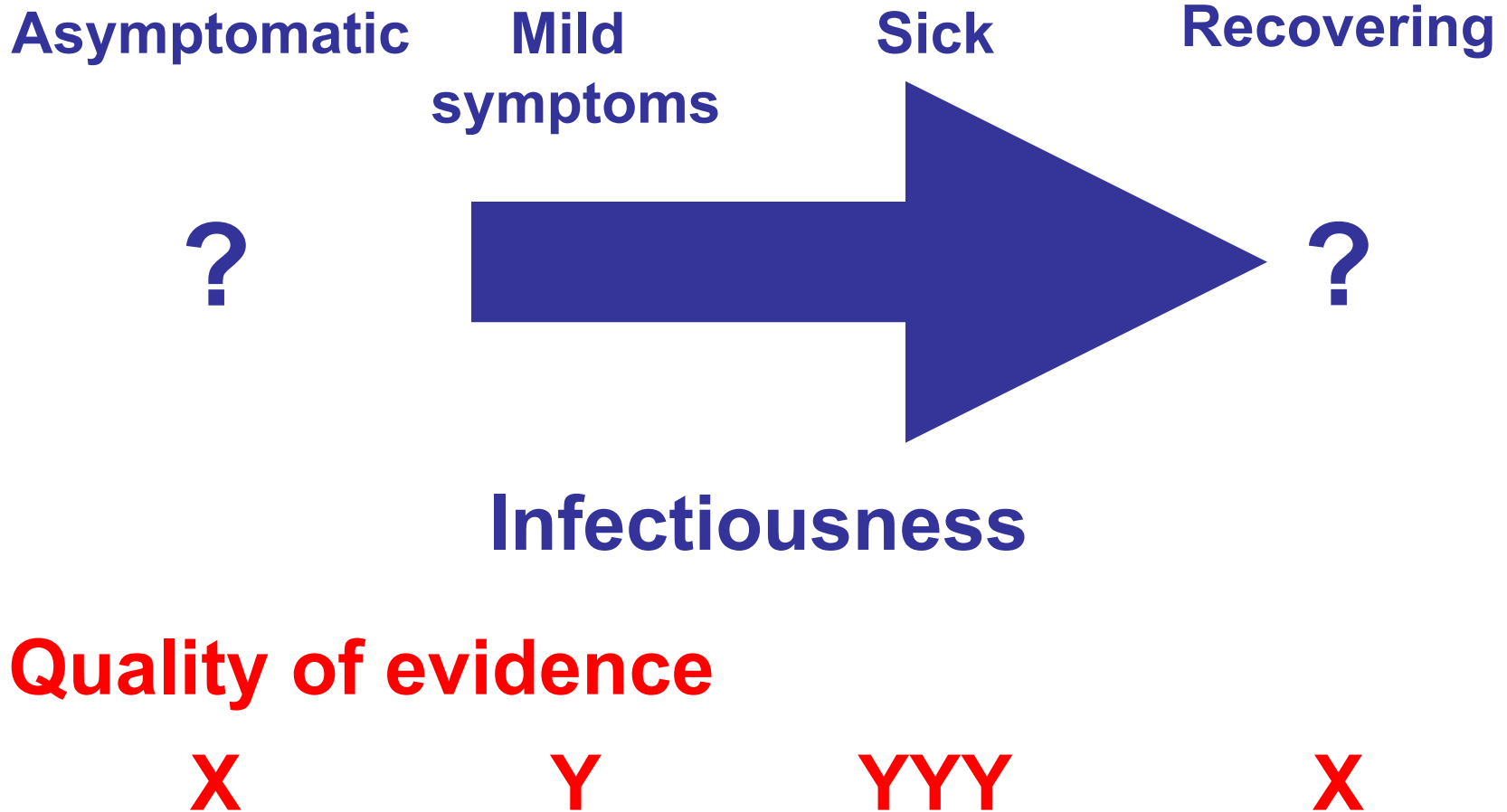
- Incubation period
- Infectious period
- Case fatality ratios
- Reproduction number
- Routes of transmission and exposure dose
- Sub-clinical infection
- Reservoirs eg animals

# Incubation period – imprecise but reasonably consistent

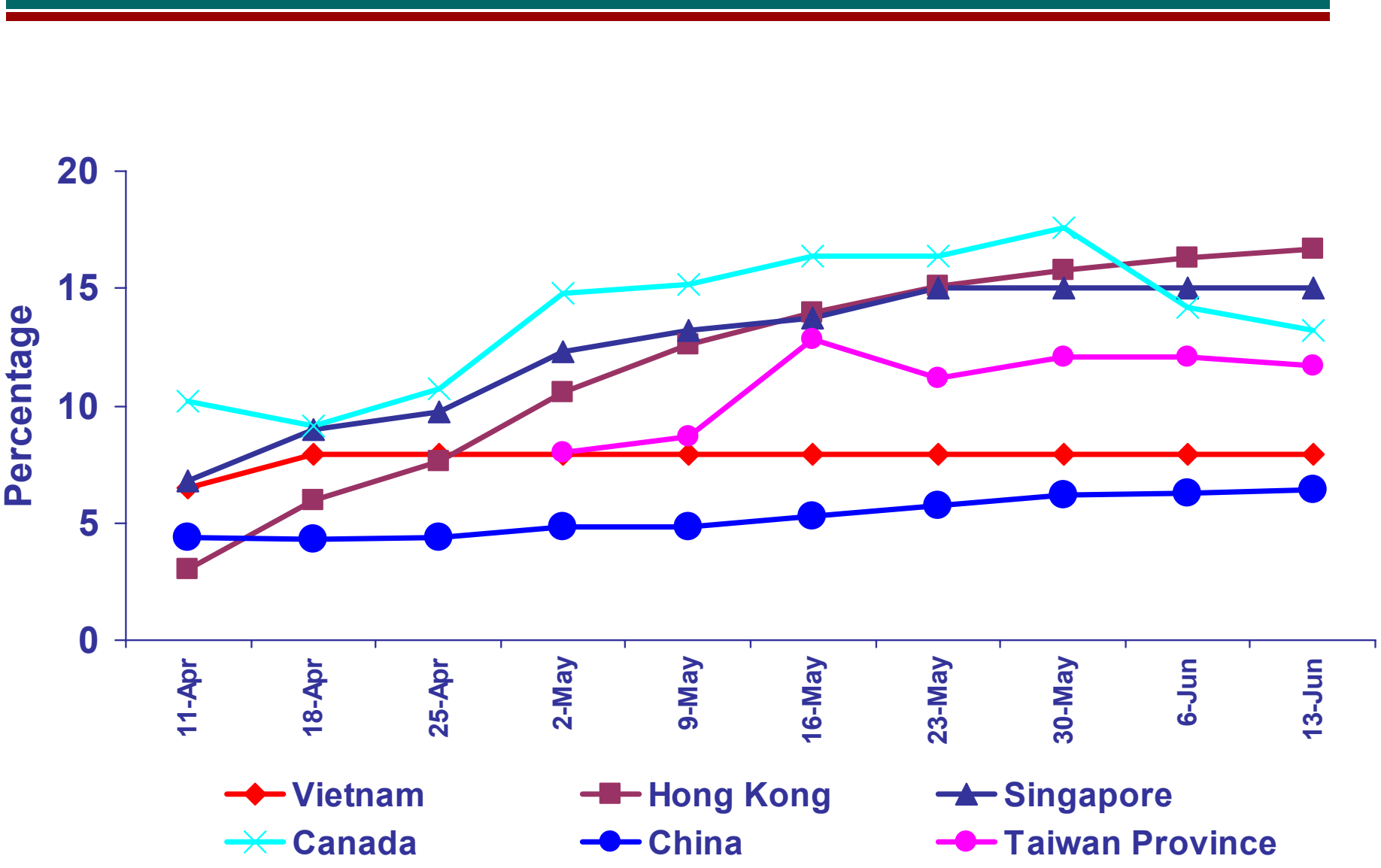


# Transmission evidence

---



# Case fatality ratios – crude estimates



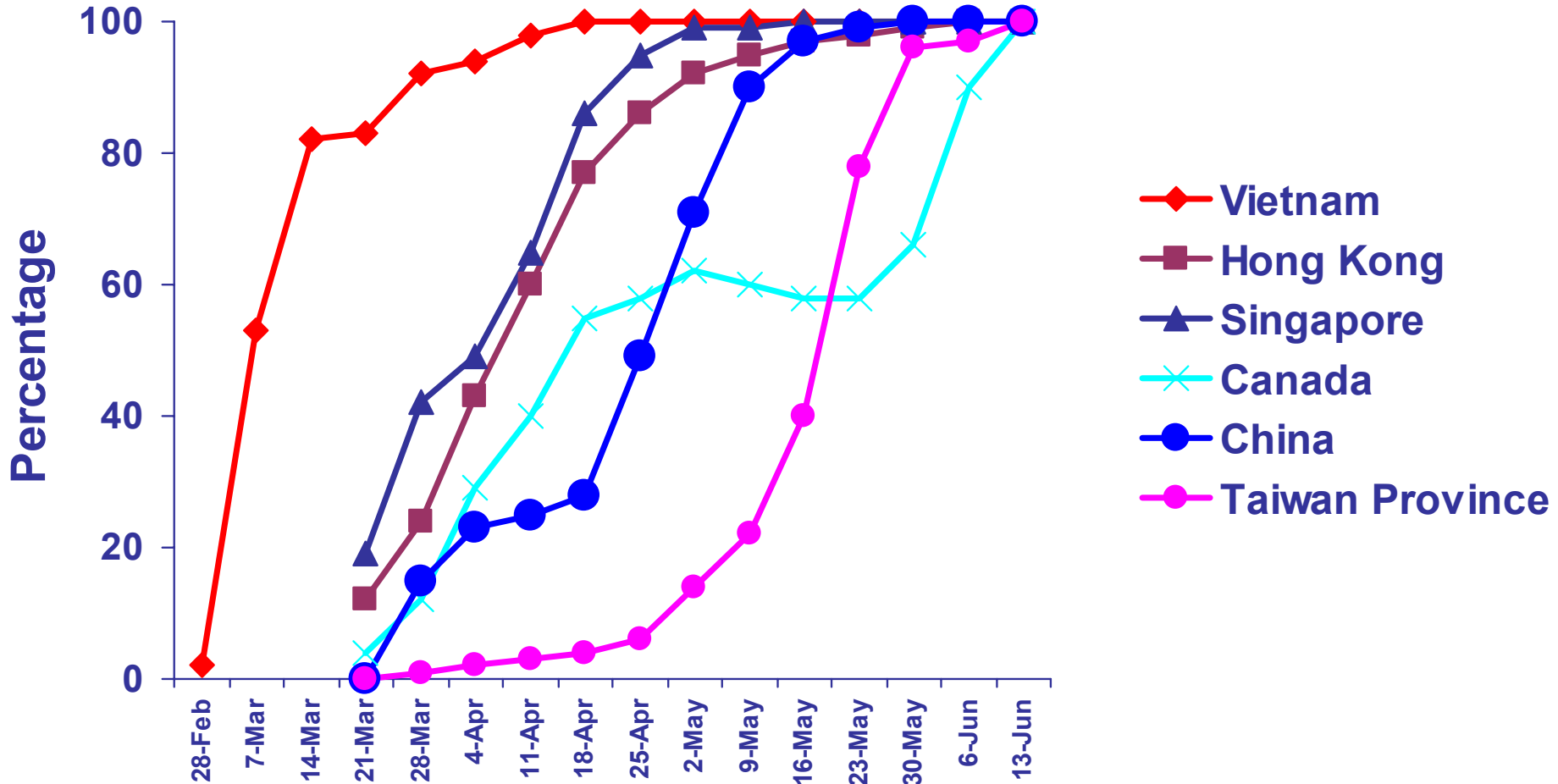
# Routes of transmission

---

**All the evidence in favour of close contact**

- **Mostly <1 metre**
- **Fomites can not be excluded – BUT – not much evidence of prolonged risk in spite of microbiological findings**
- **Aerosol is not likely**
- **Amoy Gardens ???**

# Cumulative percentage of SARS cases by country and time



# Health Care Workers and SARS

---

**Hong Kong SAR**

**(early report – Lee et al)**

**Vietnam**

**HCW**

**58%**

**53%**

**Sick health care workers matter for SARS but they matter far more for the rest of the health system**

# SARS Vietnam: clinical attack rates by occupational risk groups

---

<b>Hospital A</b>	<b>%</b>
<b>Any doctor</b>	<b>16</b>
<b>Any nurse</b>	<b>35</b>
<b>Administration staff</b>	<b>2</b>
<b>Other staff with patient contact</b>	<b>53</b>
<b>Outside staff</b>	<b>0</b>
<b>Total hospital</b>	<b>18</b>
<b>Concurrent patients NOT admitted for SARS</b>	<b>7</b>
<b>Hospital B</b>	<b>0</b>
<b>Contacts of one well-tracked (and friendly!) case</b>	<b>6</b>

# Conclusions – the challenges ahead

---

**MUST have sufficient:**

- **clinical diagnostic skills**
- **laboratory capacity**
- **surveillance capacity**
- **response capacity**
- **plans of action**
- **infection control**
- **applied research capacity**

# Conclusions

---

**There is a lot of epidemiological work to be done**

**But the good news is**

**We don't have to wait for perfect answers to control SARS, we can do it now!**



Photo: Dr Joel Montgomery, WHO SARS Team, Vietnam

# Mean age and SARS

---

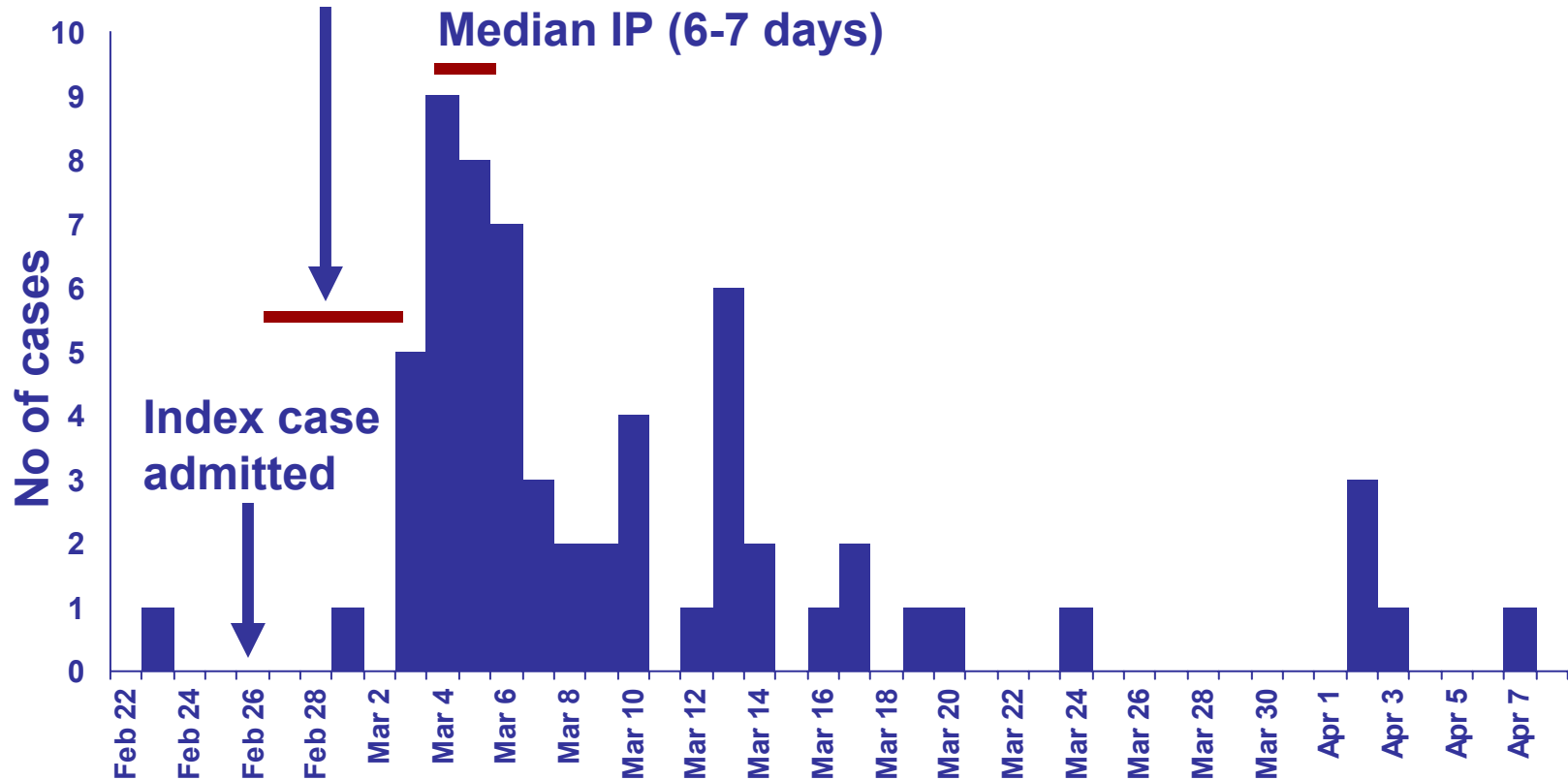
<b>Hong Kong SAR</b>	<b>39.3 (n = 156, Lee et al)</b>
<b>Hong Kong SAR (Amoy Gardens)</b>	<b>39.8 (n = 75, Peiris et al)</b>
<b>Vietnam</b>	<b>40.8 (n = 62, unpub)</b>

# SARS Vietnam: Feb-Mar 2003

No of cases by date of onset – the incubation period

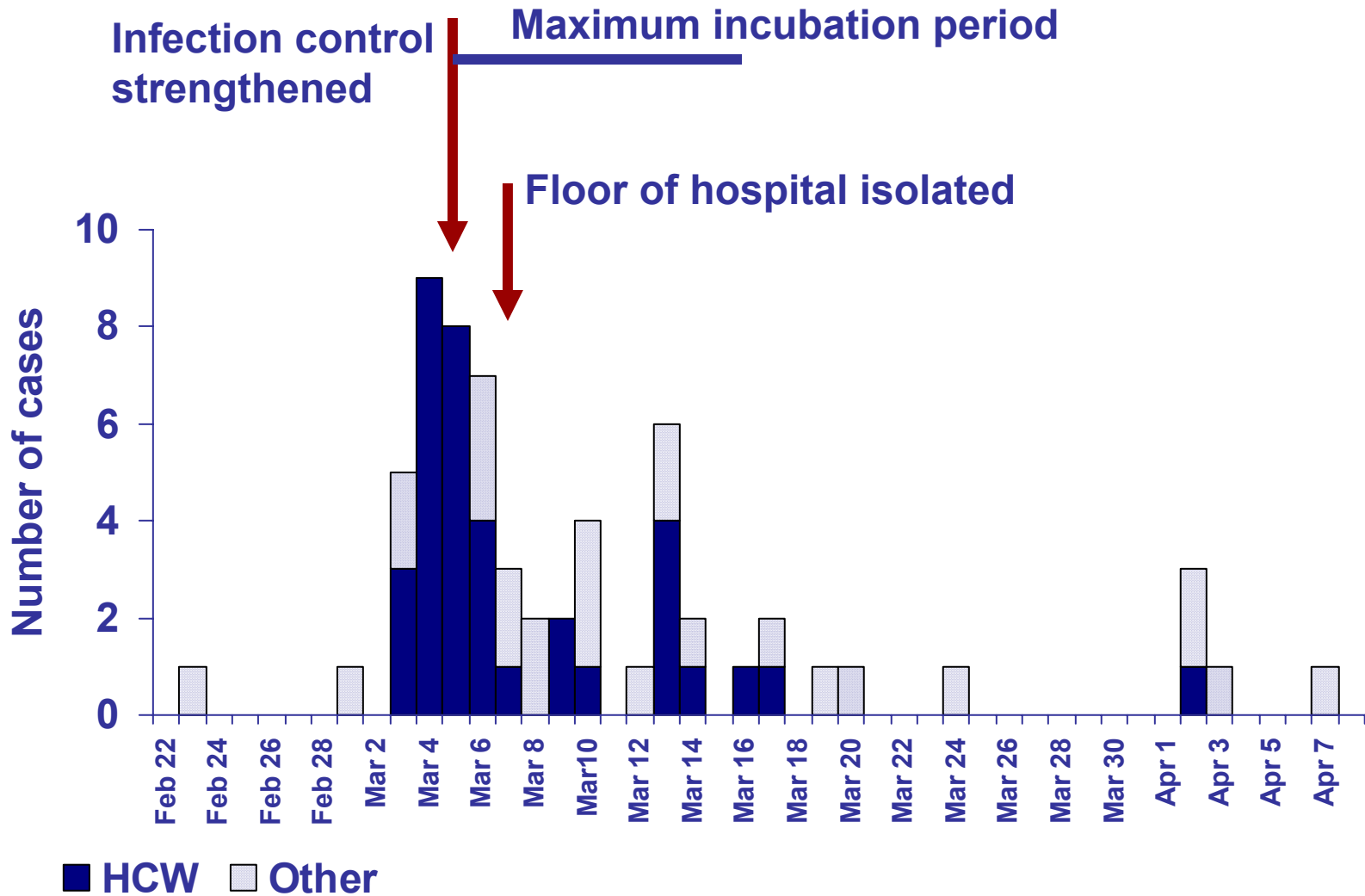
Maximum-minimum incubation period

(5 days)



Max IP (10 days)

# Infection control - it matters!



No of cases by date of onset of symptoms, Vietnam