

Importance of Pathogen Sharing

Case study – SARS



**World Health
Organization**

SARS – Facts

- Outbreak started around November 2002 in south-east China spread to 26 countries, causing 8,096 cases and 774 deaths.
- Estimated economic cost of US\$ 30 billion (Stanley Morgan); US\$ 100 billion (Nature).
- True and the first global epidemic in 21st century caused by a newly emerging virus (animal origin: bats? – no diagnostics available when outbreak surfaced).
- WHO issued '**Global Alert**' for the first time in its history (pre-IHR2005, no 'PHEIC').
- Last chain of transmission was broken in July 2003, 4 month after WHO Global Alert – only by non-pharmaceutical interventions (no vaccines, no antivirals).

SARS and the economy: impact on global travel

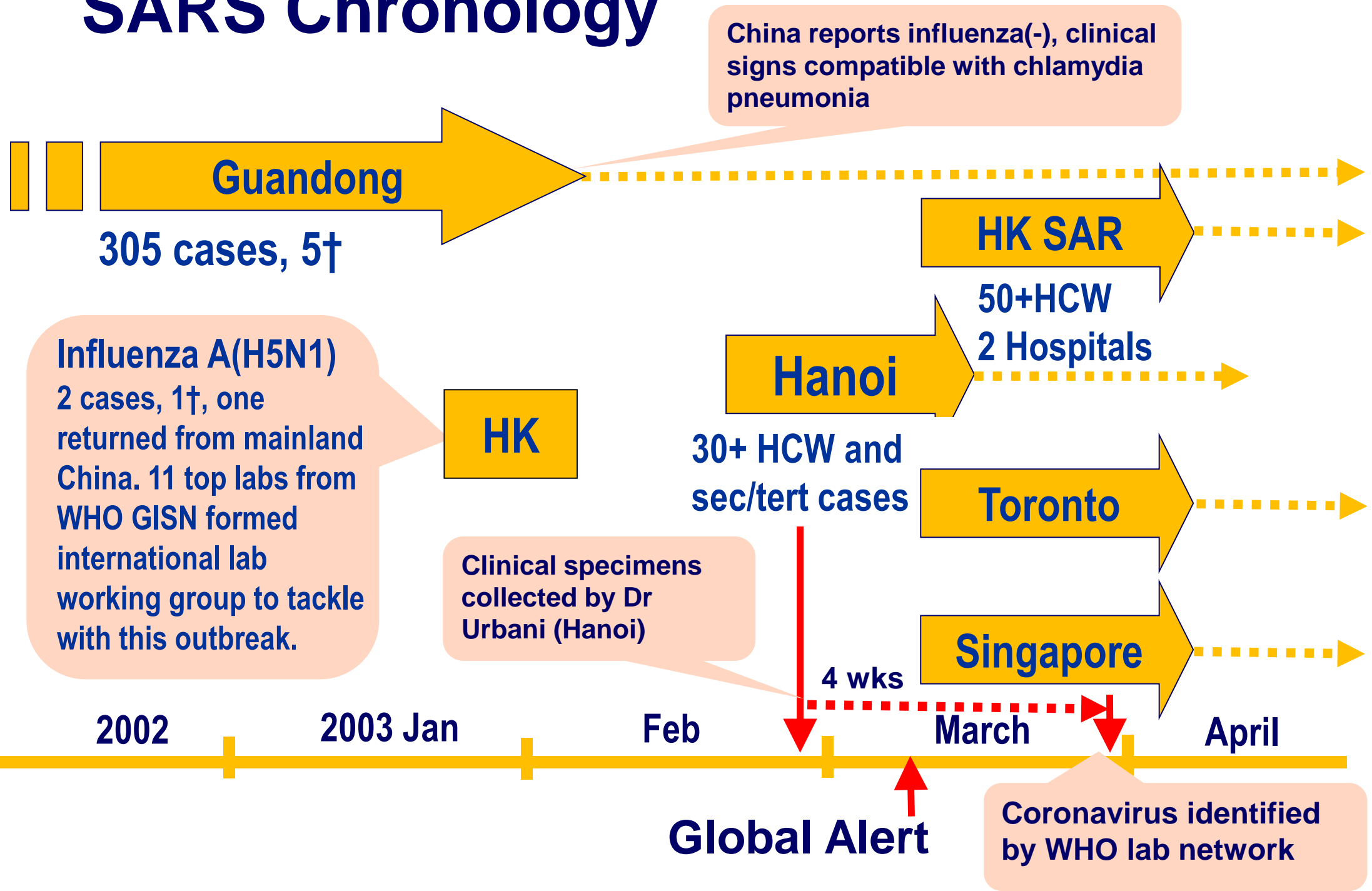
Time Flight	Destination	Gate	Status
17:00 GA 859	Singapore	16	Est at 19:10
	Jakarta		
17:20 MU 599	Shanghai/Pudong		Cancelled
17:45 KA 894	Shanghai/Pudong		Cancelled
17:50 KA 430	Kaohsiung		Cancelled
17:50 KA 604	Xiamen		Cancelled
17:50 KA 904	Beijing		Cancelled
17:55 KA 700	Gulin		Cancelled
17:55 MU 5020	Nanjing	66	Now Boarding
18:00 CA 420	Chongqing	64	
18:00 MU 204	Xian	26	Boarding Soon
18:00 PR 307	Manila	24	
18:05 AI 315	Delhi	33	Boarding Soon
	Mumbai		
18:05 KA 660	Fuzhou		Cancelled
18:20 CX 402	Taipei	67	
18:25 MU 510	Shanghai/Pudong	19	
18:30 SQ 865	Singapore	23	Boarding Soon
18:35 KA 622	Hangzhou		Cancelled
18:40 AC 008	Vancouver		Cancelled
	Toronto		
18:45 CI 616	Taipei	28	
18:50 TG 633	Bangkok	42	
18:55 KA 812	Nanjing		Cancelled
19:10 CX 111	Sydney	47	

Time Flight	Destination	Gate	Status
19:10 CX 135	Melbourne		Cancelled
19:10 QF 088	Melbourne	18	
19:15 MU 536	Shanghai/Pudong	15	
19:15 NZ 070	Auckland	35	
	LH 9810		
19:20 KA 906	Beijing		Cancelled
19:20 SQ 869	Singapore		Cancelled
19:25 BR 872	Taipei		Cancelled
19:25 CZ 3078	Haikou	32	
19:40 5J 119	Manila	21	
19:40 CA 116	Beijing		Cancelled
19:40 CX 468	Taipei		
19:40 CX 913	Manila		Cancelled
19:45 CI 642	Taipei	25	
19:50 MU 7002	Taiyuan		Cancelled
20:00 CX 715	Singapore		Cancelled
20:00 UA 805	Singapore		Cancelled
20:05 CI 616	Kaohsiung	26	
20:10 CZ 3078	Guangzhou	30	
20:10 QF 068	Brisbane		Cancelled
	Sydney		
20:15 KA 806	Shanghai/Pudong	29	
20:15 TG 630	Taipei		Cancelled
20:25 CX 107	Auckland	1	
	BA 4551		

Time Flight	Destination	Gate	Status
20:35 KA 438	Kaohsiung		Cancelled
20:45 CX 464	Taipei		Cancelled
20:45 TG 607	Bangkok	42	
20:50 CI 618	Taipei		Cancelled
20:50 CZ 3032	Gulin	32	
21:00 BR 858	Taipei	36	
21:05 PR 311	Manila		
21:10 QF 128	Sydney	19	
21:45 KA 434	Kaohsiung	27	
21:45 KA 488	Taipei		Cancelled
21:50 CX 408	Taipei	4	
21:50 CX 905	Manila	31	
21:55 CI 672	Kaohsiung		
21:55 SQ 002	San Francisco		
22:00 VN 763	Ho Chi Minh		
	CX 763		
22:05 CI 666	Taipei		Cancelled
22:05 CX 700	Bangkok		Cancelled
22:25 EK 383	Bangkok	62	
	Dubai		
22:55 CX 462	Taipei		Cancelled
23:10 LH 731	Munich		Cancelled
	NZ 4631		
23:20 CX 103	Calais		
	Brisbane		

Departures screen at Changi Airport in Singapore

SARS Chronology



SARS – Pathogen identification

- November 2002 – February 2003: Reported by China that influenza (-), likely chlamydia and clinically compatible.
- February 2003 – HK SAR lab confirmed 2 influenza A(H5N1) human cases, 11 laboratories from WHO Global Influenza Surveillance Network engaged in pathogen identification.
- HK lab identified coronavirus as responsible pathogen. Other labs confirmed and worked around clock to develop diagnostic tests. SARS CoV infection can be only confirmed by laboratory test.
- In early days of SARS, 'House made' diagnostic reagents were distributed by WHO collaborating laboratories (commercially not available)

Importance of pathogen and benefit sharing

28 February 2003

Dr Carlo Urbani collected specimens from SARS patient in Hanoi. Samples were shared through the national lab internationally with WHO lab network.

28 March 2003

WHO international lab network identifies coronavirus as responsible pathogen. Diagnostic reagents have been developed and distributed worldwide by WHO network for free.

29 March 2003

WHO infectious disease specialist, Dr Carlo Urbani, the first WHO officer to identify the outbreak of this new disease and treat the earliest cases in Hanoi, dies of SARS in Thailand.



With R&D advancement, we can speed up development of medical countermeasures for emerging dangerous pathogens if pathogens are shared timely.