For information

# SARS Expert Committee

## SARS Cases after PWH outbreak and before Amoy Gardens outbreak

## PURPOSE

The paper highlights the pattern and distribution of SARS cases reported to Department of Health (DH) from 11 to 25 March 2003, both dates inclusive, but excluding cases of the PWH and Amoy Gardens outbreaks. During this period, there were a number of discernible mini-outbreaks which together accounted for 101 cases, and another 34 cases which occurred sporadically with no linkage to any obvious source.

## BACKGROUND

2. With the setting up of a reporting system in February 2003, DH was fully on the alert for severe community acquired pneumonia (SCAP) cases in hospitals. Upon notification, DH would initiate epidemiological and laboratory investigations. At the same time, contact tracing and medical surveillance would be carried out. The surveillance system for SCAP ran concurrently as the PWH epidemic broke out on 11 March, but changed over to SARS when the disease syndrome became better defined.

3. The following is an account of more prominent clusters occurring in the two weeks after 11 March, all reported after the public announcement by DH on 12 March of the PWH outbreak, to illustrate epidemiological response launched by the Department.

### KK [redacted] clinic cluster reported on 13 March

4. DH received notification of a GP and his nurses suspected to be suffering from atypical pneumonia. Case investigation by DH revealed that the cluster involved 5 persons, namely [redacted] KK, his wife and 3 nurses in his clinic. A nurse first developed symptoms on 3 March, followed by the

second nurse on 5 March. [redacted] was ill on 10 March, followed by his wife on 12 March and then the third nurse on 16 March.

5. The source of infection was not immediately obvious at the time of epidemiological investigation. It later transpired that the first nurse who fell sick could have acquired the infection from [redacted], who attended the clinic on 23 February and succumbed from SCAP on 15 March. [redacted] had history of traveling to the Mainland before becoming sick.

6. Close contacts of [redacted], his wife, the nurses and their visitors were given health advice and placed under medical surveillance. Apart from the doctor's wife who contracted the infection from her husband, no other contacts were identified. All patients recovered.

Pamela Youde Nethersole Eastern Hospital (PYNEH) cluster reported on 13 March

7. DH received notification from PYNEH that six health care workers (HCWs) of A5 ward were suffering from atypical pneumonia. Their onset dates were between 4 and 10 March. DH staff immediately carried out face-to-face interviews with the patients, traced their close contacts for health advice and started daily medical surveillance.

8. Source of the infection was traced to a 44-year old salesman, [redacted], who stayed in A5 ward of PYNEH from 2 March to 7 March, before transfer to high dependency unit. Ward staff did not take isolation or droplet precautions at that time. The case was reported to DH as SCAP on 11 March but direct patient interview was not possible as he was in a poor state. The patient's sister however volunteered a history of traveling to Zhongshan with his daughter and two friends on 22-23 February. The patient was said to have developed upper respiratory infection symptoms the day before, and fever during the trip. DH staff conducted medical surveillance and found no household or close contacts developing symptoms. The patient died on 16 March. Exhaustive laboratory investigations could not detect any pathological organism.

9. While DH was tracing contacts of the 6 HCWs, PYNEH stepped up

hospital infection control and carried out surveillance of other HCWs and patients who shared the same cubicle with the index case. One patient, a visitor and another HCW were later found to be suffering from SARS. Contact tracing and medical surveillance were carried out.

10. At the conclusion of this outbreak, 14 persons including the index patient were affected. Secondary spread was limited to 4 close contacts of 3 HCWs.

St Paul's Hospital (SPH) outbreak reported on 17 March

11. DH received notification from SPH of an outbreak of atypical pneumonia among three HCWs of Old-1 ward. Their onset dates were between 9 and 14 March. DH staff immediately carried out face-to-face interviews with the patients, traced their contacts for health advice and started daily medical surveillance. SPH was asked to step up hospital infection control and monitor the health of other HCWs.

12. Meanwhile, the source was traced to a 72-year-old male patient, [redacted] FF [redacted], whose onset of illness was on 27 February. He was a Canadian visitor who stayed in Metropole Hotel since 12 February. He was admitted into Old-1 ward from 2 to 8 March before transfer to QMH for further management. Hospital staff did not take special isolation or droplet precautions at that time. DH was notified of the case as SCAP on 13 March and contact tracing and medical surveillance were carried out in the usual manner. By this time, DH's investigation and collaboration with overseas health authorities was able to identify [redacted] AA of Guangdong as the index case that caused a number of overseas travelers falling ill after their stay in the Metropole Hotel in February.

13. Once the index case had been identified, SPH immediately took follow-up action for all patients who stayed in the same room. Active case finding revealed that one patient and 5 visitors of Old-1 ward were infected.

14. At the conclusion of this outbreak, a total of 12 cases including the index patient were affected. Secondary spread was limited to one family contact of an affected HCW and one family contact of an affected visitor.

All patients recovered. Upon the patient's discharge on 17 April, laboratory investigations were negative for etiological agents.

Queen Elizabeth Hospital (QEH) Ward G6 cluster reported on 18 March

15. A hospital cluster in Ward G6 came to light in a newspaper report. A doctor and 2 nurses with onset dates from 12 to 16 March were involved. DH conducted immediate epidemiological investigation and traced the source to a patient known by the name of [redacted] HH who had travel history to Guangzhou every weekend. [redacted] HH was admitted on 9 March and died on 30 March from SARS.

16. DH provided health advice to home contacts of the affected HCWs and conducted medical surveillance. At the same time, QEH carried out health surveillance of work contacts. None developed symptoms. All cases recovered.

Baptist Hospital (BH) 8/F outbreak reported on 21 March

17. DH received notification from BH of a total of 4 healthcare workers suspected to be suffering from SARS. Two wards, namely N8 and O8, were involved. After active case finding and surveillance, 34 persons were found to have contracted the disease. They included 10 healthcare workers, one visiting doctor, 12 patients, 8 contacts and 3 visitors. The onset dates ranged from 3 March to 31 March.

18. The source of infection could be traced to a patient who was the sister-in-law of the index case for the PWH outbreak. With disease onset on 10 March, the patient admitted herself on 13 March and was sent to both N8 and O8 wards during her brief stay in the hospital. She was later transferred to a public hospital for further management.

19. DH asked BH to step up infection control measures in 8/F. Admission to these wards was temporarily suspended since 22 March and ward movement in N8 and O8 was frozen. Both wards were eventually closed for thorough cleansing and disinfection. Visitors to hospital were

urged to observe strict personal hygiene during hospital visits. Health education was strengthened and ward staff was reminded to observe strict personal and environmental hygiene as well as infection control practices.

20. BH actively followed up patients discharged from O8 & N8 wards. None of them developed SARS. On the other hand, active surveillance of wards O8 and N8 staff identified 6 more healthcare workers who subsequently were confirmed SARS. One visiting doctor, his wife and his 2 patients were confirmed with SARS. Household/social contacts of all other patients were placed under medical surveillance and given health advice by DH. Among them, 5 household contacts developed SARS.

21. Four patients, including the visiting doctor, died. The others were discharged between March and May.

PP

[redacted] clinic cluster brought to light on 21 March

22. In the process of investigating the PWH ward 8A outbreak, active tracing was conducted of discharged patients who stayed in the same ward with the index patient, [redacted] JJ On 15 March, DH noted a discharged patient, JJ [redacted], readmitting PWH for fever that started on 9 March. [redacted] JJ did not, however, report seeing a general practitioner before admission. All his close contacts were traced and monitored, with 2 developing symptoms and requiring admission on 20 March. When these two patients were re-interviewed, they admitted all, including [redacted] JJ, had visited [redacted] PP 's clinic prior to admission.

23. DH made repeated attempts right away to contact [redacted] PP only to learn that he had already been admitted on 20 March for SARS symptoms appearing on 17 March. From [redacted] PP, active contact tracing for health advice and medical surveillance was initiated. A total of 544 patients, clinic staff and close contacts of the 2 symptomatic clients were traced. Among these contacts, a child and a 39-year old woman were found to have SARS. Further tracing and medical surveillance of their contacts were done, extending to cover the child's kindergarten. No new case was detected among them.

24. At the conclusion of this outbreak, a total of 6 persons, including the

index, had been affected.

Flights CA112/CA115 outbreak reported on 23 March

25. DH received notification from Tuen Mun Hospital concerning a couple admitted the day before for fever since 18 March during their tour to Beijing from 15 to 19 March. The couple was on board CA112 for the outbound journey and CA115 on return. DH started case investigations the same day and quickly learned that a third case was admitted, again for fever since 18 March. Through the tour group leader, DH obtained information to contact the remaining 33 members, of whom 7 subsequently had SARS. Their onset dates were from 17 to 23 March. Epidemiological investigation did not reveal a source of infection within the group.

26. Since the sick travelers were symptomatic and could be infectious on their return flight to Hong Kong, attempt was made to trace all other passengers on board CA115 on 19 March. Separately, while actively tracing contacts in connection with the PWH ward 8A outbreak, DH learned on 25 March that a Beijing resident had visited a terminally ill family member in PWH ward 8A in early March, subsequently to come down with illness when departing on board CA 112 on 15 March. DH rapidly extended contact tracing through public announcements to appeal to passengers of the flights CA112/CA115 to call a designated DH telephone hotline. Assistance from consulates of overseas passengers was sought. Tour agencies were invited to provide information regarding other tour groups who had taken the same flights.

27. To date, 54 of 112 passengers on board CA112 and 124 of 164 passengers on board CA115 have been contacted. Including the index patient, 23 passengers and 2 crew members were subsequently confirmed SARS. Among them, 13 were confirmed in Hong Kong, 7 in the Mainland, 4 in Taiwan and one in Singapore. All had acquired the infection while traveling on board CA112 from Hong Kong to Beijing on 15 March.

SARS cases outside the clusters

28. Less obvious clustering was noted for the remaining 34 SARS patients during the period from 11 to 25 March. There were 18 male and 16 female. Their median age was 40. Seven in ten were economically active. Economically inactive patients were largely retirees. Majority (76.5%) had no history of travel within 10 days of onset while 17.6% had been to the Mainland.

## LESSONS LEARNED

29. The clustering of cases apart from the PWH and Amoy Gardens outbreaks could be summarized as follows-

KK's Clinic

| Cluster | Reporting date | Onset date of 1st case | Total affected | Index traced to |
|---|---|---|---|---|
| [redacted] | 13 March | 3 March | 6 | China visit ? |
| PYNEH | 13 March | 4 March | 14 | China visit ? |
| SPH | 17 March | 9 March | 12 | Metropole Hotel |
| QEH | 18 March | 12 March | 4 | China visit ? |
| BH | 21 March | 3 March | 34 | PWH visitor |
| [redacted] | 21 March | 17 March | 6 | PWH patient |
| CA112/CA115 | 23 March | 17 March | 25 | PWH visitor |
| **7 clusters** | | | **101** | **> 1 source** |

PP's Clinic

30. The early phase of the SARS epidemic was characterized by the occurrence of sporadic cases in the community spreading the infection to close contacts followed by rapid spread within health care settings and flowing back into the community. Transmission through close contact between patient and health care personnel, and between patient and non-health care personnel was demonstrated in the clusters during the period from 11 to 25 March. The progression of the outbreak was aggravated by what appeared to be multiple sources of infection occurring at around the same time.

Department of Health
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