For discussion

SARS Expert Committee

Prince of Wales Hospital Cluster

Introduction

The Prince of Wales Hospital (PWH) was suddenly hit by an unknown virus in early March 2003. On 15 March, the WHO named the disease Severe Acute Respiratory Syndrome (SARS). There were eventually 293 cases and 35 deaths related to this cluster.

2. On 11 March, there was media coverage that more than 10 Health Care Workers (HCWs) in PWH Ward 8A reported respiratory infection symptoms. The New Territories East Regional Office (NTERO) of the Department of Health (DH) immediately contacted PWH for case investigation and contact tracing.

3. This paper provides an account of DH's efforts from the beginning to the end of March. During the period, about 480 reported cases and 2,000 contacts related to the PWH cluster had been followed up by DH by adopting a very sensitive case definition agreed with PWH in order not to miss any case. A total of 146 persons out of 480 reported cases were subsequently confirmed to have SARS. This has strained over-stretched resources. In addition, there were 59 confirmed cases from the 2000 contacts.

An Overview of Epidemiological Investigation

11 March 2003

4. Early in the morning, NTERO urgently contacted PWH for information about the media report. In parallel, the Community Physician (NTE) [CP(NTE)] liaised with the PWH Deputy Hospital Chief Executive and managed to reach him at about 10:45 a.m. The latter confirmed that

there was an abnormal pattern of sick leave among Ward 8A staff and advised that there would be a special meeting in PWH at 11:00 a.m. CP(NTE) volunteered and attended the meeting.

5. Prof Sung chaired the meeting. PWH advised that more than 10 staff had reported sick. The cluster appeared only involved staff of Ward 8A and no abnormal pattern had been observed in in-patients. PWH would set up a special staff clinic that evening and recall staff for screening. Admission to Ward 8A had been stopped and visitors restricted.

6. CP(NTE) advised PWH to isolate cases, screen other wards and monitor the sick leave pattern of staff. It was agreed that NTERO would design a questionnaire and conduct an epidemiological survey for the list of staff reported sick to be provided by PWH that afternoon. PWH would also complete the questionnaire for those turning up at the special staff clinic. The survey would provide a basis for working out the case definition and estimating the incubation period.

7. Accordingly, NTERO designed a questionnaire to collect clinical, travel and exposure history of staff reporting sick as well as the health status of their contacts. A copy was sent to PWH later in the day.

8. A list of 36 affected staff was obtained from PWH in the evening. NTERO successfully interviewed 26 of them that night. Most were found to have symptoms of fever and chills. NTERO advised all of them to seek immediate medical treatment at the PWH special staff clinic. Advice on personal hygiene was also given. The remaining 10 could not be reached or refused interview. The survey data were analysed for clinical and epidemiological features.

12 March 2003

9. CP(NTE) attended a meeting at PWH and learnt that more than 20 staff had been admitted and isolated. The 8th floor of the main building of PWH had been made a restricted area. There was no abnormal sick leave pattern for staff in other wards. CP(NTE) requested PWH to provide a master list of cases for follow up and contact tracing.

10. CP(NTE) then presented the preliminary epidemiological findings. The probable mode of spread was discussed and droplets and fomites were

incriminated. The incubation period was estimated from one to seven days. The survey findings on clinical features were shared and PWH and NTERO agreed on a working case definition for active case finding and surveillance. As positive chest x-ray (CXR) findings were observed in some cases, CP(NTE) advised PWH to include CXR as one of the screening tools. He also advised PWH to freeze movement of staff who had been exposed in Ward 8A.

11. DH set up a special Control Team in NTERO to deal with the PWH outbreak, including case follow-up, contact tracing and surveillance, epidemiological analysis, and prevention of spread to community. By then, NTERO had successfully interviewed 56 out of 66 staff reporting ill and 44 staff were found to meet the case definition.

13 March 2003

12. In view of the magnitude of the outbreak, the non-specific nature of the symptoms, the lack of a quick diagnostic test for the syndrome and the speed with which workload and cases were increasing, there was much confusion in the flow of information of cases from PWH to DH at the working level in the initial days.

13. DH stationed a team of staff at PWH (in addition to the Control Team at NTERO) to facilitate communication, outbreak investigation and contact tracing. The DH Team comprised an experienced Medical & Health Officer (MO) and two Nursing Officers. A master list of cumulated cases was provided by PWH to the DH Team daily in the evening. Upon receipt of the master list from PWH, the Control Team at NTERO immediately sorted out new cases from the master list for follow up and contact tracing.

14. On the same day, the DH team started interviewing patients of Ward 8A to identify the source of the outbreak and assess the risk of spread to other patients. Communication with the special staff clinic was strengthened to facilitate return of questionnaires to speed up contact tracing and data compilation. Information on sick leave pattern of nursing and minor grades of all specialties of PWH was presented to the DH Team. No abnormal pattern of sick leave pattern was observed in all other specialties except in medical wards.

15. CP(NTE) attended a further meeting at PMH in the evening to present updated epidemiological findings.

14 March 2003

16. Consultant (Community Medicine), Disease Prevention and Control Division of DH [Con(CM)] and CP(NTE) met the HCE of PWH and his deputy to discuss surveillance strategies in the morning. In the evening, they visited PWH again to share the updated epidemiological findings. The findings of the index case was shared and discussed (paragraphs 27-30) and he was immediately isolated. For efficient conduct of contact tracing, it was agreed that PWH would follow up staff, medical students and in-patients exposed to [redacted] JJ while DH would follow up discharged patients (non-SARS) and hospital visitors exposed to [redacted] JJ. DH would also follow up community contacts of reported cases.

15 March 2003

17. The DH Team at PWH was strengthened with addition of one more MO. The Control Room in NTERO was also strengthened with further manpower. By then, NTERO was following up about 220 reported cases and 600 contacts (i.e. within four working days).

16 – 17 March 2003

18. On 16 March, CP(NTE) confirmed with PWH that the hospital had already adopted positive CXR as a parameter for confirmation as a clinical case. Accordingly, the new case definition was adopted for epidemiological analysis with effective from 17 March with consequential changes to the guidelines on contact tracing. On the same day, DH accompanied WHO experts on a visit to PWH.

18 March 2003

19. CP(NTE) attended a PWH meeting in the evening to appraise the hospital of updated epidemiological findings. In a response to a question about a CDC press release that the spread was air-borne, CP(NTE) advised that current data supported the earlier findings that the spread was primarily through droplets. CP(NTE) expressed that the current format of case information provided by PWH should be improved to speed up data

compilation and follow up actions by DH. PWH agreed to designate an officer to facilitate the process.

19 March 2003

20. CP(NTE) met with HCE in the afternoon to update PWH of the epidemiological findings and discuss ways to further streamline data collection.

20 March 2003

21. Con(CM) and CP(NTE) presented the latest epidemiological findings at a meeting in PWH and discussed matters with HCE on management of contacts. By then, NTERO had been following up about 380 reported cases and 900 contacts.

21 March 2003

22. Deputy Director of Health (1) [DDH(1)], CP(NTE) and Principal Medical Officer (1) [PMO(1)] had a meeting with PWH. At the suggestion of DDH(1), PMO(1) was redeployed to oversee the operation of a joint contact surveillance centre at PWH control room. Surveillance on visitors to all acute wards in PWH commenced.

23. As at 31 March, NTERO had been following up about 480 reported cases and 2000 contacts. It turned out that 146 and 59 of them were confirmed SARS cases respectively. The contacts included discharged patients (non-SARS) of hospital, hospital visitors, household contacts, other close contacts, contacts exposed to SARS cases in institutions like elderly homes and schools and contacts to two SARS cases who was private medical practitioners.

Questionnaire and Database

24. The questionnaire used was first developed on 11 March (Appendix Ia). It was modified on 12 March to enable the collection of more detailed information from contacts of cases (Appendix Ib & Ic). When cases were noticed among contacts who had visited PWH, in particular Medical

Ward 8A, the questionnaire was further improved on 13 March to collect from contacts the history of visits to PWH. (Appendix Id)

25. A dedicated database was developed by NTERO on 11 March for monitoring of the outbreak, analysis of epidemiological information, generation of statistics and epidemic curves and contact tracing. The epidemiological information was shared with PWH on a regular basis.

Clinical Investigation

26. It was noted that many cases had a low lymphocyte count and abnormal CXR changes. Throat swabs, nasopharyngeal aspirates and blood were obtained from the affected staff for microbiological investigation. Infections by common respiratory pathogens and pathogens causing atypical pneumonia were ruled out by laboratory tests conducted by PWH and the Government Virus Unit of DH. As a case of avian influenza in human had been identified in February 2003 before the outbreak in PWH, influenza viruses including avian influenza were particularly looked for. It was reported that PWH identified human metapneumovirus in some of the specimens collected. The causative agent was later identified to be a new coronavirus. PCR tests were then developed and applied to some of the cases for diagnosis. Computer tomography scan of thorax was also applied to diagnose cases without chest X-ray changes.

Investigation into the source of outbreak

27. At the initial stage of the PWH outbreak, PWH advised (on 11 March) that only staff of Ward 8A were affected while no abnormal pattern was observed in in-patients of the ward. An epidemiological survey was conducted in the same evening found that Medical students and some staff not of Ward 8A but having visited Ward 8A had been affected. Further interview of these non-ward 8A staff and medical students on 12 March supported that they had no close contact with Ward 8A staff. They went to Ward 8A to attend selective patients. NTERO and PWH visualized the need to explore if one or some patients in Ward 8A were involved or served as the source. NTERO and PWH conducted joint investigation on 13 March by reviewing the contact and clinical history of Medical Ward 8A in-patients

and patients who were discharged from Ward 8A since mid-February with respiratory or unexplained febrile illness.

28. Review of the clinical history of a Ward 8A in-patient [redacted] JJ suggested his symptoms were compatible as a case, and he had the earliest onset date. He had fever and respiratory symptoms before admission. Most of the initial cases including a number of the medical students had history of having visited the cubicle where [redacted] JJ stayed.

29. On 14 March, NTERO identified four cases with fever admitted to PWH on late 13 and early 14 March were relatives of [redacted] JJ. Another relative of [redacted] JJ was noted to be admitted to Baptist Hospital (BH) on 13 March with fever. While two were household contacts, other relatives only met [redacted] JJ during his stay in PWH Ward 8A.

30. NTERO also informed PWH of the linkage, and the latter immediately reviewed exposure history of sick staff and identified a number of them had contact with [redacted] JJ during the incubation period. The above discoveries and other epidemiological findings supported [redacted] JJ as the index case. [redacted] JJ was isolated on 14 March. PWH later postulated that the use of nebuliser in [redacted] JJ had played an important role in the spread of the disease.

31. [redacted] JJ traveled briefly to Shenzhen on 23 February for three hours. When [redacted] was suspected to be linked to a number of cases, NTERO interviewed [redacted] JJ again and he then recalled that he visited 9/F in [redacted] in Kowloon during the incubation period to meet his friend from the United States who stayed there from 18 to 23 February.

Control Measures

32. Upon identification of the initial cluster of cases, PWH made arrangements to carry out disinfection, isolate cases in designated wards and put all suspicious cases under respiratory isolation. Staff were advised to take respiratory precautions when handling suspicious cases and to refrain from work and attend the special staff clinic if they had symptoms. PWH was requested to provide NTERO with details of cases and contact history for early identification and management of cases among contacts.

33. PWH took further actions including restricting visitors to control the spread of infection. Permitted visitors were requested to wear protective masks and clothing. When nebuliser was suspected to have played an important role in the spread of disease, its use was immediately suspended. The number of daily new cases decreased after the control measures were implemented.

Contact tracing

Contact tracing upon report of case

34. The NTERO initiated a series of actions to trace close contacts of reported cases for early identification and management, and prevention of further spread of infection in the community. Cases were interviewed to identify their contacts. Health nurses in NTERO followed up contacts by phone according to instructions and guidelines laid down by NTERO. Contacts were put under surveillance for 14 days from the last day of exposure to a case in the early days of the outbreak and for 10 days when the incubation period of SARS was better documented.

35. All contacts were checked if they had developed symptoms, alerted for the potential symptoms and asked to inform NTERO if they fell sick. They were also advised on personal hygiene and measures to prevent respiratory infections. Symptomatic contacts were advised to attend or referred to PWH for investigation and management. Designated Medical Centres were set up by DH for follow up of close contacts and symptomatic social contacts on 31 March.

Staff, patients and hospital visitors

36. NTERO and PWH also followed up contacts exposed to cases in hospital. It was agreed that NTERO was responsible for follow up of discharged clients and hospital visitors exposed to cases in hospital while PWH would follow up their staff, medical students and in-patients exposed to cases.

Private Clinics and Hospitals

37. For private clinics and hospitals (e.g. Union Hospital and Baptist Hospital) that cases had visited, NTERO informed them of the cases and advised them to carry out disinfection and conduct medical surveillance on their staff and patients. Doctors and HCWs with possible close contact with febrile patients or patients with respiratory symptoms were advised to wear masks and gloves. A couple of private medical practitioners had developed SARS acquired from their patients. Their staff and patients were followed up for medical surveillance and health advice. It was noted that some of them developed symptoms during the surveillance period and were subsequently diagnosed as SARS cases.

Workplace, schools and institutions

38. Information on contacts at work place and institutions was provided by cases to NTERO. The contacts were followed up. NTERO approached kindergartens, schools, universities and old age homes that cases attended during incubation period for medical surveillance and to offer health advice on personal hygiene, prevention of respiratory infections and proper disinfection. DH was particularly concerned about contacts at elderly homes. Visits were paid where cases were found for inspection, investigation and health advice. The management of these homes was advised to carry out proper disinfection, to cohort close contacts of cases, to take general respiratory precautions, and to minimize mixing of staff among different cubicles or floors.

Geographical clustering

39. NTERO analysed residential addresses of cases and their epidemiological information, including social and contact history, dates of onset and dates of admission, to detect geographical clustering of cases in the community. Cases from two households in the same building with the index case [redacted] JJ ([redacted], [redacted] Estate, Ma On Shan) were noted in late March. They had onset of symptoms on 21 and 24 March. One of them had histo of close contact with [redacted] JJ 's relative who was a SARS case but the source of infection for the other case was unknown. Field investigation and questionnaire survey was conducted and the property

management was advised to carry out disinfection of common areas. NTERO attended a forum on 25 March to provide information on the cluster and health advice on the prevention of SARS to residents of [redacted] Estate.

Communication and coordination

40. Channels of communication and coordination of outbreak management were established at various levels. CP (NTE) joined the urgent meeting at PWH on 11 March to understand the abnormal sick leave pattern, discuss control measures and provide epidemiological investigation support. DH representatives attended PWH meetings regularly to share information and discuss progress and further actions. Notwithstanding some teething problems on information flow in the initial days, partnership between DH and PWH hospital management had improved over time. This had facilitated our efforts in investigating and managing the outbreak.

41. A DH health team stationed at PWH to join the hospital control team at its control room from 13 to 31 March to facilitate communication, coordination, information flow, case investigation and contact tracing. Clinical information on cases was provided to NTERO via attending physicians, ward managers and nurses. PWH made clinical notes available to NTERO investigation team for review. NTERO health team also conducted interviews with patients for detailed history.

42. The joint control team at PWH daily shared the latest information on both new and existing cases, and provided daily statistics and latest information on both new and existing cases to Hospital Authority Head Office and DH Headquarters. Subsequently, DH and the Hospital Authority issued joint daily press releases to provide coordinated messages to the general public. PWH, NTERO and the Government Virus Unit (GVU) of DH also jointly monitor the progress of laboratory investigation.

Transparency

43. The Hong Kong SAR Government adopted a high degree of transparency in dealing with the outbreak for which we have won recognition from the WHO. On learning of an abnormal pattern of sick

leave among HCWs on 11 March, DH immediately launched an investigation and reported the matter to the WHO on the following day.

42. On 12 March, WHO issued a global alert on atypical pneumonia, raising awareness all over the world. As a result, there was only one outbreak thereafter (in Taiwan). The issue of the WHO global alert led to reports from Singapore and Canada which had facilitated DH to discover the [redacted] cluster and the source of the disease in Hong Kong.

43. DH involved WHO early to assist in investigation work. First, under WHO, a network of scientists from 11 laboratories in nine countries / territories, including the University of Hong Kong (HKU), the Chinese University of Hong Kong (CUHK) and the Government Virus Unit was set up. This had led to early identification of the causative agent and the transfer of specimens to facilitate diagnostic development. Second, the WHO epidemiological team started work in DH on 17 March. Hong Kong was able to make use of the expertise of WHO.

44. To keep the community fully informed of the developments, we had a daily briefing for the media. In addition, we conducted briefings for consular generals and various stakeholders, including schools, childcare centres, elderly homes, as well as occupational groups. We informed all concerned what we knew at the time.

High Level Commitments

45. A Task Force chaired by the Secretary for Health, Food and Welfare was set up on 14 March in the Health, Welfare and Food Bureau. Members comprised representatives from DH, HA, PWH, HKU, CUHK and Princess Margaret Hospital. The Task Force aimed at speeding up information exchange and coordinating preventive and investigation efforts for the SARS outbreak which extends beyond the PWH cluster. In other words, this was the center for strategic direction in the fight against SARS, and the forum where major issues were discussed and decided. Where appropriate, SHWF would bring up important matters to the Chief Executive of the HKSAR for consideration / endorsement.

Department of Health

July 2003

Appendix Ia

Department of Health

Questionnaire for Investigation of URTI Outbreak in PWH

The Department of Health is notified of an outbreak of upper respiratory tract infection in wards of Prince of Wales Hospital on 11 March 2003. To help our investigation, **please complete the questionnaires and return to us by fax at 2699 7691 as soon as possible.** Please contact us at 2158 5118 if you have any queries. Thank you.
Region: H / K / E / W Ref. No.: _____ *(for DH staff only)*

(Please fill in the blanks or circle the appropriate answers if applicable)

A. Personal Particulars

Name of client:	Sex:
Age:	DOB:
HK ID No.	Contact tel.:
Name of institution: PWH	Ward:
Post:	Date of joining institution:
Date of leave:	Leave type*:

*(SL =sick leave; IL =informed leave; VL =vacation leave; OT =other leave or sick leave known not related to flu-like symptoms)

B. Clinical History
(From 15 February 2003 to present)

	1st episode	2nd episode		1st episode	2nd episode
Flu-like symptoms:	Y / N	Y / N	Date of onset:		
Fever:	Y / N	Y / N	Degree in (°C):		
Cough:	Y / N	Y / N	Sore throat:	Y / N	Y / N
Sputum	Y / N	Y / N	Color of sputum:	Yellow /green / blood-stained / others	Yellow /green / blood-stained / others
Runny nose:	Y / N	Y / N	Headache:	Y / N	Y / N
Malaise / weakness:	Y / N	Y / N	Dizziness:	Y / N	Y / N
Chills:	Y / N	Y / N	Rigor:	Y / N	Y / N
Myalgia:	Y / N	Y / N	Neck pain:	Y / N	Y / N
Vomiting:	Y / N	Y / N	Diarrhoea:	Y / N	Y / N
Abdominal pain:	Y / N	Y / N	Rash:	Y / N	Y / N
Night sweat:	Y / N	Y / N	Loss of appetite:	Y / N	Y / N
Anorexia:	Y / N	Y / N	Others:	Y / N	Y / N

Name of client: _____

GP / clinic / hospital consulted:	Y / N	Y / N	Diagnosis:		
Admission:	Y / N	Y / N	Hospital admitted:		
Date of admission:			Date of discharge:		
Condition: (as at /)			Clinical progress:	Improving / deteriorating / others	Improving / deteriorating / others

Past medical history: _____ Smoker: Y / N

History of influenza vaccine: Y / N Passive smoker: Y / N

Date of vaccination: _____

C. Laboratory Investigation

Specimen	Test (IF, culture etc.)	Date of specimen collection	Result
NPA			
Throat swab			
Sputum			
Blood			
Chest X-ray			

Result informed: Y / N Date of result informed: _____

D. Movement in Wards

(From 1 February 2003 to present)

Wards	Date of visit	Contact with staff with URTI	Date of contact	Contact with patient with URTI	Date of contact
8A		Y / N		Y / N	
		Y / N		Y / N	
		Y / N		Y / N	
		Y / N		Y / N	
		Y / N		Y / N	
		Y / N		Y / N	

E. Contact History with Poultry / Bird / Animal

(From 1 February 2003 to present)

Contact with poultry / bird / animal

Type	Contact	Date of contact	Location	Type of poultry / bird / animal	Duration of contact
Chicken	Y / N				
Other poultry	Y / N				

Name of client: _____

Type	Contact	Date of contact	Location	Type of poultry / bird / animal	Duration of contact
Bird	Y / N				
Animal	Y / N				

Visit to places with poultry / bird

Place	Visit	Date of visit	Location	Contact with poultry / bird
Poultry / bird stall	Y / N			Y / N
Local farm with poultry / bird	Y / N			Y / N
"Bird Street"	Y / N			Y / N
Birds Park of Ocean Park	Y / N			Y / N
[illegible]s Park of Kowloon Park	Y / N			Y / N
[illegible]anic Garden	Y / N			Y / N
Penfold Park	Y / N			Y / N
Mai Po Nature Reserve	Y / N			Y / N
Kadoorie Farm	Y / N			Y / N
Others	Y / N			Y / N
	Y / N			Y / N

Consumption of raw / semi-cooked poultry: Y / N Date of consumption: _____

F. Travel History

(From 1 February 2003 to present)

Travel outside Hong Kong: Y / N

Place (city, province etc.)	Visit	Date of visit	Detailed location	Urban / rural	Contact with poultry / bird
[illegible]zhen	Y / N				Y / N
[illegible]ngzhou	Y / N				Y / N
Others:	Y / N				Y / N
	Y / N				Y / N

G. Close Contact

Name of close contact	Sex / age	Relationship	URTI symptoms	Contact with poultry / bird / animal
			Y / N	Y / N
			Y / N	Y / N
			Y / N	Y / N

Date: _____

Health Officer: _____

Fax: 2699 7691 **End**

Appendix Ib

Department of Health

Questionnaire for Investigation of Respiratory Illness Outbreak in PWH (for staff)(v1.0)

The Department of Health is notified of an outbreak of respiratory illness in wards of Prince of Wales Hospital on 11 March 2003. To help our investigation, **please complete the questionnaires and return to us by fax at 2699 7691 as soon as possible.** Please contact us at 2158 5118 if you have any queries. Thank you.

Region: H / K / E / W Ref. No.: _____ *(for DH staff only)*

(Please fill in the blanks or circle the appropriate answers if applicable)

A. Personal Particulars

Name of client:	Sex:
	DOB:
HK ID No.	Contact tel.:
Address:	Occupation:
Name of institution: PWH	Ward:
Post:	Date of joining institution:
Date of leave:	Leave type*:

*(SL =sick leave; IL =informed leave; VL =vacation leave; OT =other leave or sick leave known not related to flu-like symptoms)

B. Clinical History

(From 15 February 2003 to present)

	1st episode	2nd episode		1st episode	2nd episode
Flu-like symptoms:	Y / N	Y / N	Date of onset:		
Fever:	Y / N	Y / N	Degree in (°C):		
Cough:	Y / N	Y / N	Sore throat:	Y / N	Y / N
Sputum	Y / N	Y / N	Color of sputum:	Yellow /Green / Blood-stained / Others	Yellow /Green / Blood-stained / Others
Runny nose:	Y / N	Y / N	Headache:	Y / N	Y / N
Malaise / weakness:	Y / N	Y / N	Dizziness:	Y / N	Y / N
Chills:	Y / N	Y / N	Rigor:	Y / N	Y / N
Myalgia:	Y / N	Y / N	Neck pain:	Y / N	Y / N
Vomiting:	Y / N	Y / N	Diarrhoea:	Y / N	Y / N
Abdominal pain:	Y / N	Y / N	Rash:	Y / N	Y / N
Night sweat:	Y / N	Y / N	Loss of appetite:	Y / N	Y / N
Anorexia:	Y / N	Y / N	Others:	Y / N	Y / N

Name: _____

GP / clinic / hospital consulted:	Y / N	Y / N	Diagnosis:		
Admission:	Y / N	Y / N	Hospital admitted:		
Date of admission:			Date of discharge:		
Condition: (as at /)	Good / Satisfactory / Fair / Critical / Deceased	Good / Satisfactory / Fair / Critical / Deceased	Clinical progress:	Status quo Improving / Deteriorating / Recovered	Status quo Improving / Deteriorating / Recovered
Date of recovery:			Duration of illness:	days	days

Past medical history: _____ Smoker: Y / N

History of influenza vaccine: Y / N Passive smoker: Y / N

Date of vaccination: _____

C. Laboratory Investigation

Specimen	Test (IF, culture etc.)	Date of specimen collection	Result
NPA			
Throat swab			
Sputum			
Blood			
Chest X-ray			

Result informed: Y / N Date of result informed: _____

D. Movement in Wards

(From 1 February 2003 to present)

Wards	Date of visit	Contact with staff with respiratory illness	Date of contact	Contact with patient with respiratory illness	Date of contact
8A		Y / N		Y / N	
		Y / N		Y / N	
		Y / N		Y / N	
		Y / N		Y / N	
		Y / N		Y / N	
		Y / N		Y / N	

E. Contact History with Poultry / Bird / Animal

(From 1 February 2003 to present)

Contact with poultry / bird / animal

Type	Contact	Date of contact	Location	Type of poultry / bird / animal	Duration of contact
Chicken	Y / N				
Other poultry	Y / N				

Name: _____

Bird	Y / N				
Animal	Y / N				

Visit to places with poultry / bird

Place	Visit	Date of visit	Location	Contact with poultry / bird
Poultry / bird stall	Y / N			Y / N
Local farm with poultry / bird	Y / N			Y / N
"Bird Street"	Y / N			Y / N
Birds Park of Ocean Park	Y / N			Y / N
Birds Park of Kowloon Park	Y / N			Y / N
Botanic Garden	Y / N			Y / N
Penfold Park	Y / N			Y / N
Mai Po Nature Reserve	Y / N			Y / N
Kadoorie Farm	Y / N			Y / N
Others	Y / N			Y / N

Consumption of raw / semi-cooked poultry: Y / N Date of consumption: _____

F. Travel History

(From 1 February 2003 to present)

Travel outside Hong Kong: Y / N

Place (city, province etc.)	Visit	Date of visit	Detailed location	Urban / rural	Contact with poultry / bird
Shenzhen	Y / N				Y / N
Guangzhou	Y / N				Y / N
Others:	Y / N				Y / N
	Y / N				Y / N

G. Close Contact

Name of close contact	Sex / age	Relationship	Respiratory symptoms	Ref. No. (if applicable)	Contact with poultry / bird / animal
			Y / N		Y / N
			Y / N		Y / N
			Y / N		Y / N
			Y / N		Y / N

Health Officer: _____ **Date:** _____

- END -

- Please fax to the Department of Health at 2699 7691. Thank you. -

Appendix Ic

Department of Health

Questionnaire for Investigation of Respiratory Illness Outbreak in PWH (for contact)(v1.0)

The Department of Health is notified of an outbreak of respiratory illness in wards of Prince of Wales Hospital on 11 March 2003. To help our investigation, **please complete the questionnaires and return to us by fax at 2699 7691 as soon as possible.** Please contact us at 2158 5118 if you have any queries. Thank you.

Region: H / K / E / W Ref. No.: ___ ___ ___ ___ ___ *(for DH staff only)*

(Please fill in the blanks or circle the appropriate answers if applicable)

A. Personal Particulars

Name:	Sex:
	DOB:
HK ID No.	Contact tel.:
Address:	Occupation:
Name of institution:	Section / division / class:
Post:	Date of joining institution:
Date of leave:	Leave type*:

*(SL =sick leave; IL =informed leave; VL =vacation leave; OT =other leave or sick leave known not related to flu-like symptoms)

B. Clinical History

(From 15 February 2003 to present)

	1st episode	2nd episode		1st episode	2nd episode
Flu-like symptoms:	Y / N	Y / N	Date of onset:		
Fever:	Y / N	Y / N	Degree in (°C):		
Cough:	Y / N	Y / N	Sore throat:	Y / N	Y / N
Sputum	Y / N	Y / N	Color of sputum:	Yellow /Green / Blood-stained / Others	Yellow /Green / Blood-stained / Others
Runny nose:	Y / N	Y / N	Headache:	Y / N	Y / N
Malaise / weakness:	Y / N	Y / N	Dizziness:	Y / N	Y / N
Chills:	Y / N	Y / N	Rigor:	Y / N	Y / N
Myalgia:	Y / N	Y / N	Neck pain:	Y / N	Y / N
Vomiting:	Y / N	Y / N	Diarrhoea:	Y / N	Y / N
Abdominal pain:	Y / N	Y / N	Rash:	Y / N	Y / N
Night sweat:	Y / N	Y / N	Loss of appetite:	Y / N	Y / N
Anorexia:	Y / N	Y / N	Others:	Y / N	Y / N

Name: _____

GP / clinic / hospital consulted:	Y / N	Y / N	Diagnosis:		
Admission:	Y / N	Y / N	Hospital admitted:		
Date of admission:			Date of discharge:		
Condition: (as at /)	Good / Satisfactory / Fair / Critical / Deceased	Good / Satisfactory / Fair / Critical / Deceased	Clinical progress:	Status quo Improving / Deteriorating / Recovered	Status quo Improving / Deteriorating / Recovered
Date of recovery:			Duration of illness:	days	days

Past medical history: _____ Smoker: Y / N

History of influenza vaccine: Y / N Passive smoker: Y / N

Date of vaccination: _____

C. Laboratory Investigation

Specimen	Test (IF, culture etc.)	Date of specimen collection	Result
NPA			
Throat swab			
Sputum			
Blood			
Chest X-ray			

Result informed: Y / N Date of result informed: _____

Contact History with Poultry / Bird / Animal

(From 1 February 2003 to present)

Contact with poultry / bird / animal

Type	Contact	Date of contact	Location	Type of poultry / bird / animal	Duration of contact
Chicken	Y / N				
Other poultry	Y / N				
Bird	Y / N				
Animal	Y / N				

Name: _____

Visit to places with poultry / bird

Place	Visit	Date of visit	Location	Contact with poultry / bird
Poultry / bird stall	Y / N			Y / N
Local farm with poultry / bird	Y / N			Y / N
"Bird Street"	Y / N			Y / N
Birds Park of Ocean Park	Y / N			Y / N
Birds Park of Kowloon Park	Y / N			Y / N
Botanic Garden	Y / N			Y / N
Penfold Park	Y / N			Y / N
Mai Po Nature Reserve	Y / N			Y / N
[illegible]orie Farm	Y / N			Y / N
Others	Y / N			Y / N

Consumption of raw / semi-cooked poultry: Y / N Date of consumption: _____

E. Travel History

(From 1 February 2003 to present)

Travel outside Hong Kong: Y / N

Place (city, province etc.)	Visit	Date of visit	Detailed location	Urban / rural	Contact with poultry / bird
Shenzhen	Y / N				Y / N
Guangzhou	Y / N				Y / N
Others:	Y / N				Y / N
	Y / N				Y / N

[illegible] Close Contact

Name of close contact	Sex / age	Relationship	Respiratory symptoms	Ref. No. (if applicable)	Contact with poultry / bird / animal
			Y / N		Y / N
			Y / N		Y / N
			Y / N		Y / N
			Y / N		Y / N

Date: _____

Health Officer: _____

- END -

- **Please fax to the Department of Health at 2699 7691. Thank you.**

Appendix Id

Department of Health

Questionnaire A (v1.1)
for Investigation of Respiratory Illness Outbreak in PWH, March 2003

The Department of Health is notified of an outbreak of respiratory illness in wards of Prince of Wales Hospital on 11 March 2003. To help our investigation, **please complete the questionnaires and return to us by fax at 2699 7691 as soon as possible.** Please contact us at 2158 5118 if you have any queries. Thank you.

Region: H / K / E / W Ref. No.: ___ ___ ___ ___ ___ *(for DH staff only)*

(Please fill in the blanks or circle the appropriate answers if applicable)

A. Personal Particulars

Name of client:	Sex:
	DOB:
HK ID No.	Contact tel.:
Address:	Occupation:
Name of institution: PWH	Ward:
Post:	Date of joining institution:
Date of leave:	Leave type*:

*(SL =sick leave; IL =informed leave; VL =vacation leave; OT =other leave or sick leave known not related to flu-like symptoms)

B. Clinical History

(From 15 February 2003 to present)

	1st episode	2nd episode		1st episode	2nd episode
Flu-like symptoms:	Y / N	Y / N	Date of onset:		
Fever:	Y / N	Y / N	Degree in (°C):		
Cough:	Y / N	Y / N	Sore throat:	Y / N	Y / N
Sputum	Y / N	Y / N	Color of sputum:	Yellow /Green / Blood-stained / Others	Yellow /Green / Blood-stained / Others
Runny nose:	Y / N	Y / N	Headache:	Y / N	Y / N
Malaise / weakness:	Y / N	Y / N	Dizziness:	Y / N	Y / N
Chills:	Y / N	Y / N	Rigor:	Y / N	Y / N
Myalgia:	Y / N	Y / N	Neck pain:	Y / N	Y / N
Vomiting:	Y / N	Y / N	Diarrhoea:	Y / N	Y / N
Abdominal pain:	Y / N	Y / N	Rash:	Y / N	Y / N
Night sweat:	Y / N	Y / N	Loss of appetite:	Y / N	Y / N
Anorexia:	Y / N	Y / N	Others:	Y / N	Y / N

Name: _____

GP / clinic / hospital consulted:	Y / N	Y / N	Diagnosis:		
Admission:	Y / N	Y / N	Hospital admitted:		
Date of admission:			Date of discharge:		
Condition: (as at /)	Good / Satisfactory / Fair / Critical / Deceased	Good / Satisfactory / Fair / Critical / Deceased	Clinical progress:	Status quo Improving / Deteriorating / Recovered	Status quo Improving / Deteriorating / Recovered
Date of recovery:			Duration of illness:	days	days

Past medical history: _____ Smoker: Y / N

History of influenza vaccine: Y / N Passive smoker: Y / N

Date of vaccination: _____

Laboratory Investigation

Specimen	Test (IF, culture etc.)	Date of specimen collection	Result
NPA			
Throat swab			
Sputum			
Blood			
Chest X-ray			

Result informed: Y / N Date of result informed: _____

D. Movement in Wards

Have you ever been to Ward 8A since 15 February? Y / N

Have you contacted with staff with respiratory illness in Ward 8A since 15 February? Y / N

Have you contacted with patient with respiratory illness in Ward 8A since 15 February? Y / N

Have you have contact with the patient with respiratory illness in Bed 3 in Ward 9A on 9 March 2003? Y / N

(From 1 February 2003 to present)

Wards	Date of visit	Contact with staff with respiratory illness	Date of contact	Contact with patient with respiratory illness	Date of contact
8A		Y / N		Y / N	
		Y / N		Y / N	
		Y / N		Y / N	
		Y / N		Y / N	
		Y / N		Y / N	
		Y / N		Y / N	

E. Contact History with Poultry / Bird / Animal

(From 1 February 2003 to present)

Contact with poultry / bird / animal

Type	Contact	Date of contact	Location	Type of poultry / bird / animal	Duration of contact
Chicken	Y / N				
Other poultry	Y / N				
Bird	Y / N				
Animal	Y / N				

Visit to places with poultry / bird

Place	Visit	Date of visit	Location	Contact with poultry / bird
Poultry / bird stall	Y / N			Y / N
Local farm with poultry / bird	Y / N			Y / N
"Bird Street"	Y / N			Y / N
Birds Park of Ocean Park	Y / N			Y / N
Birds Park of Kowloon Park	Y / N			Y / N
Botanic Garden	Y / N			Y / N
Penfold Park	Y / N			Y / N
Mai Po Nature Reserve	Y / N			Y / N
Kadoorie Farm	Y / N			Y / N
Others	Y / N			Y / N

Consumption of raw / semi-cooked poultry: Y / N Date of consumption: _____

F. Travel History

(From 1 February 2003 to present)

Travel outside Hong Kong: Y / N

Place (city, province etc.)	Visit	Date of visit	Detailed location	Urban / rural	Contact with poultry / bird
Shenzhen	Y / N				Y / N
Guangzhou	Y / N				Y / N
Others:	Y / N				Y / N
	Y / N				Y / N

G. Close Contact

Name of close contact	Sex / age	Relationship	Fever. Chills or rigor	Fever	Chills	Rigor	Abnormal CXR	Ref. No. (if applicable)	Working in CCC/KG/schools
			Y / N	Y / N	Y / N	Y / N	Y / N		Y / N
			Y / N	Y / N	Y / N	Y / N	Y / N		Y / N
			Y / N	Y / N	Y / N	Y / N	Y / N		Y / N
			Y / N	Y / N	Y / N	Y / N	Y / N		Y / N

Health Officer: _____ Date: _____

- END -

Please fax to the Department of Health at 2699 7691. Thank you.