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專責委員會(2)文件編號 : W89(C)
SC2 Paper No. : W89(C)

Your ref.: CB2/SC2

02 February 2004

Miss Flora Tai
Clerk to Select Committee
(By Fax: 2248 2011 –14pages)

Dear Miss Tai,

Select Committee to inquire into the handling of the Severe Acute Respiratory Syndrome outbreak by the Government and the Hospital Authority

As requested in your letter of 14 January 2004, I forward the following two documents at the attached:

- my professional qualifications and experience; and
- my written statement.

From: Dr Thomas Tsang

Witness Statement of Dr Thomas Tsang

I have prepared this statement to the best of my knowledge. In answering these questions, I have sought assistance from my colleagues in the Department of Health to provide relevant information and to peruse relevant files and records.

Q1 What are your role and duties as the Consultant, Community Medicine (Communicable Diseases) of the Department of Health (DH)? What were your specific responsibilities during the outbreak of the Severe Acute Respiratory Syndrome (SARS)? Who did you report to and who reported to you in respect of those responsibilities at that time?

A1 (a) Before July 2003, I was the Consultant, Community Medicine (Non-communicable Diseases) of the Disease Prevention and Control Division (DPCD), specializing in prevention and control of non-communicable diseases. At the time of the SARS outbreak during March to June 2003, I was deployed to take charge of several tasks in the SARS outbreak on top of my original schedule. The tasks included:

- Working together with experts from the World Health Organization (WHO) stationed at DH; coordinating and facilitating the WHO experts in conducting scientific investigations to better understand the properties of SARS; and participating together with the WHO experts in teleconferences with overseas health authorities.

- Conducting field investigations, in collaboration with government departments, at the [redacted] Hotel, Amoy Gardens and some buildings where SARS clusters occurred.

In discharging the above SARS-related duties, I worked closely with the Consultant in-charge of DPCD, Dr L Y Tse and reported to the senior Directorate of DH. I kept the Director (Dr Margaret Chan) and the Deputy Director (Dr PY Leung) informed and provided guidance to colleagues in the Regional Offices on a need basis.

(b) Effective from 1 July 2003, I assumed the post Consultant, Community Medicine (Communicable Diseases) and my main areas of responsibilities are:

- Disease surveillance: to plan, develop, and implement systems to improve the

surveillance and control of communicable diseases.

- Disease prevention and control programs: to identify public health problems related to communicable diseases, plan and implement appropriate disease prevention and control programs.

- Coordination: to liaise with local health experts and overseas health authorities in performing work related to communicable diseases.

- Risk communication: to communicate information and health advice related to communicable diseases to other Government departments, the medical profession, health services providers, the legislature, the media, the public and other relevant sectors.

- Health research: to plan and organize health research projects in communicable diseases.

- Health information systems: to develop and maintain the Public Health Information System in respect of communicable diseases.

Q2 What was your involvement in the case of AA [redacted]? Did it include surveillance and contact tracing? If yes, was the medical surveillance of AA [redacted]'s close contacts carried out according to established practice/procedure? If yes, why was surveillance not stepped up given that Prof Liu was from the Mainland where there was a recent outbreak of a highly infectious disease and its cause had not yet been established at that time?

A2 I was not involved in SCAP surveillance or contact tracing in AA [redacted]'s case. I understand that medical surveillance of [redacted] AA's close contacts was carried out according to the established practice in respect of investigation of SCAP cases.

Q3 Did DH take any follow-up action after learning that AA [redacted]'s daughter was also hospitalized in early March 2003 after returning to Guangzhou? If yes, what was the action? If not, why not?

A3 Please refer to DH Staff News No. 2 (Annex 1) and No. 3 (Annex 2) for details of

specific actions taken by DH in [redacted]'s case. As highlighted therein, DH learnt of the daughter's hospitalization in Guangzhou through a follow up contact tracing interview with the son of [redacted]'s sister CC on 4 March after DH received notification on 3 March that CC and her husband were admitted into hospital. I understand that the Director had discussions with one of the attending physicians and the consultant of the Government Virus Unit to review the need for any further action to help identify the causative agent.

Q4 DH knew on 24 February 2003 that [redacted] had checked into Metropole Hotel on 21 February 2003. DH learned on 8 March 2003 from the Singapore Ministry of Health that three persons who had been hospitalized after travelling to Hong Kong had stayed at [redacted] Hotel. A few days later, DH learned that the Canadian tourist who had been transferred from St Paul's Hospital to Queen Mary Hospital (QMH) had also stayed at [redacted] Hotel. Had it occurred to you or anyone in DH that it was too much of a coincidence that [redacted] and the other four persons had all stayed at the same hotel at roughly the same period of time? How much work would be involved to simply make an initial investigation to find out more information, e.g. when exactly did they stay at the Hotel, on which floors and in which rooms?

Q6 Why did DH decide to launch an investigation at [redacted] Hotel after learning that the index patient responsible for the SARS outbreak in Toronto had stayed at [redacted] Hotel? Why did one more case make such a big difference?

A4 & A6 Since both Questions 4 and 6 relate to events leading to the investigation, I provide answers to them together based on information supplied from my colleagues.

(a) I understand from my colleagues that the question of launching an investigation at the Hotel was not raised on these SCAP cases in the initial stage because for respiratory tract infection, the place of residence was not normally a significant factor and there were at that stage no environmental factors suggesting that such investigation would be required. [redacted] was an imported case as he had been in Hong Kong for less than 24 hours before he attended at the hospital and the condition of the three Singaporeans had apparently improved with antibiotics treatment.

(b) On 18 March, DH received a fax from Health Canada and learnt that a patient mentioned therein had stayed in [redacted] Hotel. This, together with knowledge of the fact that the three Singapore cases had also stayed in [redacted]

Hotel, raised preliminary suspicion on possible linkage with the Hotel. DH therefore conducted an investigation on the same day (18 March): we searched exhaustively patient records of SCAP cases and the Prince of Wales Hospital cases, re-interviewed the patients and conducted an investigation in Metropole Hotel.

Q5 Why was it the practice of contact tracing to trace contacts and not places? Can the place of residency or environmental factors be completely ruled out for respiratory tract infection? If not, what was the reason for not initiating investigation at Metropole Hotel when the 3 cases in Singapore or when the case of St Paul's hospital transferred to QMH was known?

A5 As explained in A4 & 6, the place of infection is normally immaterial for respiratory tract infection unless there is indication of environmental factors involved in disease transmission. The WHO defines close contacts of SARS cases as those having cared for, lived with, or having had direct contact with the respiratory secretions, body fluids and/or excretions of cases of SARS. The target of contact tracing is persons exposed to a disease.

Q7 When and why did Prince of Wales Hospital (PWH) ask DH to assist in collecting clinical and exposure history on new SARS cases? What were the findings and how were the findings used?

A7 (a) I understand that our Community Physician (CP) of the New Territories East Regional Office (NTERO), Dr T K Au immediately contacted the hospital management after he had noted from the media on 11 March morning that there was an abnormal pattern of sick leave among staff in PWH Ward 8A. Dr Au learned that a special meeting would be convened at the hospital that morning. He volunteered and attended the meeting with PWH management.

(b) At the meeting, PWH confirmed that more than 10 staff had reported sick and that the cluster apparently only involved staff of Ward 8A and no abnormal pattern had been observed among in-patients. Dr Au advised PWH to isolate cases, screen other wards, monitor the sick leave pattern of staff and agreed that NTERO would design a questionnaire and conduct an epidemiological survey

that evening for a list of staff reported sick which would be provided by PWH.

(c) The collection and analysis of epidemiological data was to better understand the cluster and provide a basis for working out the case definition and estimating the incubation period. The findings suggested that the disease was likely to be spread by droplets and fomites and that the incubation period was estimated from one to seven days. A reporting system based on the agreed case definition was established whereby PWH provided to DH daily a list of persons for epidemiological investigation and tracing their community contacts. The epidemiological findings were shared with PWH to estimate the outbreak's scale and progression, to help formulate control measures and identify the index case.

Q8 A Beijing resident who visited Ward 8A of PWH between 4 and 8 March 2003 infected 23 passengers and two crew members while he was on board a flight to Beijing on 15 March 2003. Did DH conduct surveillance/contact tracing in respect of this resident? If not, why not? If yes, what were the findings?

A8 (a) According to information gathered from my colleagues, this Beijing resident was among the list of contacts under tracing by the NTERO in association with a SARS case notified by PWH on 19 March. Limited information was available on this contact at the time except the knowledge that he had already returned to Beijing after visiting a terminally ill family member in PWH Ward 8A in early March (the latter patient was a non-SARS case and passed away on 9 March) and that he had come down with illness. Through contact tracing efforts, NTERO eventually learned on 25 March that this Beijing resident had returned to Beijing on 15 March on board flight CA112.

(b) The case of this Beijing resident was related to SARS cases found among passengers on board flights CA112/CA115 to and from Beijing on 15 and 19 March respectively. This cluster first came to light when DH received notification from Tuen Mun Hospital on 23 March that a couple who had joined a tour to Beijing from 15 to 19 March was admitted to the hospital for fever since 18 March. DH started case investigation on the same day i.e., 23 March and quickly learned that a third case was admitted also for fever since 18 March. Through the tour group leader, DH obtained information to contact the remaining 33 members of the tour group and DH rapidly extended contact tracing through public announcements to appeal to passengers of the flights CA112/CA115 to

call a designated DH hotline.

Q9 Why was DH's Kowloon Regional Office not notified earlier when residents of Amoy Gardens began arriving at United Christian Hospital (UCH) displaying symptoms of SARS since 24 March 2003? What follow-up actions were taken by DH? Did DH conduct contact tracing in respect of the suspected SARS cases? If yes, what were the guidelines for conducting contact tracing of suspected cases?

A9 (a) I did not know why the notification was not made earlier. However, I understand that the events leading to the notification to DH early in the morning of 26 March were as follows –

- late on 25 March, HCE/UCH was informed by its Accident & Emergencies Department of a cluster of four family members living in Amoy Gardens suspected to have SARS. The HCE then asked the ward to check if there were other patients from Amoy Gardens.
- The check revealed that three more patients from Amoy Gardens had been admitted, involving a couple also admitted on 25 March and another patient on 24 March. Being alerted of this initial cluster of seven cases in three families early in the morning on 26 March, DH immediately initiated investigation on the same day.
- The patient admitted on 24 March had already been traced by DH on 25 March in connection with contact tracing on a case notified by PWH on 23 March.
- A further eight patients from Amoy Gardens were admitted on 26 March and were notified to DH, making a total of 15 cases.

(b) DH performed contact tracing in respect of all reported cases. As explained in a previous submission to the Select Committee by HWFB on 22 December 2003 (item 8 of SC 2 Paper No. : A128), there was no difference in contact tracing procedure between confirmed and suspected cases.

SC 2 Paper No. : A73

(c) For follow-up actions taken by DH in the Amoy Gardens outbreak, please refer to ~~SC04-03P-EZ~~ (SARS Expert Committee Paper on the Amoy Gardens Outbreak prepared by DH) for details. Briefly speaking, site visits were made to Amoy Gardens for contact tracing, medical surveillance, identifying possible source of outbreak and instituting control measures. Family members of cases

from all affected blocks were put under medical surveillance, and contact tracing was conducted. Letters were distributed to all Amoy Gardens residents including Block E residents, asking them to contact DH or seek medical attention if they developed symptoms. Pamphlets about SARS were distributed. Medical stations were set up on 29 March at two entrances of Block E, manned by the Auxiliary Medical Services to provide pamphlets, masks, temperature taking and to answer enquiries. Thorough cleansing and disinfection operations were conducted with the cooperation of the Owners' Corporation, residents concerned and the joint efforts of various government agencies for all flats and common areas of Block E, Amoy Gardens between 7 and 10 April. Advice was given to residents of other Blocks in Amoy Gardens to disinfect their flats as precautionary measures. Guidelines and disinfectants were provided to residents. In particular, the importance of maintaining water seal at the U-traps of drainage outlets was stressed.

Q10 Did you or anyone in DH raise the hypothesis of infection of residents living in Block E of Amoy Gardens through environmental factors? Was there any strategy or contingency plan for dealing with an outbreak of infectious diseases at a housing estate?

A10 (a) I visited Amoy Gardens with a WHO team to study the disease pattern and environment on 28 March. During 28 to 30 March, field investigations by DH and the multi-disciplinary team had examined the possibilities of spreading through people movement, water supplies, garbage and elevators, sewerage system, vectors, and construction site next to the housing estate. I presented the preliminary investigation findings at a meeting of the HWFB Task Force held on 30 March. Further investigation was made by the multi-disciplinary team at Amoy Gardens Block E on 31 March, which eventually led to the preliminary evidence in the early morning on 1 April that the sewerage system might have been involved in the vertical spread of SARS cases in Block E.

(b) For management of communicable disease outbreaks, prior to the outbreak of SARS, DH has established disease investigation protocols and management plans for 36 infectious diseases, including contingency plans on influenza pandemic, dengue fever and biological attack. I understand that a copy of the Influenza Pandemic Plan for Hong Kong has already been passed to the Select Committee

SC2 Paper No. : A52

for reference (~~SC02-20P-EZ~~).

Annex I

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THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
DEPARTMENT OF HEALTH

DH Staff News No.2

The Guangzhou Visitor (1 of 2)

Following an atypical pneumonia outbreak in Guangzhou, an arrangement was introduced in February 2003 to monitor severe community acquired pneumonia (SCAP) cases in Hong Kong. Under the arrangement, the Hospital Authority notified Department of Health (DH) on 24 February that a SCAP case of a Guangzhou visitor – code named AA in the SARS Expert Committee Report – was admitted to Kwong Wah Hospital (KWH) on 22 February. The patient died on 4 March, way before the World Health Organization named SARS on 15 March. His specimen was tested positive for coronavirus in April.

On 19 March, DH announced that AA was the index patient of the Hotel M cluster with seven cases at the time. There had been criticism that DH's contact tracing of AA should have included Hotel M and that might have changed the course of events in the outbreak at Prince of Wales Hospital. Having reviewed all the evidences, the Expert Committee has exonerated DH. But the perceptions have persisted. This article gives colleagues a better insight into DH's efforts in the incident.

Gist of Contact Tracing

- A public health nurse went to KWH on 24 February, the day DH was notified of the SCAP case. AA was already intubated and could not be interviewed.
- The nurse studied the hospital case notes. The notes made no mention that AA had indicated to staff that he was infectious.
- The nurse interviewed over the phone AA's wife and daughter (visitors from Guangzhou) and his sister CC in Hong Kong. Noted that on arrival from Guangzhou on 21 February, AA and relatives (including CC and her husband) had lunch in a restaurant near Mongkok Railway Station. AA then went shopping in Central Hong Kong with CC's husband in the afternoon and stayed at the latter's home for dinner that evening. AA and his wife only stayed in Hotel M for one night.
- Five close contacts were identified and given health advice. They were his wife, daughter, son, sister CC and her husband. Only AA's wife was reported to have fever. She was urged to seek treatment in a hospital. But she chose to return to Guangzhou with her daughter that evening (24 February).

- One of the purposes of contact tracing is to help identify the source of infection. From the information gathered, AA was a medical doctor from a Guangzhou hospital with past good health. He had contacted two patients presenting with high-grade fever and chest symptoms in the week before he developed fever, chills and rigor on 15 February, followed by cough and sputum. He self-treated with antibiotics. He came to Hong Kong with his wife on 21 February to attend the wedding banquet of a nephew (CC's son).

- The nurse made it a point to enquire whether AA had any exposure to poultry prior to onset of symptoms in view of confirmation of two avian flu cases just days ago. Upon learning that AA did not keep any chickens, ducks or birds, nor go to any market where live poultry was kept, DH stopped pursuing investigation along that trail.

- DH maintained contact with attending doctors for clinical progress of AA. As part of our contact tracing efforts, DH also monitored the situation daily by phoning CC since 24 February. The medical surveillance stopped on 28 February when CC refused to get involved. Except for AA's wife who was admitted to hospital upon return to Guangzhou on 24 February, no other symptomatic case among the five close contacts was noted at the time.

Further Developments

- On 3 March, DH received notifications that CC and her husband were respectively admitted to KWH on 1 March and 28 February. DH conducted another workup for case investigation and contact tracing and noted that a nephew of AA from Guangzhou was also among the relatives who had lunch with AA on 21 February. The nephew who had returned to Guangzhou was noted to have symptoms suggestive of pneumonia.

- In a follow up contact tracing interview on 4 March, DH learnt that AA's daughter had fever on 27 February and was hospitalized in Guangzhou on the same day.

- Thus, by 4 March, DH had learnt that a total of five close contacts of AA had fallen sick, viz. his wife, daughter and nephew in Guangzhou, and sister CC and her husband in Hong Kong. Although intra-familial spread through close contacts was not an uncommon phenomenon for respiratory illnesses, the Director was concerned and had discussions with one of the attending physicians and the consultant of DH's Government Virus Unit to review any further action that was required to help identify the causative agent. Results of extensive laboratory investigations on AA were negative for all known atypical pneumonia agents, except for a four-fold rise in adenovirus antibody titre.

(..... to be continued in Issue No. 3)

7 November 2003

Annex 2

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THE GOVERNMENT OF THE HONG KONG
SPECIAL ADMINISTRATIVE REGION
DEPARTMENT OF HEALTH

DH Staff News No.3

The Guangzhou Visitor – AA (2 of 2)

Review of Contact Tracing Actions

AA arrived Hong Kong from Guangzhou on 21 February 2003 early in the afternoon, had lunch with relatives in a restaurant near Mongkok Railway Station, went shopping with his brother-in-law (husband of sister CC) in Central in the afternoon and had dinner at CC's home. He spent the night at Hotel M with his wife and was admitted to Kwong Wah Hospital (KWH) on the following day, 22 February.

HA notified DH of AA's hospitalization as a Severe Community Acquired Pneumonia (SCAP) case on 24 February. DH initiated case investigation and contact tracing on the same day and identified five close contacts. They were his wife, daughter, son, sister CC and her husband. The son returned to the mainland on 23 February. Accompanied by her daughter, the wife returned to Guangzhou in the evening on 24 February.

DH conducted medical surveillance action and phoned sister CC in Hong Kong every day. This ceased on 28 February when CC refused to be involved. At the time there was only one person found to be symptomatic, viz. AA's wife. Hospital case notes did not say that AA was very infectious. Neither did the question of infectivity come up in discussions which DH had with attending doctors.

On 3 March, DH was notified of the admission into hospital of CC and her husband. Contact tracing revealed that a nephew of AA who lived in Guangzhou had symptoms suggestive of pneumonia while AA's daughter had been hospitalized in Guangzhou. By 4 March, DH was aware that a total of five close contacts of AA had fallen ill. They were his wife, daughter, and nephew in Guangzhou, and sister CC and her husband in Hong Kong. Such intra familial spread among close contacts for respiratory illnesses was not uncommon. There was no health care worker reported sick. Nor was there any other reported case related to AA or staff from Hotel M.

In the light of the information known to DH, or could reasonably be expected to be uncovered by DH at the time, there was no evidence to suggest that our investigation and contact tracing action should extend to Hotel M or indeed other places AA had visited. AA had stayed for one night in the hotel and there were no environmental factors indicating that actions on the part of DH were required.

Having regard to all the evidences, the Expert Committee considers that the authorities in Hong Kong acted reasonably on the information available, and pursued with due diligence a course of investigation commensurate with the evidence available at the time.

Verbal Report from Singapore

Fourteen days after AA's hospitalisation (i.e. 8 March), the Singapore Ministry of Health (MoH) informed DH in the course of a telephone conversation on another subject that three persons who had travelled to Hong Kong at the end of February had been admitted to hospital for pneumonia in Singapore. All three patients had stayed in Hotel M and two were friends. Laboratory investigations were pending and the patients' illnesses improved with antibiotics treatment. As there was insufficient evidence that their illnesses were related to Hotel M, DH asked Singapore MoH to keep us posted of positive laboratory findings.

In the light of the experience gained from the epidemic, we have computerized the SARS centralized case and contact information system in our Disease Prevention and Control Division to facilitate early identification of the source of infection and prevention of disease spread.

However, it should be noted that even had DH launched an investigation on Hotel M on 8 March, it would not have changed the course of the outbreak at Prince of Wales Hospital (PWH). Retrospective epidemic information indicates that over 30 cases in the PWH cluster had onset of symptoms by 8 March, though the outbreak only came to light on 11 March. Neither could DH have identified the index patient for the PWH outbreak earlier, since he was a visitor and not a guest at Hotel M. He was first suspected to be the index case on 13 March and was confirmed as such on the following day. It was only after he had been identified as the index patient, and upon repeated enquiries, that he revealed that he had visited Hotel M around that period.

Health Care Worker (HCW) infection

A HCW infection in KWH was notified to DH on 13 March. Contact tracing action revealed that she had probably been infected by CC's husband, brother-in-law of AA. Subsequently, we learnt of another HCW in KWH possibly infected by AA. This latter HCW was not notified to DH because it was not a SCAP case.

Hotel M cluster uncovered

Alerted by local media coverage on 11 March about respiratory illnesses of HCWs in PWH, DH initiated case investigation immediately. We duly informed the World Health Organization on the next day, prompting the latter to issue a global alert. Reports from Singapore and Canada triggered off an urgent investigation by DH, leading to the discovery on 19 March of the Hotel M cluster which included AA and the PWH index patient. AA was identified as the index patient of this cluster.