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雅麗氏何妙齡那打素醫院

Alice Ho Miu Ling Nethersole Hospital

caring since 1997

31st January 2004

Your ref.: CB2/SC2

Clerk to Select Committee
Legislative Council
Hong Kong Special Administrative Region

Attention: Miss Flora TAI (Fax No. 2248 2011)

Dear Miss Tai,

Select Committee Inquiry – SARS Outbreak

Your letters dated 2 and 14 January 2004 refers.

I enclose the following documents as requested by the Select Committee:

- (1) Questionnaire on measures relating to Personal Protective Equipment during the Outbreak of Severe Acute Respiratory Syndrome; and
- (2) my written statement on the specified areas of study, including my response to the questions set out in Appendix IV.

Yours faithfully,



(Dr. Raymond Chen)
Hospital Chief Executive
Alice Ho Miu Ling Nethersole Hospital

RC/rc
Encl

Written Statement on Specified Areas of Study

(1) Preparedness and readiness of Alice Ho Miu Ling Nethersole Hospital (AHNH) to receive SARS patients

The two SARS wards in AHNH were opened on 14 April 2003 and 28 April 2003. It was considered that given the rate of increase of SARS patients, the opening of SARS ward in AHNH became necessary as (a) the SARS wards in PWH were full; (b) there was a lack of nursing staff in PWH to open additional SARS wards; and (c) it was more desirable to keep the AHNH staff to continue their work in the hospital instead of relocating them to PWH to work in an unfamiliar environment. It was also decided to keep NDH "clean" and to prepare PWH to resume normal services with decreasing SARS loading as soon as possible.

By the time AHNH was required to receive SARS patients, the hospital had been geared up to handle and triage potentially infectious cases. The measures taken to enhance our preparedness for the opening of SARS wards included (a) Upgrading of PPE, (b) Infection control training, (c) Stratification of wards according to risk of infection, (d) Environment enhancement in all the SARS and SARS-related wards, (e) Staff deployment, (f) Enhancement of ICU capacity, (g) Strengthening of supporting services and (h) Improvement of staff support.

The SARS wards were closed on 15 July 2003. In total, 105 patients were admitted to the SARS wards of AHNH. None of the health care workers working in the SARS wards were infected.

(2) Outbreak of SARS in AHNH

The Prince of Wales Hospital (PWH) suffered from the AP/SARS outbreak on March 10, 2003. Medical patients not suffering from atypical pneumonia were transferred to AHNH to relieve the work-load on Medical Wards of PWH. Workload in Medical Wards and indeed in all departments became very high as more and more patients were admitted to AHNH.

Three Health Care Workers (HCW) working in ward E1 were hospitalized for fever on 31 March 2003. Ward E1 was declared outbreak on the same day. On 4 April 2003, 2 HCWs working in ward E3 and 2 HCWs working in E6 were hospitalised for suspected SARS. These two wards were also declared outbreak on 4 April. Within the following ten days (5-14 April), 27 HCWs developed symptoms of SARS and were subsequently hospitalized. After 15 April, only three HCWs were infected. There was no infection of HCW after 21 April 2003.

After the outbreak in E1, infection control measures in all wards were upgraded. Training on infection control measures and use of PPE, and staff health surveillance were reinforced. A series of measures were carried out, including:

(a) closing ward to admission and discharge; (b) cohorting patients and looking for symptoms and signs of infection, including taking of blood and Chest X ray, and isolating suspected cases; (c) notifying Department of Health; (d) compilation of list of discharged patients and visitors, and sending the list by fax to DH; (e) health surveillance of staff working in the ward; and (f) tracing for index case.

There was outbreak of SARS in general wards E1, E3, E6, F5 and F6. The possible causes of outbreak included; (a) cryptic presentation of SARS, especially among elderly patients; (b) overcrowded ward area; (c) environmental factors, especially the existing ventilation for general ward is not designed for infectious cases; (d) pressure in time to prepare for the upsurge of workload; (e) high background SARS in the community; (f) insufficient isolation facilities; (g) overwhelming workload at both AED and medical wards, causing physical strain on staff.

The management of AHNH had to face other difficulties in this combat against SARS, including (a) the general increase in emergency workload, not only in medicine, but also in general surgery, orthopaedics and traumatology, and obstetrics and gynaecology, imposing greater difficulty in converting such other wards into medical wards and in staff deployment; (b) being hard hit by the epidemic, with three wards affected in rapid succession and a dozen staff infected in a few days, staff emotional reaction has reached a panicky level. This, though totally understandable, has made a difficult situation more complicated; (c) difficulty in recruiting temporary supporting staff by domestic service contractor.

The infection control measures reinforced after the hospital was set afire with three wards affected in quick succession (31 March and 4 April) and the tremendous effort of staff of all levels have brought the local spread of the disease under control quickly.

(3) Infection control measures in AHNH

The infection control policies and practice are under the purview of the Cluster (NTEC) Infection Control Committee. There is a hospital based Infection Control Team (ICT) to support the work of the CICC locally. Infection Control Nurse (ICN) of the hospital regularly receives guidelines or instructions from the Task Force in Infection Control of HAHO, and attend its meeting. There is also a local network of about 35 Infection Control Link Nurses serving as liaison between the ICT and the clinical units/wards.

AHNH is not a designated infectious disease hospital in Hong Kong. But there are 14 single rooms with en-suite toilet for isolation purpose. Infection control guidelines promulgated by HA or NTEC are followed. Training is arranged by ICN.

To combat atypical pneumonia/SARS, infection control measures were stepped up, covering organization structure, communication process, guidelines and

standard (such as PPE), surveillance and triage, training and implementation, and environment enhancement.

- (i) Communication with staff was enhanced. Information was disseminated to staff via e-mail, in the staff forum, in the ad hoc department heads meetings and by way of SARS Bulletin. General Manager (Nursing) and ICN would brief and alert Department Operation Managers (DOM) and Ward Managers (WM) in morning meetings of nursing managers, so as to cascade message down to front line staff. At the cluster level, messages from HAHO and NTEC were relayed to AHNH via the cluster SARS meeting and situation report (Sitrep) on the intranet. Communication with DH was enhanced via Data Controller appointed at AHNH, and via the NTEC Disease Control Centre at PWH.
- (ii) The following training and education programmes have been conducted or organized by ICN and the central nursing division: 23 IC sessions for 1,124 staff, 5 special PPE sessions for 75 staff, 6 teleconference sessions for 490 staff, 52 sessions by department trainers for 1,508 staff and tailor-made training for domestic contractor staff. IC Link Nurses helped to promote and motivate ward staff to comply with IC measures that are being introduced, after receiving educational talk by ICN on 27.2.03.
- (iii) On top of the existing infection control organization, AHNH followed the enhanced HA SARS network organization. SARS Data Controller and SARS Infection Control Officer were appointed, to work closely as a team with counterparts at cluster level. A system was in place to inspect and monitor the implementation of infection control measures.
- (iv) The SARS infection control officer led a task group to supervise and monitor the implementation of IC measures.
- (v) From early March 2003, the ventilation of the wards were improved with increased fresh air supply and air change rate. Air filters were changed. Exhaust fans and partition walls were installed from early April 03. Increased frequency of cleansing was provided to ward areas.
- (vi) At AED, patients were segregated into fever and non-fever zones. AED senior medical officer would be responsible for case triage and segregation. Patient fitting the case definition of SARS would be admitted to PMH/PWH. Patients not fitting case definition criteria of SARS but requiring hospital admission were admitted to AHNH, or to other hospitals. In the medical wards, patients with respiratory symptoms were admitted to designated wards. Transfer to PMH/PWH would be arranged when indicated. Clean and dirty lift were designated for obstetric and SARS patients respectively.
- (vii) When SARS outbreak in a ward was confirmed, a series of outbreak measures would be carried out, including: (a) closing ward to admission and discharge; (b) cohorting patients and looking for symptoms and signs of infection, including taking of blood and Chest X ray; and isolating

doubtful cases; (c) notifying Department of Health and NTEC; (d) compilation of list of discharged patients and visitors, and sending the list by fax to DH; (e) health surveillance of staff working in the ward; and (g) tracing for index case.

(viii) Daily flu surveillance among staff and increased quota for staff clinic were arranged from mid March 2003. Staffs were advised to look out for respiratory symptoms and fever and attend staff clinic or AED if necessary. Medical staffs were reminded to look out for development of fever among the patients and to take chest X ray, blood tests and consult respiratory physician as necessary.

(ix) Increased frequency of cleansing of wards and environment; additional changing and shower areas provided, 100 single rooms made available for quarantine lodging.

(4) Decisions to transfer patients to Tai Po Hospital and later to divert patients to other hospitals

The proposal to transfer patients from AHNH to Tai Po Hospital (TPH) was initiated by the hospital management in consultation with NTEC on 1 April. The Deputising CCE endorsed the proposal on 3 April at the Ad Hoc Meeting on SARS with the presence of senior management from AHNH and TPH.

The basis of decision at that juncture was to maintain service capacity in AHNH for admitting new patients, especially for the purpose of infection triage. Appropriate infection control measures were taken during transportation of the patients. The transport staff were fully gowned. The patients put on surgical masks.

There was no transfer of other in-patients to other hospitals, apart from those suspected SARS patients to designated hospitals. For the arrangement of patient transfer at A&E department, please refer to response to question 14.

Dr. Raymond Chen
31.1.04

Appendix IV**Response to Questions Raised by Select Committee**

1. The diversion of emergency medical patients (except atypical pneumonia (AP)/Severe Acute Respiratory Syndrome (SARS) cases) from PWH to AHNH (and NDH) was a decision made in the outbreak management meeting of PWH in the evening of 12 March. I was not present at the meeting. My understanding is that the consideration at that time was that AHNH and NDH should have the capacity in admitting such patients after the elective admissions were stopped. The intention was to keep the two hospitals "clean" while admitting all AP or SARS patients to PWH. Other hospitals outside NTEC would assist in taking up cases. These hospitals included Princess Margaret Hospital, Caritas Medical Center, Tuen Mun Hospital, Yan Chai Hospital and Queen Elizabeth Hospital.
2. 60 patients were diverted from PWH A&E Department to AHNH between 13 and 18 March. Measures in medical wards to enhance infection control and to cope with increased patient volume included the following : (a) added extra beds in ward; (b) enhanced the overflow arrangement of medical patients to non-medical wards; (c) enhanced the convalescent support by Tai Po Hospital; (d) stopped all elective admissions; (e) provided additional training to staff on infection control measures; (f) arranged wards E1 and F1 to admit all non-AP/SARS respiratory patients.
3. The capability and preparedness of AHNH to cope with additional patients from PWH had been assessed before the decision was made to suspend the A&E service of PWH. On capability, it was estimated that a substantial portion of PWH A&E workload would be shifted to AHNH. AHNH would need external assistance to accept inter-hospital transfer of patients, and internal reorganization to increase surge capacity for medical patients. On medical management, the service was under the supervision of COS(Med) AHNH. Prof Joseph Sung, as Cluster Coordinator (Medicine), was providing overall leadership in service planning, coordination, clinical protocol and staff deployment. On preparedness, AHNH would need to cope with a potentially highly infectious disease, the infection control measures were stepped up, according to prevailing infection control guidelines. Communication and coordination mechanisms as well as measures to support staff and operations in general were established.

Special measures were adopted in AHNH on volume/workload management, infection control, and support to staff and general operations. The hospital management, on top of the measures taken in medical wards as described under question 2 above, (a) stepped up the infection control measures in the hospital according to the prevailing infection control guidelines in NTEC; (b) triaged patients according to risk of infection with SARS; (c) organized primary diversion of trauma cases without life-threatening conditions to the NDH A&E Department; (d) transferred out suspected SARS cases to PWH/PMH; (e) organised secondary diversion of general cases to hospitals in other clusters; (f) enhanced the A&E service capacity by suspending the observation ward and follow-up service, stationing a phlebotomist in the department and providing 24

hour blood tests and CT service; (g) stopped all elective admissions and surgeries; (h) deployed manpower from other hospitals; (i) conducted numerous training sessions to staff in general or tailor-made for specific staff group; (j) improved environmental condition by increasing fresh airflow, increasing air change rate in clinical areas, cleansing the air filter and conducting air purging etc; (k) conducted staff health surveillance on flu-like illness; (l) enhanced communications through frequent meetings with department heads, weekly open staff forum, SARS bulletin and hotlines; (m) increased general support on laundry service, provision of working clothes for non-uniformed staff, increased changing, shower and lodging facilities. The number of ambulance cases transported directly to AHNH increased from an average of 48 per day in February to an average 115 per day in the last two weeks of March after the closure of the PWH A&E department.

4. There was outbreak of SARS in ward E1, E3, E6, F5 and F6. The possible causes of outbreak included (a) cryptic presentation of SARS, especially among elderly patients; (b) overcrowded ward area; (c) environmental factors, especially the existing ventilation for general ward is not designed for infectious cases; (d) pressure in time to prepare for the upsurge of workload; (e) high background SARS in the community; (f) insufficient isolation facility; (g) overwhelming workload at both A&E and medical wards. The outbreak in AHNH was not the result of admitting patients diverted from PWH who had in fact been infected with SARS. In other words, the index patients in AHNH outbreak were not diverted from PWH. In A&E Department of AHNH, patients suspected of SARS with fever $>38^{\circ}\text{C}$, new chest X ray infiltrate, respiratory symptom, history of contact and low lymphocyte count, were transferred to PMH/PWH. Other suspected cases not fully satisfying the criteria were admitted to designated wards for close monitoring.
5. The index patient of Ward E1 Outbreak was admitted on 21 March 03. The patient was asked to put on mask since admission. The patient did put on a mask, but not always properly because of discomfort with the mask, especially after continuous and prolonged wearing. It was extremely difficult to compel patients to wear mask. Ward staff nevertheless would strongly advise patients to wear mask, and to wear it properly.
6. Five out of seven HCWs who attended to the index patient of Ward E1 were infected. All of them had followed the upgraded droplet precautions. They did follow PPE guidelines and infection control training had been provided. Two HCWs were not infected probably because of less exposure to infection.
7. Yes. PPE was provided and in time upgraded according to guidelines issued by HAHO/NTEC. Infection control training was conducted according to those guidelines. Clinical protocol on management of SARS was adopted from PWH. Additional training was arranged for staff going to work in SARS wards, by doctor and nurse managers from PWH. High standard isolation facilities could not be created in short time, but partition was installed between cubicle and corridor, exhaust fans were installed, and ventilation was improved by provision of HEPA filters.
8. The index patient of Ward E1 was transferred to PMH on 24 March 03. At first,

he refused to put on the N95 mask given to him before leaving E1. After persuasion, he did put on the mask.

9. Between February and mid-March 2003, all patients with Severe Community Acquired Pneumonia and put on ventilators were reported to HAHO by fax. HAHO would communicate with DH. From 19 March to 9 April, suspected SARS cases were reported by chest physician to NTEC Disease Control Centre (DCC) and HAHO. NTEC DCC has close communication with DH. From 9 April, doctors would report SARS cases through electronic SARS in CMS, and the data is retrievable by HAHO, NTEC DCC and DH. Contact tracing was done by DH.
10. The number of contract workers in AHNH was 218 as at 13 March 03, and 267 as at 30 April 03. Three of them got infected with SARS. All of them had worked in Ward E1. The reason of their being infected could not be ascertained. The contract workers had received training on infection control practice and wearing of PPE. Two of them had attended training given by the ICN. The other received training by the manager of the contractor who in turn had received training from ICN. The guidelines provided to contractor were the same as those provided to HA staff.
11. Please refer to (4) in the statement on Specified Areas of Study.
12. Ward E1 was closed to admission and discharge on 31 March because of the suspected outbreak of SARS on that day. The decision was initiated by COS (Med) and endorsed by me. The ward was cleansed and reopened on 7 April. It was designated as a SARS triage ward for screening patients who did not satisfy all the criteria for admission to designated SARS hospitals.

To prevent cross-infection among patients, the following infection control measures were taken: (a) terminal cleansing of E1 ward before reopening; (b) training for staff; (c) space out the beds; (d) improve environmental condition, by installing exhaust fans and partition wall for cubicle; (e) upgrading PPE and the infection control measures, including increased frequency of cleansing of ward area.

13. There were 117 SARS patients admitted into AHNH between March and June 2003. 105 of them were admitted into the SARS wards in AHNH that were opened after 14 April 2003, the rest were transferred out to designated SARS hospitals. The last community SARS case of AHNH was admitted on 4 June and confirmed on 10 June. The last SARS case involving HCW was admitted on 21 April and confirmed on 23 April.
14. After outbreak of SARS in AHNH had involved several medical wards and when AHNH would be required to admit SARS patients, it was decided on 11 April to divert non-SARS medical admissions to other hospitals in order to prepare for admission of SARS patients. The triage criteria adopted by A&E department were fever > 38°C, new radiological infiltrate on chest X ray compatible with pneumonia, symptoms of chills, cough, malaise, known history of exposure to SARS patients and low lymphocyte count.

15. At a meeting with Dr E K Yeoh SHWF on 21 April 03, it was decided to space out the number of patients in the cohort ward as there was at that time capacity for doing so. The decision was not made earlier because no spare ward was available.
16. The decision to close A&E of AHNH was discussed at the NTEC SARS meeting on 22 April 03 and decided on 23 April 03. The purpose was to further reduce the over-crowdedness in AHNH, to release staff of A&E department to help out other wards as 41 staff had been infected with SARS, and to better prepare AHNH for the provision of SARS-related services. Indeed prior to closure of A&E, as PWH was slowly resuming normal services after reopening of their A&E service, AHNH had started to convert surgical and orthopaedic wards into medical wards for SARS related services. The hospital had started diverting non-SARS patients to other hospitals.
17. The first SARS ward was opened in AHNH on 14 April 2003. It was considered that given the rate of increase of SARS patients, the opening of SARS ward in AHNH became necessary as (a) the SARS wards in PWH were full; (b) there was a lack of nursing staff in PWH to open additional SARS wards; and (c) it was more desirable to keep the AHNH staff to continue their work in the hospital instead of relocating them to PWH to work in an unfamiliar environment.

The second SARS ward in AHNH was opened on 28 April 2003. The plan to open two SARS wards in AHNH was proposed because of the increasing number of SARS patients in NTEC that could not be coped with by PWH alone. It was also decided to keep NDH "clean" and to prepare PWH to resume normal services with decreasing SARS loading as soon as possible. Unknowingly admitting patients who turned out to have contracted SARS was not a reason to open SARS ward in AHNH. These patients could be transferred to designated SARS wards in other hospitals according to prevailing policy.

Both SARS wards were not used for treating SARS patients before they were formally designated as SARS wards. The highest level of infection control measures had nonetheless been practised in either ward since early April.

18. Yes, the Secretary for Environment, Transport and Works visited AHNH on 16 May 2003. My understanding of the purpose of her visit was to study the hospital environment, particularly on its ventilation system. She did not make any specific recommendation to the hospital on site. She was gathering information from various hospitals in order to come up with a consolidated recommendation to the Hospital Authority Head Office.

Dr. Raymond Chen
31.1.04