東區尤德夫人那打素醫院
PAMELA YOUDE NETHERSOLE EASTERN HOSPITAL

9 July 2003

Secretary
HA Review Panel on SARS Outbreak
Hospital Authority Building
147B Argyle Street
Kowloon
Hong Kong

Dear Sir

With regard to the recent SARS outbreak in Hong Kong and the management of possible future incidents, may I submit the following comments.

SARS outbreak March-June 2003

1. Clinical and health-administrative awareness

In early February there began to be talk about a pneumonia-like disease in Southern China, which is transmissible to health care workers (HCW) with potentially fatal consequences. Conflicting reports appeared in the press almost every day.

Clinicians in the Hospital Authority (HA) with recent experience of treating severe community-acquired pneumonia (SCAP) in ICU were invited to join an Expert Panel on 11 February, mainly to pool expertise and formulate management strategies for this condition. Several cases discussed by Panel members demonstrated rapidly progressive SCAP and marked lymphopenia in the absence of HIV serology. The latter was noted to be unusual: However, none of the patients had infected other individuals when notice was dispatched to hospitals to collect further data for study (12 February). An information sheet (FAQ) on CAP was formulated and distributed (18-20 February), in which infection control against droplet spreading was emphasized. Various organisms were isolated from the patients investigated including avian'flu (H5N1, reported to WHO on 19 February) & adenovirus.

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In early March, the Panel became aware of a SCAP case in KWH which is transmissible from person to person. Acute respiratory failure in a nurse in KWH's Accident & Emergency Department was presented, which responded favourably to steroid + ribavirin. This patient had no direct contact with the index case, [redacted] "AA" from Guangzhou. Though [redacted] "CO" was also affected, HCW caring for him were not. This pattern of spread was puzzling, and clinicians were not aware of further local cases until a first batch of HCW in PWH were affected on 9-10 March, and a second batch in PYNEH on 11 March. At the time of discussion, the only case which definitely involved infection of HCW was located in Hanoi — the "first recognized SARS case" on 26 February 2003 (WHO SARS update 16 March 2003). However, by the time this individual was transported back to PMH in early March (WHO SARS update 16 March 2003), he had not infected further HCW.

On 12 March 2003, WHO reported that a link between this and other cases diagnosed in Singapore, Thailand, Canada, Germany, etc, could not be found (WHO update of the same date). Only on 19 March was the epidemiological link of Metropole Hotel identified by concerted effort of Hong Kong clinicians and epidemiologists (WHO SARS update 20 March 2003).

Regarding the 11 March outbreak in PYNEH, clinicians were initially surprised by the fact that the index case behaved similarly to a PYNEH SCAP (deceased) case, discussed by the Expert Panel on 11 February (serology for coronavirus later found to be positive in late May). Though the latter patient did not infected any HCW or family members, the index case's 5-days' sojourn in the general medical ward led to disease in 7 HCW, 1 patient and 1 visitor. Eight patients were secondarily infected (4 HCW and 4 close contacts). No other staff suffered infection after this individual was placed in an isolation room in the (later) SARS ICU.

In summary, the few cases of initial outbreak in Hong Kong in late February 2003 did not bear significant resemblance to the behaviour of SARS from 10 March onwards. Even though clinicians and managers were already vigilant, none had had any experience of (and therefore was unable to prepare for) the massive outbreak which subsequently occurred. Indeed, even WHO became aware of the Metropole Hotel link after investigations in Hong Kong in mid-March 2003.

2. *Diagnostic difficulty*

Difficulties in diagnosis is to be expected in the face of a hitherto unknown disease caused

by a hitherto unknown agent. There was little experience to heighten awareness (see above) and to sharpen case definitions. This led to difficulties in identifying the index case of PWH. One undiagnosed SARS patient residing in general medical wards can easily transmit the disease to many HWC. In particular, crowded conditions in general medical wards and the lack of adequate isolation facilities meant that it was not possible to designate isolation rooms in their entirety to pneumonia cases (21500-26500 per year in 1998/99 – 2000/01, with 95% being managed in HA hospitals according to HA statistical Reports).

It was because the PWH Index Case was not recognized as a SARS patient (defined only on 15 March by WHO) that this individual was discharged home before 10 March after > 10 days' hospitalization. To discuss now whether continued hospitalization and isolation of this individual could have prevented or circumscribed the later outbreak would involve the heroic assumption that HK clinicians were able to and identify a new disease called SARS at least a week before WHO, which enjoyed the advantage of global reporting, did so.

As a corollary, "super-spreaders" may simply be undiagnosed SARS-infected individuals staying in confined environments like modern centrally air-conditioned hospitals and aircraft for long periods of time. Scientifically, it is now known that "super-spreaders" are not significantly different from other SARS patients. On the other hand, why some SARS patients do not infect other people is not understood at present.

3. *Difficulties in predicting outbreak progression*

While front-line HCW face significant difficulties in diagnosing SARS in patients, policy-makers experience no less severe problems in predicting how this outbreak would behave. Aside from the plague and influenza epidemics in the past, infectious diseases outbreaks have been self-limiting or contained with infection control measures. In no other countries did SARS not spread to the community in the same way as in Hong Kong. As we question the timeliness of the decisions made in March 2003, we should not lose sight of the rapidity with a conjoint effort by policy makers, epidemiologists and environmental experts unraveled the mystery, and materially assisted in saving Hong Kong from the disaster of a generalized community outbreak.

4. *Emotional aspects*

The emotions attached to SARS were (and still are) more transmissible than SARS itself. As the impact of the PWH outbreak dawned on HCW and citizens, fear of the unknown and of infection brought immediate reaction, amounting in many instances to irrational panic.

The authorities in Hong Kong not only had to manage SARS, an unknown disease. They had to manage this flood of emotions and the increasingly vociferous demands for more protection for HCW. Companies producing personal protective equipment (PPE) were literally bombarded with orders which they could not meet on time. HCW became more and more frightened as they could not obtain definite dates of delivery of materiel which it was hoped would ensure personal safety. The smallest hitch in the hospital supply chain often ended up being amplified by the media and with little regard to details or the truth. There was an impassioned and very successful media-initiated call for donation to purchase the "barrier man", which was a protective garment against chemical contamination not suitable for infection control. This emotionally-charged scenario must be taken into consideration in any retrospective exercise. While it is possible to argue (especially with the benefit of hindsight) that the SARS outbreak could have been handled better, the fact that it was contained at all was the result of tremendous effort from the authorities, front line medical workers and the scientific community.

The future

1. *Pressures faced by front-line workers in the medical specialty*

Compliance to infection control measures has never been observed to be exemplary among HCW worldwide. Much improvement has been achieved since the SARS outbreak, but there is danger lapses resulting from familiarity, and from lapses due to tiredness, loss of concentration, long working hours (30 hour-stretches are standard for each call-duty among medical departments, while a 64-68 hour-week is the norm for most medical officers), the pressure of emergency admissions (>75% of total admissions) plus the additional need for heightened vigilance in "fever wards", and numerous subspecialty investigations, therapeutic interventions and outpatient duties.

2. *Pressure on facilities in the medical specialty*

The proposed reduction in ward congestion is most welcome: However would measures to improve the community's health work so fast that medical departments could cope with the current and foreseeable emergency admissions with 20% fewer beds?

3. *The need for respiratory cum critical care physicians in HA*

Availability of combined specialization in Respiratory Medicine & Critical Care Medicine allowed PYNEH to enjoy an advantage in the treatment of SARS. Through timely clinical

decision-making by a core team of such specialists, patient care quality and outcome was significantly enhanced. Compared to individual specialization, dual specialization of this nature would also be more useful in the treatment of other infectious disease like dengue fever and influenza. Training requires four years after usual 36-months basic physician training, the resident however must be allowed the opportunity to stay on in HA and benefit future patients after higher training contract expiration. As there is a current paucity of trainers and facilities, commensurately few trainees can be drafted: Therefore, may I submit that it is important for HA to take this opportunity to regularly recruit a sufficient number of high quality physician residents for respiratory medicine-critical care medicine dual specialisation training.

4. ***Some future thoughts: Reflecting the views of frontline staff***

To the minds of many frontliners, small may be beautiful. The large NTE cluster weathered the unfortunate PWH outbreak all on its own, with another hospital subsequently involved in a secondary outbreak. In the Amoy Garden outbreak, UCH was helped in no mean way by KWH, PYNEH, QEH and QMH in SARS and non-SARS medical admissions as directed by the HA central authorities, and the outbreak was smoothly and quietly curtailed. If "smallness" of a cluster allows it to quick on its feet and to flexibly seek assistance from all quarters at low fixed cost, then smallness is not "inferior" but a desideratum.

Yours Sincerely,

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Via Secretary
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