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何兆煒醫生 行政總裁
Dr William HO, JP
Chief Executive

5 February 2004

Our ref : HA 441/18/5
Yr ref : CB2/SC2

Miss Flora Tai
Clerk to Select Committee
Legislative Council
Legislative Council Building
8 Jackson Road
Central
Hong Kong

Dear Miss Tai,

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

With reference to your letter of 24 December 2003, I enclose my written statement to the Select Committee as requested.

Yours sincerely,

(Dr William HO)
Chief Executive

Encl

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Performance and Accountability of the Top Management of Hospital Authority in the handling of the SARS outbreak

[Submitted by Dr William Ho, Chief Executive, Hospital Authority]

The Severe Acute Respiratory Syndrome (SARS) epidemic struck Hong Kong in 2003 like no other disease in the last century. During this crisis, the 50,000 strong staff in the Hospital Authority (HA) fought courageously with great professionalism and dedication to defend the health of the population.

Performance of the public hospital system in combating this new emerging disease must be gauged taking into account the available knowledge and information at each stage of the epidemic. To begin with, this new disease did not declare itself to the world with new features unseen before, but was hidden among other cases of atypical pneumonia that the HA hospitals received by the hundreds every month. Specific laboratory tests were not available then, and the clinical picture of fever, respiratory symptoms, chest X-ray changes and blood picture were rather indistinguishable from other causes of atypical pneumonia. Weeks after the first index case entered Hong Kong and when, as we now know, the disease had already spread to so many others including healthcare workers in the Prince of Wales Hospital, the name SARS was not even coined. It must also be pointed out that even up to now, there are still many unanswered questions, as fundamental as the exact mode of spread, spectrum of clinical presentations, effectiveness of personal protective equipment, medical treatment, disease complications, and prevention.

Another important aspect is that apart from the scientific and rational considerations, management also needed to consider very carefully the highly charged emotional environment at the time both among healthcare workers and the public, versus realistically achievable goals in the light of limitations and constraints. Throughout, management in the HA had fought hand in hand with front line staff through numerous sleepless nights and amid great exhaustion both mentally and physically to bring about control of the disease. While the bravery and distinguished performance of our front line staff rightly attracted due recognition by the public, it should also not to be forgotten the advantages of our hospital system and work culture that resulted from years of cultivation since the HA was established. That these were also critical success factors had been amply recognized and admired by experts from other countries in international healthcare forums.

Before the start of the epidemic in Hong Kong, the HA management had been keeping a close watch on the situation in Guangzhou as reported in the

media. Not much additional information was available to us at the time. Nevertheless, our Task Force on Infection Control comprising experts from various hospitals made a most appropriate decision to start surveillance on severe community acquired pneumonia cases. We disseminated information to our colleagues on the need to step up droplet precautions in dealing with pneumonia cases, and provided updates on how to deal with influenza and other respiratory diseases. However, faced with the unknown, it was very difficult even for experts to identify anything different from the background atypical pneumonia patients. When the index case as we now know him was admitted to Kwong Wah Hospital, staff took the necessary precautions and no outbreak occurred. At the time there was no way to differentiate him from other pneumonia cases. However, vigilance and inter-hospital cooperation facilitated the eventual discovery of the Coronavirus, three weeks later, from a lung biopsy taken from his relative who also got infected. Likewise, effective infection control measures in Princess Margaret Hospital in accordance with the recommended guidelines prevented any staff from being infected by the patient from Hanoi, who infected many healthcare workers in Vietnam.

The outbreak in the Prince of Wales Hospital (PWH) could not have been foreseen, not least because the index patient who infected so many others in such a short time could not be identified initially. The lack of knowledge about the new disease at the time made combating it extremely difficult. HA Head Office worked closely with the PWH management and professorial staff of the Chinese University of Hong Kong (CUHK). While there were differing views debated under, at times, emotionally charged meetings, agreements were always reached after careful deliberation of the logic and consequences of options. There never existed situations where the CUHK side strongly demanded hospital closure but was vetoed by HA top management.

As the outbreak in PWH progressed, numerous measures were implemented through collaboration of other hospitals within the New Territories East Cluster and other hospital clusters to divert patients away from PWH. Unfortunately, years of productivity savings and resource limitations also meant that there was little extra capacity to deal with an epidemic of such enormous proportions. Closure of the PWH Accident and Emergency service quickly led to overloading of the Alice Ho Miu Ling Nethersole Hospital (AHNH), and management all the time had to juggle with a narrow margin of capacity versus demand. It should also be remembered that there were far more non-SARS patients who were very sick and needing adequate hospital care. The situation was rendered ever more difficult when key clinical and managerial staff fell ill.

The Amoy Gardens outbreak that soon followed was a tornado to the healthcare system, occurring with great rapidity. While controversy surrounded the initial discharge of the index patient upon positive test result for Influenza A (and therefore a good reason for excluding SARS at the time), careful analysis as detailed in the Expert Committee Report on SARS showed that the date of spread was prior to his first admission into PWH, and not after initial discharge from Ward A8. In other words, transmission in Amoy Gardens took place silently in the very early days of the epidemic.

With the rapidity of attack of the Amoy outbreak, United Christian Hospital (UCH) was overwhelmed within days. At the same time, a joint decision was made with Government to designate Princess Margaret Hospital (PMH) to receive SARS patients after decanting all its patients to other hospitals, and Wong Tai Sin Hospital to receive step down patients. It was logical to designate PMH with its track record of treating infectious diseases, to try to contain the problem at that juncture. This proved effective in relieving UCH and providing adequate facilities to accommodate the rapid patient build up. Through central coordination among Head Office and the Cluster Chief Executives (CCE), five other hospitals contributed staff to help. HA top management reviewed the situation on a daily basis, coordinated the activities of all hospitals, and revised strategy as the epidemic evolved. There were unfortunately three major unanticipated factors: the ferocity of the Amoy Gardens outbreak, the proportion of patients requiring intensive care turning out to be higher than our initial experience, and key clinical staff in the Intensive Care Unit of PMH falling ill themselves. Upon appraising the situation by the second week, stepwise measures were taken to stop admitting further patients to PMH, and diverting those who would likely require intensive care later on to three other hospitals. Such territory-wide mobilization with swift response to rapidly changing situations was made possible by HA's unified system and teamwork in a streamlined management structure that the present cluster management model offered.

Throughout the epidemic, controversy surrounded infection control and personal protective equipment (PPE). It should first be pointed out that even to this day, much is still unknown regarding the mode of transmission of SARS, and the effectiveness of certain PPE. It was immensely more difficult at the time, and with the lack of expert consensus. Changes in infection control guidelines were not unique to Hong Kong, and conversely we were affected by changes in guidelines overseas, all by nature of evolving knowledge over an unknown emerging infection. HA management worked closely with experts from different hospitals and both Universities, constantly taking reference from the latest scientific information. Huge amount of effort had been spent in harmonizing professional opinions so that more consistent messages could be put across to frontline staff. It indeed turned out that the basic principles of the HA guidelines had stood the test of time.

On the other hand, emotional reactions at the front line often imposed great difficulties to promulgate rational decisions and guidelines. It was quite clear from subsequent observations that over-reliance on so called high level PPE could do more harm than good, in terms of the propensity to relax on stringent infection control practices, and possible splashing of infective material from complicated procedures of gowning and de-gowning. Emphasis on basic practices was unfortunately sometimes misinterpreted as management excuses to not providing the "best PPE", a notion also played up in the media. The more healthcare workers contracting the disease, the more the fear element prevailed and thus the inclination towards even more over-protection. It took some time before this situation could be turned around.

Another area of concern was the supply of PPE. It was indeed very testing for the supplies section when the demand on certain items suddenly jumped up by hundreds or thousands folds, and in the midst of worldwide shortages due to competing sourcing by countries across the world. HA Head Office quickly implemented central purchasing and distribution when it became clear the epidemic was territory-wide, and except brief periods where the stock levels of certain key items were near critical, there had not been true instances of stock out. Weaknesses could be identified in certain areas of communication, which could have led to the dissatisfaction of staff. However, the degree of difficulty in dealing with such complex and often emotional circumstance should also be recognized. The business support sections in HA Head Office and hospitals had tried hardest in negotiating with overseas suppliers to source whatever stock available, testing large varieties of new products with great rapidity in response to the demand, and ensuring effectiveness in the supply logistics. Through tireless effort, new production lines were also secured in the Mainland to supply certain items of great need.

The changing face of the virus created yet more difficulties in the disease management strategy. To begin with, diagnosis at the early stage of the disease was difficult as the reliability of the rapid test (PCR) that was quickly invented was not high for the first few days of the illness onset. Thus, SARS patients looked similar to thousands other patients with fever and respiratory tract infection. At the same time, public hospital wards had always been large with many patients, the historical result of resource constraints in the face of heavy demand. There was a lack of adequate isolation facilities, as priority had to be given to the growing burden of chronic non-communicable diseases of the ageing population, rather than infectious diseases that had declined for decades before SARS. As a result of these limitations, the best that we could do was to cohort patients with clinical suspicion of SARS together, a correct approach endorsed by overseas experts. Yet to add to the difficulty, cryptic SARS patients who presented with little or no fever or pneumonia started to appear at the height of the epidemic. This caused a number of staff and patient infection outbreaks in general medical wards, and much anxiety. The subsequent strategy to treat all acute patients as potential SARS patients meant immense challenges to communication, infection control measures, PPE supplies, and maintaining effective operations. But with doubling of effort on all fronts, the epidemic was finally brought under control.

A very important function performed by HA Head Office throughout, was that of information and knowledge management. Because of the advantages of a single hospital system all linked up with information technology networks using the same platform and applications, patient information could be gathered real time for onward reporting to the Government and for internal analysis. The degree of accomplishment in this area, again through intense effort made over a decade, greatly paid off in the epidemic. Within a very short time, a new eSARS system for on-line reporting of suspected and confirmed SARS cases at the ward level was up and running, which was soon linked to the Department of Health and married with the MIIDSS system of the Police to assist in contact tracing in the community. Updated information generated from eSARS was

analyzed in the daily top management meeting to decide on resource deployment and service diversion among the clusters.

In parallel, huge amounts of clinical information were gathered from the electronic Clinical Management System and clinical records of SARS patients in different hospitals. HA Head Office organized numerous forums gathering expert views from respiratory physicians, microbiologists, infection control personnel and Coordinating Committee members of all major clinical specialties to formulate clinical guidelines through the collective wisdom. Dedicated effort was also spent to assist research in the rich clinical data shared among all hospitals, that led to rapid generation of knowledge on infection control and patient management. The findings of such group effort as presented in the World Health Organization forums in late May and early June attracted worldwide attention. The structure of close collaboration between management and clinical experts, the transparency of processes, and the ability to engineer sharing among all centers were again repeatedly praised in the international scene.

Much insight had been generated in the review processes that followed, something that the HA management also spent great effort and much resources to support. With hindsight, there are indeed many areas that improvements are called for. These include contingency plans that not only cover the HA, but also encompassing the Department of Health and the Health, Welfare and Food Bureau, which could cater for an epidemic of such proportion. In the investigation and control of infectious disease outbreaks, teamwork with the public health side need to be strengthened after years of organizational separation between HA and the Department of Health. Tremendous energy has been spent to remedy these areas within a short time, together with rapid steps to increase isolation facilities and improve hospital ventilation. We also acknowledge the capacity issue in trained personnel in infection control and public health, something that we have been catching up in collaboration with the Department of Health and the Universities. Lastly, strengthening is needed in the internal and external communication processes of the HA, such as measures that proved effective in the latter part of the epidemic, including 24-hour staff hotlines, daily staff newspaper, daily public announcements, etc.

Overall speaking, the top management team had the leadership responsibility first and foremost, as the highest operational command center in the HA during crisis situations such as SARS. This function was indeed fulfilled through daily meetings involving both Head Office and hospital cluster top executives, and often with the participation of the HA Chairman as well. The extremely complex and changing situations of the SARS crisis, including the rapidly evolving knowledge of an unknown disease, lack of consensus on prevention and treatment among experts in the world, rapid drain on hospital facilities and other resources by the epidemic, the fear element among the workforce, and worldwide shortage of some essential supplies were all very taxing problems that management had to tackle. The top management team had done their utmost in trying to assimilate the vast amount of hard and soft information to make the best judgment possible under the circumstances. They

were also working very long hours for months on end and under immense stress.

Another key responsibility of top management was to coordinate the work of all hospital clusters and functions within the large organization of HA, including cross-cluster deployment of resources and diversion of patients. Indeed much was done as exemplified by the inter-hospital support and timely decisions on service diversion so that no hospitals were rendered paralyzed to the detriment of patients.

A third key responsibility was to collect timely accurate information, assimilate them into knowledge, and disseminate such knowledge throughout the organization. The merits of HA's information infrastructure have been mentioned above. On the human side, HA executives were able to pull together local experts from all hospitals and across the Universities to work on common problems, many of which were of great urgency in terms of immediate application at the front line. Besides the timely formulation and dissemination of scientifically based guidelines, much thought went into how to communicate to staff more effectively, hence daily editions of staff news letter, direct letters from the Chief Executive, video-conferencing, posters, emails, and daily staff forums at the height of the epidemic.

Even after the subsidence of the epidemic, the stamina and abilities of the HA management were tested to the limit, during an environment where they also had to face the challenges of taking over all general out patient clinics from the Department of Health, managing the budget cut, and facing ward congestion from another round of flu attack or even Avian flu.

My colleagues and I in the top management gave all our efforts in leading the battle against SARS. We did suffer many setbacks. Together with our colleagues in the frontline, we went through enormous challenges that stretched us to the limits, and all had made personal sacrifices on the way. We faced the threat of this killer virus, not only to our patients but also to ourselves. Yet with the unfailing dedication of everybody in the organization and the determination to fulfill our professional duties, we eventually overcame the difficulties and won the battle.

I can say that my colleagues and I in the team fought the outbreak with all our hearts and to the best of our abilities. We gave it all.

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4 February 2004