

## **LegCo Panel on Health Services**

### **Enhancement of Infectious Disease Facilities in the Public Hospital System**

#### **Purpose**

This paper briefs Members on the proposals to enhance the infectious disease facilities in the public hospital system.

#### **Background**

2. The recent severe acute respiratory syndrome (SARS) outbreak revealed that there is a need to enhance and expand the infectious disease facilities in the public hospital system. At present, there are only limited number of wards with negative pressure rooms, either with or without en-suite toilet / shower facilities, in our public hospitals. There are only 177 wards with negative pressure rooms, which normally are in the form of a pair of isolation rooms in a standard ward. These isolation rooms are originally designed for handling episodic cases of infectious diseases or hospital-acquired infections in wards designated for different specialties. There are however considerable difficulties in mobilising these isolation rooms which are scattered all over a hospital in the event of a major outbreak of infectious disease.

3. During the SARS outbreak, public hospitals have made make-shift arrangements by spacing out patients and installing exhaust fans in SARS wards with a view to reducing cross-infection. While the installation of exhaust fans can create negative pressure in SARS wards and improve the air dilution effect thus reducing the bioload, this contingency measure has significantly hampered the cooling efficiency of the hospital air-conditioning system and raised the temperature of the wards which leads to a deterioration in the working environment for health care workers as summer approaches. Besides, all these make-shift arrangements cannot provide isolation within the ward itself. In this connecton, the standard design for isolation rooms for infectious diseases should include 100% fresh air intake, negative pressure rooms, air-locked ante-rooms, and independent toilet and shower facilities. In the case of SARS which is a disease principally spread by droplets and aerosols, the isolation set up should desirably comprise negative pressure rooms with independent toilet facilities.

4. Building specially designed infection control facilities takes time. It takes about six years to build an infectious disease hospital and three years to

build an infectious disease block attached to an acute hospital. In order to prepare Hong Kong for the possible re-emergence of SARS outbreak later in the year, we need to enhance the “fever” ward (for suspected SARS cases) and SARS ward facilities of our public hospitals as an interim measure. Having reviewed local and international experiences in handling SARS in the past months, the Hospital Authority (HA) proposes that the handling of future SARS patients should be shared among its acute hospitals using a strategy for cohorting patients based on the following principles -

- (a) adopting a staged approach in the mobilisation of hospitals in handling SARS;
- (b) the number of confirmed SARS patients in any hospital should be limited to 50 to avoid major disruption to existing services. The number could be increased to 100 in the case of a major outbreak. No hospital should take care of more than 100 patients at any one time;
- (c) the number of suspected SARS cases could be four times the number of confirmed SARS cases;
- (d) priority will be given to suspected SARS cases for the use of isolation facilities to minimise the risk of cross-infection;
- (e) “probable” SARS patients may be cohorted in open wards with improved ventilation as risk of cross-infection is lower; and
- (f) the cohorting of the suspected SARS patients should desirably be located in the acute hospitals backed up by intensive care unit facilities in view of the high level of medical and nursing dependency of the patients.

In this connection, HA has identified nine major acute hospitals, namely, Alice Ho Miu Ling Nethersole Hospital (AHNH), Kwong Wah Hospital (KWH), Pamela Youde Nethersole Eastern Hospital (PYNEH), Prince of Wales Hospital (PWH), Princess Margaret Hospital (PMH), Queen Elizabeth Hospital (QEH), Queen Mary Hospital (QMH), Tuen Mun Hospital (TMH) and United Christian Hospital (UCH) which require substantial improvement works to enhance their “fever” ward / SARS ward facilities. Feasible short-term improvement plans for the nine acute hospitals have been drawn up having regard to the need to meet the cohorting strategy, the constraint of ongoing service requirements and the limitations of the physical layout of the hospitals concerned.

5. Planning is in hand to construct an infectious disease block each at PMH, AHNH and TMH and to equip the three hospitals with proper and carefully planned isolation / infection control facilities as a longer term measure. The proposed infectious disease blocks will each have a capacity of about 100 isolation beds and will be supported by existing services (such as diagnostic radiology (including CT Scan), endoscopy, operating theatres, labour and delivery) in the respective hospitals. HA is working on the detailed plan and requirements for the construction of the three infectious disease blocks.

### **Implementation of the Interim Measure**

6. We propose to carry out alteration and addition works in nine acute public hospitals, namely, AHNH, KWH, PYNEH, PWH, PMH, QEH, QMH, TMH and UCH, to improve their “fever” ward and SARS ward facilities for handling future outbreaks of infectious diseases including SARS. The scope of the proposed improvement works comprises -

- (a) creation of negative pressure gradient with air flowing from “clean” zones (e.g. ward corridors) to “dirty” zones (e.g. patient rooms);
- (b) provision of 100% fresh air supply at not less than 12 air changes per hour;
- (c) installation of low level exhaust for better air flow pattern;
- (d) installation of high efficiency particulate air (HEPA) filters for filtering out droplets and aerosols;
- (e) air-tight construction for patient rooms to prevent cross-contamination;
- (f) addition of doors to close off existing open cubicles;
- (g) provision of en-suite toilet and shower facilities in ward cubicles; and
- (h) provision of infection control facilities for hospital staff, such as gowning and degowning areas, staff changing rooms, shower facilities, and clinical wash-hand basins.

7. Upon completion of the proposed works, the hospitals concerned would be able to provide 167 isolation rooms with a total of 492 beds for

confirmed SARS patients and 369 isolation rooms with 789 beds for suspected SARS patients, details of which are at Annex.

8. We plan to seek the approval of the Finance Committee (FC) in July 2003 to strengthen the short-term isolation facilities of nine public hospitals at an estimated cost of about \$400 million in money-of-the-day prices. Subject to FC's funding approval, the proposed improvement works will commence in July 2003 for completion in October 2003.

### **Advice Sought**

9. Members are invited to note the content of this paper.

Health, Welfare and Food Bureau  
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**Number of beds to be provided in the nine public hospitals  
for handling of confirmed SARS patients and suspected SARS patients**

	Rooms for Confirmed SARS Patients				Rooms for Suspected SARS Patients				Total Bed Provision for Hospital
	No. of Beds in Room			Bed Provision Sub-total	No. of Beds in Room			Bed Provision Sub-total	
	1	2	4		1	2	4		
PMH	12	0	24	108	4	16	12	84	192
TMH	0	0	12	48	25	30	14	141	189
AHNS	2	6	8	46	42	3	7	76	122
QEH	4	16	0	36	12	36	10	124	160
UCH	4	0	12	52	4	24	0	52	104
PYNEH	4	5	9	50	20	2	12	72	122
QMH	0	11	8	54	2	0	11	46	100
PWH	0	8	8	48	12	24	0	60	108
KWH	2	0	12	50	14	6	27	134	184
<b>Total No. of Rooms</b>	28	46	93	<b>167 rooms</b>	135	141	93	<b>369 rooms</b>	<b>536 rooms</b>
<b>Total No. of Beds</b>	-----			<b>492 beds</b>	-----			<b>789 beds</b>	<b>1 281 beds</b>