

What have we heard?

- The ventilation system in many hospitals is outdated
- Hospital wards were crowded and there were insufficient isolation facilities
- There were divided views on whether an infectious disease hospital is required
- A plan is needed on the deployment of staff during a major outbreak
- Both HA and DH lack surge capacity in appropriately trained staff
- DH had insufficient resources for communicable disease control
- Private practitioners offered to help public hospitals, but were not deployed
- Government should coordinate medical supplies and the supply of protection equipment during a public health emergency

INTRODUCTION

11.1 The health system was overwhelmed by the SARS epidemic. The design of the system, in terms of hospital environment, public health functions, equipment supplies and collaboration arrangements, was not well prepared for a public health emergency on such a scale. All these issues will need to be carefully addressed, to make sure that there is sufficient surge capacity planned, prepared and available in the event of an emergency.

PUBLIC HOSPITAL FACILITIES AND SERVICES

11.2 The SARS epidemic exposed substantial weaknesses in hospital design and environment. Wards are overcrowded and facilities are outdated. Before the epidemic, beds were generally placed close together, in order to cope with the increasing patient caseload. Ward design is often inappropriate for the management of communicable diseases –

- ◆ Ventilation systems are often not designed to ensure that air flows from clean to contaminated areas rather than vice versa
- ◆ Hand washing and other sanitary facilities are often inadequate
- ◆ Single rooms with independent bathroom facilities are in short supply
- ◆ Changing and showering facilities for gowning and de-gowning do not exist.

11.3 During the epidemic, hospitals had to introduce make-shift arrangements to reduce the risk of cross-infection, including spacing out beds and installing exhaust fans to create negative pressure. There is an urgent need to improve basic facilities in public hospitals for better infection control.

11.4 At present, isolation facilities are normally in the form of a pair of isolation rooms in a standard ward. They are designed for episodic cases of infection and scattered in different specialty wards. There are no designated isolation units, with the exception of the infectious diseases unit at Princess Margaret Hospital. One solution to this problem is to build or designate a dedicated infectious disease hospital. However, this would contract, rather than expand, expertise in infection management and control throughout HA, exacerbate problems of transporting infectious patients, and would mean that ill patients would not have easy access to the specialised diagnostic and treatment facilities they might require, such as those of a renal or surgical specialty.

11.5 *The Committee therefore endorses Government's proposal to develop infectious disease units attached to selected acute hospitals, rather than to build a single stand-alone infectious disease hospital. This provides flexibility in terms of operation, logistic support and mobilisation of resources, and allows communicable disease patients to have access to the multi-specialty support that is available in acute hospitals.*

11.6 HA estimates that the surge capacity required to manage a possible future SARS epidemic could be up to 2,000 beds, but the required number may be reduced by prompt containment action. Plans are in hand to improve ward facilities in nine major acute hospitals, and to extend the availability of isolation rooms in the remainder. Other options for temporary isolation facilities are also being explored.

HOSPITAL STAFF TRAINING AND DEPLOYMENT

11.7 The SARS epidemic exposed deficiencies in staff training and expertise in healthcare services. These included a lack of expertise in communicable diseases, a weak infection control culture and an inadequate awareness of good infection control practices. A substantial proportion of SARS cases were healthcare workers, and this exacerbated the problems of skill shortages. Although some staff re-deployment took place, this does not appear to have been well planned or well managed. The most vulnerable specialty areas

appear to have been intensive care, communicable diseases and respiratory medicine. Some of these deficiencies could be overcome by ensuring that there is a strong hospital infection control service, and that all staff receive basic training in good infection control practice. Others will require longer-term plans for extending the cadre of staff with specialist training in intensive care and communicable diseases.

SUPPLIES OF DRUGS, CONSUMABLES AND EQUIPMENT

11.8 Various problems were experienced with the availability, supply and distribution of drugs and equipment during the epidemic. During the initial stage, there were considerable difficulties in obtaining sufficient supplies of personal protection equipment (PPE) from manufacturers. Thereafter, the main problems appear to have been with the distribution of PPE within HA, and the lack of supplies to the private sector, including family practitioners and residential care homes for the elderly. HA needs to establish good links with manufacturers and suppliers, to ensure that adequate stocks of drugs, vaccines or equipment are available for various communicable disease contingencies.

- ◆ HA should prepare for future outbreaks of communicable disease by –
 - Improving infection control arrangements, including the designation of trained infection control personnel in each hospital
 - Investing in improvements to hospital facilities, including the provision of purpose-designed isolation facilities at selected acute hospitals
 - Strengthening expertise in relevant clinical specialties (communicable diseases in adults and children, intensive care, respiratory medicine) and in outbreak management
 - Extending training of staff in infection control and other shortage skills
 - Reviewing laboratory capacity, laboratory health and safety standards, and availability of high security laboratory facilities
 - Developing methods for timely and adequate access to drugs, consumables and equipment
 - Enhancing management capabilities.
- ◆ HA should have contingency plans that cover the following –
 - Availability of infection control facilities and expertise and microbiology laboratory support
 - Mobilisation of hospitals and service reprioritisation
 - Redeployment of workforce and other resources

- Emergency supply arrangements for drugs, consumables and equipment
- Lines of command for managing and implementing deployment of resources.

These plans should be developed in collaboration with DH/CHP.

PUBLIC HEALTH SERVICES

11.9 The epidemic also made enormous demands on the public health services. DH traced over 26,000 persons, of whom around 280 were subsequently diagnosed as SARS cases. The DH's virus laboratory carried out much of the laboratory investigation of SARS patients. There were problems with changing case definition of SARS, data standardisation, and communication and institutional barriers. Several initiatives were developed during the epidemic to overcome these, including enhanced mechanisms for conducting contact tracing (eg e-SARS, MIIDSS and SARS-CCIS) and a system for medical surveillance of contacts (eg by means of designated medical centres).

11.10 However, the epidemic highlighted several deficiencies in DH, including a shortage of expertise in field epidemiology and infectious disease control, inadequate information systems support, and insufficient public health

resources to cope with a large-scale community outbreak. There is disproportionate funding for public health services compared with the public hospital system. Of HK\$31.9 billion recurrent public expenditure on healthcare services in 2003/04, HK\$29.2 billion is allocated to HA, compared with HK\$2.6 billion to DH. Some of these issues will be addressed by the establishment of the Centre for Health Protection but it will still be important to have contingency arrangements in place, to rapidly expand the public health workforce resources available to deal with a future emergency. Additionally, the contingency plan should include quarantine facilities that can be made available for use at short notice.

- ◆ DH/CHP should have contingency plans that cover the following –
 - Rapid enhancement of the surveillance system
 - Information system support for contact tracing
 - Training and redeployment of staff with field epidemiology, contact tracing and outbreak control expertise
 - Extended laboratory capacity in collaboration with universities, local and international organisations
 - Availability of designated quarantine and isolation centres.

COLLABORATION WITH THE PRIVATE SECTOR AND VOLUNTARY ORGANISATIONS

11.11 The epidemic demonstrated that communication and collaboration with the private sector was inadequate to deal with a public health emergency. Skills and expertise available in the private sector were underused, and private practitioners were not fully supported by the public services. By contrast, organisations such as Auxiliary Medical Service (AMS), Civil Aid Service (CAS) and non-government organisations in the voluntary sector proved very useful during the epidemic.

- ◆ DH/CHP and HA should hold discussions with private practitioners on their involvement at times of outbreak, including backup services to be provided by the private sector, and support services required by them.
- ◆ DH/CHP and HA should draw on the services of organisations such as AMS and CAS to provide backup at times of outbreak, and also engage non-government organisations which provide essential support for patients who are chronically ill and who may be disadvantaged in epidemic situations.