

---

**Title:**  
**HA Contingency Plan for SARS Outbreak**

**Introduction**

This document has been compiled from and replaces previous documents of attachment 1 & 2 of Hospital Authority's Response Plan for Infectious Disease Outbreaks (first issue and revision no.1). There are major updates in several areas due to the emergence of new evidence and the release of WHO guidelines for the global surveillance of SARS. Changes include updated definition of SARS Alert; case definition of SARS has been modified and renamed as clinical evidence for SARS; and management of contacts during SARS Alert.

**Part A - Preparation for outbreak of SARS**

1. Following outbreaks in different places across the world spanning months, the transmission of SARS is interrupted, for the time being. On 14.8.2003, the World Health Organization (WHO) promulgated a guideline entitled "Alert, Verification and Public Health Management of SARS in the Post-Outbreak Period". Hong Kong will be a "nodal" area under the WHO guideline, defined as an area with sustained local transmission experienced during the previous outbreak or entry of large numbers of persons from the potential zone of re-emergence of SARS Coronavirus (SARS-CoV). Hong Kong should therefore maintain enhanced surveillance for SARS, and to mount an appropriate infection control and public health response when there is a SARS Alert.
2. Taking reference to the WHO guideline, the HA has developed a set of guidance on enhancing surveillance on clustering of influenza-like-illness and pneumonia amongst Health Care Workers in our hospitals and residents of institutions in collaboration with the Centre of Health Protection (CHP). Hospital should refer to the most up-to-date version for ensuring notifications to the appropriate parties.
3. To prepare for resurgence of SARS and for that matter other respiratory pathogens with similarly high infectivity, the HA will need to maintain vigilance and enhance our preparedness in the following areas:

**3.1 Preventing outbreak in the community and enhancing infectious disease surveillance**

- 3.1.1 Enhancing surveillance on staff health and clustering of influenza-like-illness and pneumonia in institutions;
- 3.1.2 Supporting the Visiting Medical Officer Scheme for old age homes through HA's Community Geriatric Assessment Service for early detection.
- 3.1.3 Launching influenza vaccination programme for extended patient population and

staff groups;

3.1.4 Collaborating with DH on border control and monitoring of tourists with fever; and

3.1.5 To establish close linkage with the [Centre for Health Protection](#).

### **3.2 Infection control and outbreak management**

3.2.1 Expertise and capability in outbreak management will be strengthened and enhanced for each infection control team (ICT) in all hospitals. An outbreak management plan should be in place in the hospital. The infection control team will be responsible for investigating, advising on control and reporting of hospital outbreaks to HAHO. Besides the usual members of the ICT, the hospital should build and identify a pool of professionals with knowledge on outbreaks investigation and control to provide assistance to the ICT during outbreak. For hospitals without the appropriate expertise, cluster management should assist deployment. The Cluster Chief Executive should ensure that each of the cluster hospitals is covered by an infection control team, either cluster based or hospital based.

3.2.2 Beds should be spaced out in wards to avoid overcrowding and hence risks of cross infections;

3.2.3 Periodic documented audits on compliance on infection control by the infection control teams and by infection control supervisors at work place should be performed; and

3.2.4 Documented training on infection control to staff, especially the target groups, i.e. doctors, nurses and health care assistants should be regularly conducted.

3.2.5 To share with private hospitals guidelines on infection control and information on infectious diseases.

### **3.3 Decanting and mobilisation of patients**

3.3.1 A staged response in mobilisation of hospitals to take in confirmed and suspected patients will be as follows:

<b><u>Stage</u></b>		<b><u>Hospital</u></b>		<b><u>Patient Intake</u></b>	<b><u>Total Patient Intake</u></b>
1	1 <sup>st</sup> 50 cases	Designated hospital	PMH	50	50
2	After 1 <sup>st</sup> 50 cases	Designated hospital in clusters	TMH, AHNH, UCH/QEH, PMH/KWH, QMH/PYNEH (50 each)	50 x 5 = 250	300
3		Other major hospitals in clusters	PMH/KWH, UCH/QEH, QMH/PYNEH, PWH (50 each)	50 x 4 = 200	500
4		Other cluster hospitals	TKOH (25), CMC (50), RH (25), NDH (25)	125	625
5	Cases over 625	Individual hospitals to increase intake up to 100	All acute major hospitals	Up to 100 for each hospital	> 625

- Note: 1. For outbreaks which involve primarily paediatric patient groups, the mobilisation will be fine-tuned in accordance with the plan for staged mobilisation of paediatric hospital units.
2. Suspected patients refer to patients fulfilling criteria as defined and promulgated by HAHO. For SARS, the criteria for transfer to designated hospitals will be:
- Patients with positive laboratory findings for SARS-CoV.
  - Index patients for SARS Alerts.
  - The cluster of patients related to the index who fulfill the WHO clinical case definition.
3. The above are for reference only. The actual mobilisation in a particular outbreak will be subject to situational assessment coordinated by HAHO.

3.3.2 Cluster plans on service reorganisation to dovetail the corporate plan on mobilisation of patients should be in place.

### **3.4 Human Resources**

3.4.1 Cluster should have in place a cluster based training and mobilisation plan for deployment of staff to match the contingency plans on patient mobilisation and on support to specific clinical areas. The deployment plan should be in place and communicated to staff.

3.4.2 Periodic staff training in the following areas should be conducted:

- Targeted infection control training to key staff groups;
- Intensive infection control training to enhance knowledge in depth;
- Epidemiological studies of infectious diseases and day-to-day outbreak investigation and control;

3.4.3 Staff training should be documented. All staff working in high risk and ultra high risk areas must receive orientation and training in infection control in local setting before deployment. The training plan should be monitored by hospital management with reporting to the HAHO to:

- Ensure all staff deployed to high risk and ultra high risk areas have received orientation and training in infection control in local setting before deployment;
- Ensure staff involved direct patient care are trained on infection control;

3.4.4 The pool of infection control nurses should be augmented through enhanced training and designation of staff. Clusters should maintain a list of staff trained in infection control.

3.4.5 The pool of doctors and nurses trained on intensive care should be enhanced through rotational training schemes. Clusters should maintain a list of staff trained in intensive care.

3.4.6 Hospitals should make a plan for augmenting over-night and quarters facilities for staff to prepare for such needs.

### **3.5 Ensuring adequate supply of drugs, consumables and equipment**

3.5.1 Portable High Efficiency Particulate Air filters should be made available in clinical areas where installations of permanent structures are not feasible or practical;

3.5.2 3-month stock of Personal Protective Equipment (PPE) and other essential consumables, e.g. filters should be at hand;

3.5.3 Additional suppliers for PPE and equipment, likely to be in short supply, e.g. small

size N95 Respirators should be sourced;

3.5.4 A plan to cascade distribution and collection of feedback should be in place.

### **3.6 Clinical Management**

3.6.1 To establish a contingency plan for each of the clinical specialties and establish “outbreak response teams” to coordinate and communicate at specialty levels;

3.6.2 To establish a cluster based plan to support specific clinical areas (such as respiratory care, intensive care and infectious diseases management in adult and children);

3.6.3 To review management protocols for SARS and to develop ethically appraised research protocols for areas which need systematic collections of clinical information;

3.6.4 To strengthen expertise in recognition of clinical presentations and management of SARS;

### **3.7 Augmentation of isolation facilities**

3.7.1 Around **1,400** Isolation beds are provided in **14** acute hospitals;

3.7.2 A contingency plan is in place to increase the capacity for isolation when a major outbreak occurs.

### **3.8 Communication**

3.8.1 A formal and established network of communication, with the objectives to be achieved and guiding principles, is to be put in place to ensure external and internal communications are carried out effectively and efficiently.

3.8.2 Head of Corporate Services will lead the communication team to oversee communication issues.

3.8.3 Guidelines on infection control and information on infectious diseases should be shared with private hospitals and when appropriate with private practitioners.

### **3.9 Governance**

3.9.1 Progress and update on preparation should be reported to the relevant functional committees or to the full Board.

**3.9.2 Hospitals should similarly report progress and update on preparation to the Hospital Governing Committees.**

---

## **Part B - Alert and enhanced surveillance measures during post SARS period**

### **1.Objectives**

1.1 To maintain a heightened alert to suspicious SARS cases.

1.2 To ensure a speedy notification mechanism and activation of appropriate response within HA.

### **2. Risk assessment and SARS alert**

#### **2.1 Risk assessment**

##### 2.1.1 Definition

###### *2.1.1.1 Potential zone of re-emergence of SARS-CoV*

- Identified as source(s) of the previous outbreak in November 2002 or areas with an increased likelihood of animal to human transmission of SARS-CoV infection.

###### *2.1.1.2 Nodal areas*

- Sustained local transmission experienced during the previous outbreak or entry of large numbers of persons from the potential zone of re-emergence of SARS-CoV.

###### *2.1.1.3 Low risk areas*

- Never reported cases, reported only imported cases or experienced only limited local transmission during the previous outbreak.

2.1.2 Thus, WHO recommends a staged approach to surveillance:

###### *2.1.2.1 Potential zone of re-emergence of SARS*

- SARS Alert AND
- Enhanced surveillance for SARS AND
- Special studies for SARS-CoV infections in animal and human populations

###### *2.1.2.2 Nodal areas*

- SARS Alert AND
- Enhanced surveillance for SARS

###### *2.1.2.3 Low risk areas*

- Surveillance for clusters of "alert" cases among health care workers, other hospital staff, patients and visitors in the same health care unit (see The SARS Alert)

---

Hong Kong is considered as a nodal area by the Health, Welfare and Food Bureau (HWFB).

## **2.2 The SARS alert**

2.2.1 The SARS Alert is an operational definition to ensure that appropriate infection control and public health measures are implemented until SARS has been ruled out as a cause of the atypical pneumonia or RDS.

2.2.2 Objectives of the SARS Alert is to provide early warning of the potential recurrence of SARS to:

- 2.2.2.1 rapidly implement appropriate infection control measures
- 2.2.2.2 expedite diagnosis
- 2.2.2.3 activate the public health response

### **2.2.3 Definition of a SARS alert**

2.2.3.1 An individual with clinical evidence of SARS **AND** with one or more of the following epidemiological risk factors for SARS-CoV infection in the 10 days before the onset of symptoms:

- Employed in an occupation associated with an increased risk of SARS-CoV exposure (e.g. staff in a laboratory working with live SARS-CoV/ SARS-CoV-like viruses or storing clinical specimens infected with SARS-CoV; persons with exposure to wildlife or other animals considered a reservoir of SARS-CoV, their excretions or secretions, etc.).
- Close contact (having cared for, lived with, or had direct contact with the respiratory secretions or body fluids) of a person under investigations for SARS.
- History of travel to, or residence in, an area experiencing an outbreak of SARS.

OR

2.2.3.2. Two or more health care workers in the same ward /unit fulfilling the clinical evidence of SARS (see paragraph 5) and with onset of illness in the same 10-day period.



OR

2.2.3.3 Hospital acquired illness in three or more persons (health care workers and/or other hospital staff and/or patients and/or visitors) in the same ward/unit fulfilling the clinical evidence of SARS (see paragraph 5) and with onset of illness in the same 10-day period.

### **3 Clinical evidence of SARS**

3.1 The following clinical criteria for SARS have been developed for public health purposes:

A person with a history of:

Fever ( $\geq 38^{\circ}\text{C}$ )

**AND**

One or more symptoms of lower respiratory tract illness (cough, difficulty breathing, shortness of breath)

**AND**

Radiographic evidence of lung infiltrates consistent with pneumonia or ARDS

**OR** autopsy findings consistent with the pathology of pneumonia or ARDS without an identifiable cause.

**AND**

No alternative diagnosis can fully explain the illness.

#### **4. Laboratory evidence of SARS**

4.1. A person with symptoms and signs that are clinically suggestive of SARS **AND** with positive laboratory findings for SARS-CoV based on one or more of the following diagnostic criteria:

4.1.1 PCR positive for SARS-CoV

PCR positive using a validated method from:

4.1.1.1 At least two different clinical specimens (e.g. nasopharyngeal and stool)

**OR**

4.1.1.2 The same clinical specimen collected on two or more occasions during the course of the illness (e.g. sequential nasopharyngeal aspirates)

**OR**

4.1.1.3 Two different assays or repeat PCR using a new RNA extract from the original clinical sample on each occasion of testing.

4.1.2 Seroconversion by ELISA or IFA

4.1.2.1 Negative antibody test on acute serum followed by positive antibody test on convalescent phase serum tested in parallel **OR**

4.1.2.2 Four-fold or greater rise in antibody titre between acute and convalescent phase sera tested in parallel.

4.1.3 Virus isolation

4.1.3.1 Isolation in cell culture of SARS-CoV from any specimen **AND** PCR confirmation using a validated method.

4.1.4 When (a) SARS alert is activated, or (b) any positive PCR-SARS CoV is encountered, a second specimen for SARS-CoV PCR confirmation should be sent to Centre of Health Protection (CHP) - Public Health Laboratory Services Branch (PHLSB), or alternatively to HKU/CUHK if the first specimen was performed at PHLSB.

#### **5. Surveillance programmes**

The following enhanced surveillance programmes will be implemented:

5.1 Surveillance of sickness among Health Care Workers in HA hospitals.

5.1.1 All staff should report sick leaves or off work due to illness to their workplace supervisors *via Staff Early Sickness Alert System (SESAS)*. *For detail, please refer to the document - Guidance Notes on Staff Early Sickness Alert*

## ***System (SESAS)***

### **5.2 Surveillance of clustering of symptoms in Old Age Homes (OAHs) and other residential institutions**

5.2.1 CHP will monitor and inform CCID and contact persons of hospitals for any clustering and outbreak of fever, respiratory symptoms and influenza-like illness among residents/ staff/visitors at OAHs and residential institutions.

5.2.2 On a daily basis, Accident and Emergency Departments will collate data of attendance from OAHs and residential institutions presented with pneumonia for screening by the SEB, respective Community Geriatric Assessment Teams and Hospital Infection Control Officers.

5.2.3 HA would, as far as possible, facilitate CHP in their monitoring of OAHs and other residential institutions. *For details, please refer to the Guideline on Precaution on Communicable Diseases in RCHEs*

***5.3 For details on outbreak management in HA extended care facilities, please refer to Guideline on the Management of Outbreaks in HA Extended Care Facilities.***

***5.4 A summary of the scenarios of clustering of respiratory symptoms in healthcare workers and residents of institutions for notification and actions is attached at Annex I for reference.***

## **6. Operating procedures for suspected cases of SARS**

### **6.1 Notification**

6.1.1 For cases suspected of being SARS, Hospital Infection Control Officer should verify with physician in-charge (irrespective of whether treatment has started or not), and inform pager of CCID secretariat on 24 hours basis as *soon as possible* (Annex II). eSARS remains active for new case entry by designated persons of hospital.

### **6.2 Activation**

6.2.1 Upon notification by the hospital, HAHO will discuss with HWFB, DH and CHP for a decision on raising a SARS alert. When the SARS alert is raised:

6.2.1.1 Cluster Chief Executive (CCE) of the concerned hospital will activate the hospital contingency plan for SARS. Other CCEs will be alerted.

6.2.1.2 Patient(s) should be immediately isolated and transmission-based precautions enhanced including stepping up of Personal Protective Equipment and tightening of visiting policy as during SARS outbreak; designation of more isolation wards if necessary; and mobilisation of teams to enhance contact tracing.

6.2.1.3 The hospital concerned should convene the hospital outbreak control team meeting, including representative(s) from CHP to investigate the clustering of the cases(s).

6.2.1.4 eSARS portal will be opened to all clinical departments and CHP within 24 hours when SARS alert is raised or if there is a laboratory confirmed SARS patient in Hong Kong.

### 6.3 Contact tracing

*(Adapted from WHO Guidelines for the global Surveillance of SARS Updated Recommendations October 2004)*

6.3.1 Contacts of persons under investigation for SARS should be traced and isolated until SARS has been ruled out as the cause of the illness.

6.3.2 A contact is a person who is at greater risk of developing SARS because of exposure to a SARS case. Risky exposures include having cared for, lived with, or having had direct contact with the respiratory secretions, body fluids and/or excretions (e.g. faeces) of cases of SARS.

6.3.3 Individuals with exposures to a person or persons in a SARS alert cluster should be managed as contacts until SARS has been ruled out as the cause of the illness.

6.3.4 Contact within the health care setting should be managed in the following way:

6.3.4.1 Inpatient contacts should be isolated or cohorted away from unexposed patients and transmission-based precautions instituted. They should be placed on active fever surveillance.

6.3.4.2 Exposed staff should be placed on active fever surveillance, and either cohorted to care for exposed patients ("work quarantine") or placed on home isolation depending the circumstances.

6.3.4.3 Contact tracing of discharged patients and visitors in the ward during the risk period should be jointly carried out by hospital outbreak team with SEB. Information including list of names, ID, sex, age, home address, telephone number, period of stay in the ward or period of visit, etc should be collected, updated and communicated to SEB.

6.3.4.4 All contacts should ideally be given written information on the clinical picture, transmission and other features associated with SARS, as well as written information on respiratory hygiene and contact precautions.

### 6.4 Follow-up Action

6.4.1 The hospital(s) will update the CCID Chairman & CHP on the progress of the suspected case and / or outbreak.

6.5 The News Duty Officer at HAHO will be updated and consulted when appropriate on the situation for daily press release and other enquiries.

6.6 If there is one or more laboratory confirmed case of SARS, the HA will activate the Response Level in accordance with government three tier response systems to SARS.

Reference:

WHO Guidelines for the Global Surveillance of SARS. Updated Recommendations October 2004 ([http://www.who.int/csr/resources/publications/WHO\\_CDS\\_CSR\\_ARO\\_2004\\_1/en/index.html](http://www.who.int/csr/resources/publications/WHO_CDS_CSR_ARO_2004_1/en/index.html))

Department of Health Elderly Health Services. Guideline on prevention of Communicable Diseases in Residential Care Homes for the Elderly. Mar 2004 (<http://www.info.gov.hk/dh/diseases/rch-e.htm>)

**Scenarios of clustering of respiratory symptoms in HCWs & residents of institutions for notification and action**

**Annex I**

\* Cohort: A form of isolation whereby patients with similar symptoms or clinical diagnosis are cared in the same unit

		SARS Alert	Alert on Community Acquired Pneumonia	Alert on Influenza like Illness			Common cold (No fever, No systemic upset)
				Community Acquired	Hospital Acquired		
Threshold for initiating alert		According to WHO definition	3 or more patients from one OAH/residential institution/family	3 or more patients from one OAH/residential institution	3 or more patients/ in one ward/unit	3 or more hospital staff in one ward/unit	Need not be hospitalized
Notification to <i>CHP and CCID</i>		Yes	Yes	Yes	Yes	Yes	No
Clinical Assessment & Investigations		Expedite Laboratory confirmation or exclusion of SARS	Expedite Laboratory confirmation or exclusion of SARS	CXR for any pneumonic changes	CXR for any pneumonic changes	CXR for any pneumonic changes	As clinically indicated
Infection control precaution (Note 2)	PPE for SARS until an alternative diagnosis is established	Yes	Yes	Yes	Yes	Yes	Droplet and contact Precautions
	* Cohort or single room isolation	Yes	Yes	Yes (unless CXR is clear and symptom subsidizing)	Yes (unless CXR is clear and symptom subsidizing)	Not applicable unless the staff is hospitalized	N/A
	Isolate close contacts	Yes	As indicated (Note 1)	As indicated (Note 1)	As indicated (Note 1)	N/A	N/A
	Isolation of close contacts in the community	Yes	N/A	N/A	N/A	N/A	N/A

Notes

(1) Isolation of close contacts is required for those who are under unprotected exposure to index patient/ unrecognized patient with pneumonia.

(2) Once SARS is ruled out among the cluster of patients, the infection control precautions should be stepped down.

Notification Algorithm at Hospital level

