HEALTH PROTECTION AGENCY

INTERIM CONTINGENCY PLAN

FOR

SEVERE ACUTE RESPIRATORY SYNDROME

(SARS)

December 2003

INDEX

INTRODUCTION

The emergence of Severe Acute Respiratory Syndrome (SARS) has necessitated the development of a contingency plan for a co-ordinated response from the Health Protection Agency (HPA) to any possible outbreak. This document describes the arrangements that the HPA has put in place to prepare for and respond to outbreaks of SARS.

A risk assessment approach is likely to prove particularly useful to guide and focus key actions to control SARS in the UK as the relative risks of transmission of infection may change over time and according to the settings where cases may present. The Hazards Analysis Critical Control Point (HACCP) approach is widely used in industry and increasingly in food hygiene, medical microbiology and public health. HACCP can be used to guide targeting of surveillance and responses to SARS and map out causal pathways/key transmission settings for the infection. This will then enable the identification of the most important (critical points) for public health management and infection control measures.

The effective detection, prevention and control of outbreaks of SARS will depend on many actions which include the following:

- Public information for those at risk
- Education, training and mobilisation of health care professionals
- Alerting of those likely to see cases
- Rapid detection and reporting of cases with immediate action following
- Prompt isolation and investigation of cases
- Provision of high quality laboratory testing to confirm SARS and exclude other causes
- Appropriate provision of hospital isolation facilities
- Effective application of infection control measures especially in acute hospital settings
- Rigorous contact tracing and management of close contacts of probable cases

The principles of control draw from the experience of the SARS outbreaks around the world in 2003 and contingency planning for serious outbreaks of other communicable diseases which have the potential to cause significant mortality, morbidity and disruption to health and social care. The existing influenza pandemic plan and smallpox plan use a stepped approach to escalation of action and provide a useful basis upon which to build a robust and measured contingency response to a potential SARS outbreak in the United Kingdom.

The plan is supported by detailed guidance documents on specific aspects and processes. Some of the detail of these (such as case definitions) will be subject to change in the light of further experience or developmental work and reference the relevant part of the HPA website: http://www.hpa.org.uk. is strongly advised *(A list of the current supporting guidance is given in Appendix 1)*.

The document contains details of the assumptions and principles that underpin the plan and a "Command and Control Structure" that assigns different tasks to different levels of the National Health Service (NHS), the HPA and their partner agencies depending on the degree of SARS activity at any given time. More detailed contingency plans based upon the guidance contained within this document may be required according to the particular circumstances and arrangements at various levels. Some templates for regional and local plans are given *(Appendices 2, 3 & 4)*.

1. BACKGROUND TO THE EMERGENCE OF SARS

SARS is a newly recognised syndrome consisting of a high fever (>38°C), malaise and muscle aches and later a dry cough, shortness of breath or difficulty in breathing. Changes in chest X-rays indicative of pneumonia also occur.

The cause of SARS is the "SARS coronavirus" (SARS CoV), a new member of the coronavirus family of viruses. The natural reservoir of the virus has yet to be determined but it seems most likely that it emerged from an animal species in Southern China where the first human cases were seen in November 2002. There is still debate as to whether or not other viruses or other factors may be involved in the development of SARS illness.

Hospitalised SARS cases experience a relatively high case fatality ratio (average 15%) and, because of the high need for intensive care and the potential infection of health care staff, can quickly overwhelm healthcare facilities. Spread can be very rapid through international travel. After China the initial cases were first identified in Hong Kong but nearly 30 countries, including the UK, were affected during the outbreaks from February to August 2003. Due to the serious nature of SARS, its potential to severely disrupt health care services and its ability to spread rapidly, it is a disease that every country must prepare for.

In order to control the spread of SARS it is important that all elements of the National Health Service (NHS) and HPA are clear about what actions they need to take and when to take them. This document provides a template for this process.

This document was written by a subgroup of the UK SARS Task Force and is intended to guide those within the Health Protection Agency with responsibility for the response to SARS and provide an outline of the expectations and relationships.

2. SCOPE AND INTEGRATION WITH OTHER ELEMENTS OF THE RESPONSE TO SARS

The plan is designed to mesh with the complementary SARS plans of the UK Health Departments, together with the "NHS Operational Doctrine for Handling Major Incidents", and the wider government arrangements for Dealing with Disaster, both of which are generic approaches to a wide range of threats. The overall objective is to ensure that the resources of the HPA can be brought to bear effectively in the provision of advice, specialist capabilities and supporting services to the NHS, DH and others with responsibilities in a SARS outbreak.

The UK approach to SARS provides for an escalating response based on Alert Levels from 0 (no known cases internationally) to 5 (post outbreak and de-escalation of outbreak), with level 4 being the worst case (extensive community transmission). These are described in more detail in Section 4.3. The format of the Alert levels has been chosen to be consistent with the approach taken in other Outbreak Plans e.g. those for Influenza and Smallpox.

Whilst the intent of the plan is to have control measures in place that would limit the rise in Alert Levels, there are a number of factors that may not be amenable to control and the plan has to cover the worst-case scenario. This brings into play the "NHS Operational Doctrine for Handling Major Incidents" and "Dealing with Disaster". The former would require the establishment of a DH Operations Room, whilst the latter would at some stage cause the Civil Contingencies Committee/Cabinet Office Briefing Room

(COBR) to sit covering the national level, and probably Gold Commands at County Main Police Base Stations. A key element of the latter would be the Joint Health Advisory Cell (JHAC) in which HPA would play a prominent role. The various relationships are shown schematically in Figure 1.

Figure 1 shows 3 operational levels, Local, Regional / Cross Strategic Health Authority (SHA) boundary and National. These 3 operational levels are used in conjunction with the Alert Levels to provide a matrix of appropriate responses. Some actions are common to a number of elements and these are addressed in Appendices 2, 3 and 4 giving template guidance which should be included in the local plans for the various HPA levels, customised to interagency arrangements for that element.

3. ORGANISATIONAL RESPONSIBILITIES

An effective and co-ordinated response to any outbreak requires clarity on the responsibilities of those involved, in particular the NHS, DH and HPA. The following is adapted from the "NHS Operational Doctrine for Handling Major Incidents".

The Health Protection Agency (HPA)

The Health Protection Agency will provide specialist health advice together with operational and investigative support to DH, NHS, Regional Public Health Groups and others with formal responsibilities for dealing with SARS. Operational support at local, regional and national level will be provided for the development and implementation of interagency contingency plans for SARS.

National Health Service (NHS)

All hospital and ambulance services trusts are responsible for deploying the right healthcare resources to care for those affected by SARS and requiring hospitalisation. Each must be able to mobilise local resources flexibly and to the maximum extent consistent with maintaining essential care. Each trust must also plan to offer effective support to any neighbouring service that is substantially affected and in return should be able to rely on such mutual support if it is needed. The HPA will support Trusts in their plans.

All Primary Care Trusts (PCTs) must be able to mobilise and direct healthcare resources to local hospitals at short notice to support them and to sustain patients in the community should these hospital services be reduced or compromised for a period. They must also plan to harness and effectively utilise primary care resources where needed to support. They must also have agreed systems in place to enable them to work as 'lead' PCT with others or – as appropriate – in support of the 'lead' PCT. The HPA will support Trusts in their plans.

Each Strategic Health Authority (SHA) must be able to assume strategic control of any incident that affects or seems likely to affect several hospitals. Every SHA must ensure that the NHS within its area has unequivocal command and control structures, that escalation policies are clearly described, that capacity plans are available and that links within the NHS, with neighbouring SHAs, with Regional Directors of Public Health (RDsPH), the HPA and across into others sectors - including social care - are effective and durable. As part of this many SHAs will have 'lead' PCTs to work with.

Department of Health (DH)

The Department of Health will be responsible for national oversight and monitoring of all SARS outbreaks that result in activation of a major incident plan (for definition see below). This does not mean it will necessarily always be involved in all of them – most will be handled at local or SHA level. It will whenever necessary – either when more than one SHA is substantially affected or when an outbreak has a 'national' characteristic - establish a national 'Operations Room' to support SHA management of incidents and to act as focal point for links across Government.

Regional Public Health Groups led by Regional Directors of Public Health will maintain a 24 hour capability to support both the SHAs and the rest of the Department of Health, and where necessary to co-ordinate the work of PCTs in responding to public health emergencies. The RDsPH will provide the Department of Health link to Regional Resilience mechanisms and act as the regional nominated co-ordinator in public health emergencies.

Whilst an isolated case of SARS would not constitute a "major incident", if not dealt with correctly it could escalate into one. Here a major incident is defined as any event whose impact cannot be handled within routine service arrangements. It requires the implementation of special procedures by one or more of the emergency services, the NHS, or a Local Authority to respond to it.

4. BASIS OF CONTINGENCY PLAN

The HPA Contingency plan is based on a combination of generic planning assumptions, control principles and alert levels that differentiate phases of response.

4.1. Generic Planning Assumptions

The current contingency plans are based upon the presently existing epidemiological data, information from the World Health Organisation (WHO) and the experience of countries affected by SARS.

A number of assumptions concerning SARS based on the worldwide 2003 outbreak have been made that underpin the current contingency plans:

- The clinical features of SARS include fever, myalgia, headache, dry cough, shortness of breath and diarrhoea
- A lower respiratory phase of the illness starts within 3-7 days of the prodromal illness
- The majority of SARS cases will have abnormal chest radiographs at some stage of their illness
- There is no proven specific treatment for SARS; supportive treatment is the mainstay of clinical management and may include intensive care
- The case fatality rate for hospitalised cases is around 15% overall but is higher in older age groups and those with co-morbidity
- SARS is predominantly spread by contact with infectious respiratory droplets
- Though SARS-CoV is also shed in faeces later in the illness transmission through this route is unusual unless faeces are aerosolised
- Retrospective diagnosis with acute and convalescent serology is the current gold standard but this means early confirmatory diagnosis is usually not available. This standard is likely to change as the science matures.

- PCR can also confirm diagnosis but cannot exclude infection and is currently only available in the national reference laboratory.
- Although progress is being made on diagnostic techniques the diagnosis of SARS often has to be based on clinical features and risk information
- Because of the seriousness of SARS public health actions sometimes have to be taken before the diagnosis is confirmed.
- SARS can be especially hard to diagnose when patients have other serious diagnoses, such as post-operative cases.
- Since the clinical features are non-specific other causes (such as influenza) must be excluded
- The range of the incubation period is 2 to 10 days with a mean of 5 days
- Transmission of SARS is uncommon when cases are isolated within 5 days of the onset of illness
- Cases that have more severe illness are considered to be more infectious and risk of transmission of SARS is greatest at around the 10th day of illness
- Transmission of infection may occur when symptoms are mild during the prodromal illness
- Cases are no longer infectious 10 days after fever resolution
- Asymptomatic people are not infectious
- SARS is not as infectious as most viral respiratory illnesses. The basic reproduction number (the number of secondary cases that on average will result from one infected case in the absence of control measures) is around 3
- The majority of SARS cases seem to result in no further transmission however 'Super-spreading events' do occur (where one case causes many others). These events are difficult to predict but are most likely in very ill people in hospitals under going 'high-risk' procedures, which include incubation, nebulisation therapy and taking specimens from lower respiratory tract.
- Children especially those under age 10 have almost no risk of acquiring SARS and they do not spread the disease
- Health care workers are at particular risk of infection
- Close contacts (e.g. household or face-to-face contacts of cases) are also at particular risk. However, droplet precautions and strict personal hygiene is effective in controlling spread
- SARS has spread on aircraft and so people acutely ill with respiratory illness must not travel by air from transmission areas
- Close contact may be considered to be having cared for, lived with, or had face-to-face (within one metre) contact with, or direct contact with respiratory secretions and/or body fluids of a person with SARS
- Close contact with a probable case is considered to present a higher risk of transmission of infection compared to a history of travel to an affected area
- People who are thought to have been exposed to SARS and are on 10 days active surveillance (i.e. are not on home 'self' quarantine or isolation) do not need to remain at home and may go to work and undertake normal communal activities during the period of active surveillance
- Current recommended infection control protocols including the use of facemasks (FFP3), gowns, gloves and strict hand-hygiene are probably effective

4.2 Control Principles

The following control principles have guided the writing of this document:

1. It is not possible to prevent all individuals infected with the SARS virus from entering the UK
2. The rapid detection of cases and the early application of effective infection control measures are critical in preventing the spread of SARS
3. Containment of transmission requires the rigorous and rapid identification and monitoring of close contacts of cases of SARS
4. Rapid detection and isolation of cases of SARS requires a high level of awareness among the public (particularly those who have recently travelled to SARS affected areas) and health care professionals
5. Hospitals can be highly vulnerable to SARS and are therefore pivotal to SARS control
6. The response to local transmission of SARS within the UK will require collaboration between all levels of the health protection infrastructure and partner organisations

Phases of the Response and Alert Levels

Level 0: No cases internationally

Level 1: No cases in the UK, but SARS cases occurring elsewhere in the world

Level 1a) Sporadic cases abroad
Level 1b) Chains of transmission abroad
Level 1c) Importation of cases into other countries
Level 1d) Chains of transmission from imported cases

Level 2: Sporadic imported cases from affected areas outside the UK

Level 3: One or more outbreaks of SARS in the UK within hospital(s) and/or limited community transmission within definable groups

3a) Only one generation arising from direct contact with known imported case(s)
3b) More than one generation arising from known imported cases(s)

Level 4: Outbreaks of SARS in the UK with extensive community transmission (cases occurring with no known link to known SARS cases)

Level 5: Post outbreak and de-escalation of SARS response

Section 6 of the plan provides a matrix of integrated responses at the local, regional and national levels for each Alert level, whilst section 5 covers internal HPA arrangements. The sub-divisions of levels 1 and 3 are not differentiated within the matrix of responses, but are useful benchmarks to assess the potential for escalation to the next full level.

5. A COMMAND AND CONTROL STRUCTURE FOR THE SARS CONTINGENCY RESPONSE

The principle of effectively managing any major incident is based on concept of Integrated Emergency Management (IEM), which bring together multi-agency groups at various levels of organisations with the common aim of managing the consequences of the incident *(Appendix 1)*. Major Incident Plans and Outbreak Control Plans already exist at a local level. The command and control structure put in place for SARS will complement, and build on these local structures and plans. Figure 1 provides a representation of the chains of command and the cross linkages. The NHS/DH and HPA chains of command and linkages will be important at all levels of alert. The basic arrangements and functionality are covered in section 5.1. At the upper levels of Alert the potential widespread effects on society will result in the need to implement broader measures as outlined in "Dealing with Disaster" and represented by the right hand side of figure 1. Whilst this should not change the basic functions of HPA in responding to the SARS outbreak, it will require some additional features. This is addressed in section 5.2.

5.1 HPA Basic Arrangements and Functionality

In the current context of the above there are three tiers that need to be considered for action by the HPA:

National

Co-ordination will be by the HPA Communicable Disease Surveillance Centre (CDSC) working with other relevant HPA divisions and using the Colindale Operations Room. Regular situation reports will be produced for the Chief Executive Officer (CEO) and others. Emergency Response Division (ERD) will co-ordinate forward planning issues in conjunction with other HPA divisions. The CEO will retain overall responsibility for the management of the situation.

Regional

Here "region" means a region within the context of the structure of the HPA: these are usually co-terminus with those of the Regional Government Office. The Local and Regional Services (LARS) Division would have the operational lead, taking scientific guidance and other logistical support from other Divisions as necessary.

A geographical area covered by a Health Protection Team or Teams, normally expected to be co-terminus with a county or police force area, or in some areas a Strategic Health Authority (SHA). This is similar to the Regional level and LARS would be the lead Division. Clear responsibilities for cross linkages with NHS units would be specified in Local plans

Local

Operational units such as Primary Care Trusts (PCTs), acute Trusts and local authorities are supported by a Health Protection Team. The number of teams at this level will depend on the local structures and geography. In general, there should be a Unit team for each acute Trust. PCTs should liase with colleagues in local authorities to ensure that any team that is established will be able to provide an appropriate level of response without over-duplication. This may mean that two or more PCTs may need to collaborate rather than establishing separate teams. LARS would be the lead Division. Clear responsibilities for cross linkages with NHS units would be specified in Local Plans.

The different Divisions of HPA have a range of capabilities that can be deployed, which are complementary and provide resilience to deal with surge capacity. These are summarised in *Table 1*. The Specialist and Reference Microbiology Division (SRMD) would take the lead on laboratory investigations of samples and the arrangements for SARS testing services (and a strategy for escalation) are detailed in Appendix 5. The headquarters of SRMD is co-located with CDSC at HPA's Colindale site, but also has staff and facilities at HPA's Porton Down site. The Porton Down site is also home to two other Divisions:

I. ERD, which has a co-ordinating function for emergency preparedness and in responding to major emergencies; and
II. the Business Division, that has staff and facilities that could be utilised in the event of an emergency

The other Divisions of HPA and the National Radiological Protection Board (NRPB), which works in partnership with HPA, whilst not being able to contribute front line scientific input to an outbreak of SARS, would be able to provide a surge capacity in respect of support functions.

Communications staff are spread across the HPA sites, under the Director of Communications at HPA headquarters, Adelphi House. London. The Director would be responsible for the Communications Strategy, liaison with DH communications and the provision of resources to support the communications group at Colindale, which would be the primary communications focus, and communications within affected regions.

Table 1 Divisional functions

CDSC	LARS
• Co-ordination of surveillance activities at a national level • Co-operation with LARS on investigation of incidents and possible cases • Management of shared database • Descriptive and investigative epidemiology • Preparation, provision and updating of public health and other advice. • Technical liaison, communication and collaboration with EC, WHO~CSR, DAs and other countries • Mathematical modelling • Production of professional guidance • Production of national situation reports and briefings • Briefing Chairman, CEO, Executive Group • Briefing DH (and NHS central through DH) and LARS • Preparation of public information (with technical staff and Colindale Comms Unit) • Preparation of material for the web • Convening the Colindale SARS Team • Convening UK SARS Task Force • Preparation for higher levels	• Case finding • Investigation of incidents and possible cases • Contact tracing • Infection control • Co-ordination of specimen collection • Co-ordination of laboratory investigations • Co-ordination of Local and regional surveillance • Development and management of data to regional database and provision of data to national database • Professional liaison • Regional and local logistics and resources • Briefing and situation reports to regional and local authorities. • Briefing Government Offices, LAs and NHS • Preparation for higher levels • Local Press and media • Support for part of entry advice • Health Emergency Planning Support • Assessment of isolation and negative pressure facilities • Provision of local advice to public • Health protection operational support • Port of entry support and advice
Corporate Communications (CC)	
• Liaison with DH and other government communications sources • Development and co-ordination of HPA Media and Communications Strategy • Resourcing communications staff, particularly for the Colindale site and the affected LARS regions. • Final preparation and posting of web material	

Table continued on next page

EC: European Commission
WHO~CSR: World Health Organisation: Department of Communicable Disease Surveillance and Response
LA: Local Authorities
DA: Devolved Administration

SRMD	ERD
• Coordination of laboratory investigations at a national level • Provision of laboratory investigations • Technical liaison and collaboration with EC, WHO~CSR, DAs and other countries on laboratory issue • Producing professional guidance, national SOP's, investigation algorhythms, antimicrobials, specimens and transport updates • Contribution to developing research and development agenda • Evaluate kits, equipment e.t.c. • Co-ordination and provision of molecular epidemiological data (strain typing and comparisons to inform studies on chains of transmission) • Training to support dissemination of testing facilities • Clinical liaison • Preparation of public information	• Develop and implement programme to exercise SARS Contingency Plan • Support CEO and any 'Core Strategic Arrangements" initiated by CEO • Co-ordination of assessment of isolation and negative pressure facilities • Liaison with HPA Divisions and DH/NHS to identify potential problem areas (including stocks of PPE) • Risk assessments • Preparation for higher levels (strategic) • Maintenance of lessons learned list for future revision of Contingency Plan • National logistics and resources

As a result of the potential for a SARS outbreak in the spring of 2003, a number of mechanisms for collaboration and development of responses to SARS were established. Whilst not a formal HPA resource, they provide a valuable input to preparing for and responding to an outbreak. Two are of particular relevance:

a. The Expert Advisory Group on SARS advises DH, HPA, NHS and others. It is chaired by the HPA CEO
b. The UK Task Force was established to co-ordinate activities across the UK (England, Wales. Northern Ireland and Scotland) and Eire. CDSC provides the Chair and secretariat. It has sub-groups focusing on individual aspects of SARS.

Figure 2 provides a schematic representation of the interaction between the above and the divisions of HPA in responding to a SARS outbreak.

5.2 Arrangements for an Escalating Situation

As the Alert level rises additional health control responses come into play and these are covered in detail in Section 6. However a SARS outbreak would have wider impacts on society and there would be challenges to the continuation of some services and functions e.g. within the NHS, the distribution industry, mass travel services etc. due to self quarantining or absenteeism. Under such situations the general arrangements in "Dealing with Disaster" would come into play. Here there are two key elements that would require additional arrangements within HPA.

a) At a county or regional level the local impact may be sufficient to warrant the establishment of a "Gold command" either under the auspices of the Police or the Regional Government Office. A key element of this will be a Joint Health Advisory

Cell (JHAC). This will normally be chaired by a local Director of Public Health (DPH) and will require staff from LARS. From an HPA perspective it is essential that local plans clearly identify the membership of the JHAC, their roles and the arrangements for sustaining a shift system over a protracted period. It is important that there is on going dialogue between LARS and specialist divisions to ensure appropriate development of resources and lines to take.

b) At a national level the Civil Contingencies Secretariat/ COBR may take overall charge to provide strategic decision making on national priorities. This is indicative of a major racheting up of the response and will in turn require a significant increase in interaction from DH and HPA, both in terms of information flow to Government and downward tasking. To address such situations HPA has a Strategic Emergency Response Plan.

The Strategic Emergency Response Plan is designed to provide HPA with a common framework for dealing with all types of major emergencies. A key element of it is the setting up of a Strategic Emergency Co-ordination Centre (SECC), which would normally be located at HPA HQ, Adelphi House, London. Its primary functions are:

- To take a strategic overview of the response to the emergency
- Provide a forward look to issues that are going to arise
- Provide and advise and policy lead
- To liase with DH (policy and EPCU) and OGDs/Agencies as necessary
- To co-ordinate regular Situation Report briefings to the CEO and others
- To ensure that those responding receive appropriate logistical and resource support
- To be the route through which tasking from CCS/COBR and DH is implemented

In effect it provides a buffer between the demands from government and those at the sharp end, e.g. LARS, SRMD and CDSC, allowing them to concentrate on their own key functions. The CEO, based on situation reports and other factors, will make the decision on when to initiate the Strategic Emergency Co-ordination Centre. It is unlikely to be brought into play at Alert Levels 1 or 2, though the plan does have Core Arrangements, which the CEO could initiate to monitor a developing situation. The establishment of the Strategic Emergency Co-ordination Centre would be a necessary HPA response to the establishment of CCS/COBR, which would certainly have happen by the time reached Alert Level 4 was reached. The profile of public opinion and concern would be a significant factor in the exact timing.

The Strategic Emergency Co-ordination Centre will consist of a number of Teams as shown in Figure 3 (ERD would provide the lead co-ordination function in conjunction with other HPA divisions. The Divisions most directly involved in responding to a SARS outbreak will be LARS, CDSC and SRMD. Each will have a Senior Adviser (and team) at the centre to ensure important issues are fed upwards and to be the conduit for downward tasking. An important element of these arrangements will be the strategic decision making on the allocation of resources, both in drafting in support from other Divisions and the stopping or postponement of other work.

6. ROLES OF EACH TIER OF THE COMMAND AND CONTROL STRUCTURE

The roles of each tier of response need to take into account the prevalence of SARS in the locality within which control measures are being put in place and the need for a phased and proportionate response to surveillance and control measures. In the following table control points and key actions are identified for each level of SARS activity.

SARS ACTIVITY LEVEL: 0 (No cases known internationally)	Lead Responsibility
Control Points • Ensure that significant infection events abroad are recognised and that the threat posed to the UK is monitored • Ensure that sufficient detail of the hazard is obtained so that assessments may be made of the need for diagnostic/screening tests and therapeutic agents in the UK	
KEY ACTIONS TO ADDRESS CONTROL POINTS **Tier 1: National**	
• Establish horizon scanning	CDSC
• Establish good international liaison, especially with the World Health Organisation	CDSC/SRMD
• Check availability of appropriate diagnostic and/or screening tests	SRMD
• If appropriate, consider the need for developing or obtaining such stocks	SRMD
• Keep under review case definitions that will be used in the country should the need arise	CDSC
• Keep under review the broad policy to be followed in the Country	CDSC
• Develop and implement programme to exercise SARS plan	ERD
Tier 2:Regional	
• Annually review mechanisms for disseminating information and guidance	LARS
• Annually review arrangements for microbiology laboratories in the Region that will be designated to handle diagnostic and/or screening specimens	LARS/SRMD
• Ensure that relevant Government Office is appropriately briefed	LARS
• Annually review Regional Outbreak plan with the RDsPH and through them the SHAs and Government Office	LARS
Tier 3: Local	
• Annually review Local Health Protection Team incident/outbreak plans with local PCTs and NHS Trusts	LARS

SARS ACTIVITY LEVEL: 1 (No cases in the UK but cases of SARS are occurring elsewhere in the world)	Lead Responsibility
Control Points • Ensure that significant infection events abroad are recognised and that the threat posed to the UK is monitored • Ensure that sufficient detail of the hazard is obtained so that assessments may be made of the need for diagnostic/screening tests and therapeutic agents in the UK • Ensure that existing reporting arrangements from local to national level will be able to respond to a request for details about possible SARS cases • Increase vigilance at ports of entry in order to try to detect cases entering the UK from abroad • Ensure that data capture tools (questionnaires and websites) are developed to a sufficient degree to avoid a long lead in time if possible cases are seen in the UK • Ensure that guidance to healthcare professionals is prepared in outline in order to avoid a long lead in time if possible cases are seen in the UK • Ensure that information for the general public is prepared in outline in order to avoid a long lead in time if possible cases are seen in the UK	
KEY ACTIONS TO ADDRESS CONTROL POINTS **Tier 1: National**	
• Maintain horizon scanning	CDSC
• Maintain good international liaison, especially with the WHO	CDSC
• Check availability of appropriate diagnostic and/or screening tests	SRMD
• If appropriate, consider the need for developing or obtaining such stocks	SRMD
• Re-examine case definitions that will be used in the country should the need arise	CDSC
• Alert DH, NHS and HPA Divisions of the possible threat	CDSC
• Through the Regional tier, alert health professionals likely to be among the first to see a potential case of SARS e.g. primary care, Accident and Emergency, intensive care units	CDSC/LARS
• Determine the broad policy to be followed in the country	CDSC
• Review status of a national and regional database (preferably web-based) of cases, however defined	CDSC/LARS
• Develop a questionnaire for data collection by field staff	CDSC/LARS
• Prepare drafts of policies for use in the country	CDSC
• Prepare first drafts of information for professionals and the public. Keep the Department of Health, devolved administrations and ministers informed of the situation	CDSC/CC
• Ensure a meeting has been held with airlines	CDSC
• Hold a meeting to review HPA arrangements: in particular check the co-ordination of Divisional plans with the main plan	CDSC/ERD
• Convene a meeting of the UK SARS Task Force	CDSC
• Review and update programme of exercises on SARS	ERD

KEY ACTIONS TO ADDRESS CONTROL POINTS **Tier 2: Regional**	
• Inform County level teams • Review mechanisms for disseminating information and guidance • Confirm microbiology laboratories in the Region that will be designated to handle diagnostic and/or screening specimens • Liase with RDsPH and the relevant Government Office	LARS LARS LARS/SRMD LARS
KEY ACTIONS TO ADDRESS CONTROL POINTS **Tier 3: Local**	
• Identify a system by which potential cases can be clinically assessed • Review existing systems for receiving reports on cases of Infection and identify how these may be modified to deal with Possible cases of SARS • Consider how a register of all potential cases and their Outcome may be established locally • Inform PCTs and acute Trusts of the situation • Advise Port Health Authorities to review their procedures for Dealing with the arrival of potential cases • Consider briefing police • Acute Trust Team • Ensure that Infection Control Teams are fully alerted • Review existing infection control arrangements • Review arrangements for liaison between Accident and Emergency/ICU and the Infection Control Team if a possible case of SARS is identified • Promote liaison between PCT and Local Authority Team • Ensure that a short summary of what is happening and how They should respond is sent to all general practitioners	**All LARS**

SARS ACTIVITY LEVEL: 2 (Sporadic imported cases from affected areas outside the UK)	Lead Responsibility
Control Points • Public education programme to raise awareness of SARS and deter non-essential travel to those areas where local transmission is occurring and inform public of the action they should take should they develop symptoms of SARS before, during or after returning home from visiting an affected area (CRITICAL CONTROL POINT 1) • Ensure appropriate public information is available at ports for people travelling to affected areas • People returning to the UK from affected areas where local transmission is occurring, and who become unwell en-route with symptoms consistent with a clinical diagnosis of SARS, should be identified; they and their close contacts should be managed in accordance with local protocols (CRITICAL CONTROL POINT 6) • Information campaigns for the public and health care workers should be in place to ensure that people returning home from affected areas where local transmission is occurring and who become unwell with symptoms consistent with a clinical diagnosis of SARS (meeting surveillance case definition) are identified by local, regional, national and international communicable disease surveillance systems (CRITICAL CONTROL POINT 2) • Suspected /probable cases of SARS should be admitted to acute hospitals only if this is justified by the clinical severity of the illness, otherwise cases of SARS should be managed and isolated in the community whenever possible (CRITICAL CONTROL POINT 3) • Adequate standards of infection control must be in place in acute hospitals to prevent the transmission of infection to other patients and health care workers (CRITICAL CONTROL POINT 4) • Close contacts of probable cases of SARS should be quarantined at home using voluntary 'self isolation' (CRITICAL CONTROL POINT 5)	
KEY ACTIONS TO ADDRESS CRITICAL CONTROL POINTS **Tier 1: National**	
• Inform WHO and EC of probable cases and other significant data	CDSC
• Commence regular liaison with regional tiers	CDSC/LARS
• Activate CDSC Major Incident Plan and establish Colindale Resources Committee	CDSC/SRMD
• Consider need for implementing "Core Strategic Arrangements"	CEO
• Establish team to prepare for higher levels	ERD
• Implement SARS Communication Strategy	CC
• Activate database of cases	CDSC/LARS
• Make standard questionnaire available for data collection	CDSC/LARS
• Promulgate final policies for use in the country	CEO/CDSC
• Ensure existing policies are regularly reviewed and updated	CDSC
• Be mindful of the need to develop new policies as the situation	CDSC

evolves • Promulgate final information for professionals and the public • Through regional tier, ensure that microbiology laboratories in the country are geared up to respond • Through regional tier, ensure that Port Health Authorities have reviewed systems at ports to respond to suspected cases being identified on arrival • Through regional tier, ensure that all ports have public information material to put on display in public areas • Co-ordinate HPA media response involving regional and county tiers as indicated • Refocus programme of exercises to test SARS contingency plans at all tiers • Need to involve NHS Direct. Two-way communication here will be very important	CDSC/CC SRMD/LARS CDSC/LARS CDSC/LARS CC ERD CDSC/CC
Tier 2: Regional	
• Activate County/Strategic Health Authority level teams • Provide strategic guidance for the Region • Oversee in association with the RDsPH, the Strategic Health Authority and the NHS response within the Region • Identify microbiology laboratories in the Region that will be Designated to handle diagnostic and/or screening specimens • Liaise with the relevant RDsPH and the Government Office • Act as a conduit between the national centre and County /Strategic Health Authority groups operating in the Region • Provide a response to technical and/or policy issues raised by The County/Strategic Health Authority groups operating in the Region • Ensure examples of good practice are shared across the Region and with the national centre • Keep the national centre informed of relevant developments (this could be achieved by regular telephone/video conferences) • Through County/Strategic Health Authority tier, ensure that hospitals have been designated to receive and assess potential SARS cases • Through the Regional Microbiologist, ensure that microbiology laboratories in the Region are conversant with what clinical specimens are needed and where, and how, they should be sent • Ensure that infection control teams are implementing appropriate infection control guidelines through local policies and procedures • Through County/Strategic Health Authority tier, ensure that Port Health Authorities have reviewed their procedures for dealing with the arrival of potential cases • Through County/Strategic Health Authority tier, ensure that ports receive public information material to put on display	**All LARS**

Tier 3: Local	
• Implement regional strategy • Establish a system for potential cases to be clinically assessed • Establish a system for receiving reports on SARS cases • Inform PCTs and acute Trusts of situation • Arrange for details of SARS and the importance of prompt reporting of potential cases to be circulated to all general medical practitioners and Accident and Emergency/ICUs • Ensure the smooth flow of information to PCTs/acute Trusts • Provide advice as required to PCTs/acute Trusts and receive reports of potential SARS cases • Ensure relevant data are made available to the National Team as soon as possible • Maintain a register of all potential cases and their outcome • Ensure that active case finding takes place • Ensure that contacts are identified and managed in accordance with national policy • Ensure that follow-up laboratory specimens are obtained in accordance with national policy • Ensure that Port Health Authorities have reviewed their procedures for dealing with the arrival of potential cases • Ensure that ports receive public information material for display • Review the level of resources being made available to deal with SARS, taking account of maintaining business continuity • Keep the Strategic Health Authority informed of events <u>Acute Trust Team</u> • Ensure information flows smoothly to all staff and departments • Ensure that appropriate infection control advice is available and is being followed by all staff • Ensure that staff have adequate access to occupational health advice as required • Ensure that occupational health has a system in place to report potential cases to Infection Control • Keep the County/Strategic Health Authority Team appraised of any significant developments <u>PCT/Local Authority Team</u> • Ensure adequate and appropriate support is available to people who are being nursed at home or are in quarantine • Ensure a current list of nursing and residential care homes is available • Ensure that GPs have sufficient resources to maintain the level of surveillance of contacts that might occur • Ensure that appropriate infection control advice is available to staff working in primary care • Ensure that relevant staff have adequate information to enable provision of advice to clients on symptoms and infection control within the home including environmental decontamination • Arrange for appropriate personal protective equipment to be available to those working in primary care • Keep the County/Strategic Health Authority Team appraised of any significant developments	**ALL LARS**

SARS ACTIVITY LEVEL: 3 **(One or more outbreaks of SARS in the UK within a hospital and/or limited community transmission within definable groups)**	**Lead Responsibility**
Control Points • High standards of infection control must be in place in acute hospitals to control the transmission of infection to other patients and health care workers (CRITICAL CONTROL POINT 1) • Information and education campaigns for the public and health care workers should continue to ensure that people with a clinical diagnosis of SARS (meeting outbreak case definition) are promptly identified by communicable disease surveillance systems (local, regional, national, and international) and that appropriate and proportionate action is taken to prevent and control cases of SARS (CRITICAL CONTROL POINT 2) • Close contacts of probable cases of SARS should be quarantined at home using voluntary 'self isolation' (CRITICAL CONTROL POINT 3) • Suspected /probable cases of SARS should be admitted to acute hospitals only if this justified by the clinical severity of the illness, otherwise cases of SARS should be managed and isolated in the community whenever possible (CRITICAL CONTROL POINT 4) • Strongly deter travel to other areas where local transmission is occurring (CRITICAL CONTROL POINT 5)	
KEY ACTIONS TO ADDRESS CRITICAL CONTROL POINTS **Tier 1: National**	
• Establish Strategic Emergency Co-ordination Centre • It should be checked that the actions from the lower alert levels have been completed, or in the event of jumping directly from Alert levels 0 or 1 that preceding action lists have been considered • Inform WHO that UK is now an affected area • Review resource needs across HPA • Ensure that a forward looking team is established (separated from the daily pressure of response to the emergency • Review effectiveness of surveillance and investigation of outbreaks • Arrange weekly Task Force meetings • Review Communications Strategy	CEO SECC CDSC SECC SECC CDSC/LARS CDSC SECC/CC

Tier 2: Regional	
• It should be checked that the actions from the lower alert levels have been completed, or in the event of jumping directly from Alert levels 0 or 1 that preceding action lists have been considered • • Ensure existing arrangements are working properly • Brief Regional Director of Public Health to consider RDPH requesting the Director of Resilience at Government Office calls a full meeting of the Regional Resilience Forum	**ALL LARS**
Tier 3: Local	
• Liase with the National Care Standards Commission to Ensure that infection control in care homes is satisfactory • Keep the Strategic Health Authority informed of the current status of the outbreak locally <u>Acute Trust Team</u> • Reassess control measures within the hospital • Reassess staff resources • Keep the County/Strategic Health Authority Team appraised of any significant developments <u>PCT/Local Authority Team</u> • Ensure that GPs have sufficient resources to maintain the level of surveillance of contacts that might occur • Review staffing levels in primary care and take steps to ensure that adequate resources are available • Keep the County/Strategic Health Authority Team appraised of any significant developments	**ALL LARS**

SARS ACTIVITY LEVEL: 4 (Outbreaks of SARS in the UK with extensive community transmission)	Lead Responsibility
Control Points • Information campaigns should continue to ensure that people with a clinical diagnosis of SARS (meeting outbreak case definition) are promptly identified by local, regional, national, and international communicable disease surveillance systems (CRITICAL CONTROL POINT 1) • Close contacts of probable cases of SARS should be isolated at home using voluntary 'self isolation' (CRITICAL CONTROL POINT 2) • Suspected /probable cases of SARS should be admitted to acute hospitals only if this justified by the clinical severity of the illness, otherwise cases of SARS should be managed and isolated in the community whenever possible (CRITICAL CONTROL POINT 3) • High standards of infection control must be in place in acute hospitals to prevent the transmission of infection to other patients and health care workers (CRITICAL CONTROL POINT 4) • Strongly deter travel to other areas where local transmission is occurring (CRITICAL CONTROL POINT 5)	
KEY ACTIONS TO ADDRESS CRITICAL CONTROL POINTS **Tier 1: National**	
• Through regional tier, prepare hospitals to start reducing elective admissions and to ensure that plans are in place to receive potentially large numbers of SARS cases	SECC/LARS
• Through regional tier, advise that "Gold Control" be established in areas where transmission has taken place	SECC/LARS
• In collaboration with regional tier, decide if any identified hospitals in the country should be dedicated to dealing with SARS cases only	SECC/LARS
• With other Government departments, consider whether any restriction should be placed on communal places of entertainment	SECC/DH
• With other Government departments, consider whether any restriction on international travel needs to be considered	SECC/DH/OGD
Tier 2: Regional	
• Through RDsPH and the County/Strategic Health Authority tier, prepare hospitals to start reducing elective admissions and to review the emergency plans • Through RDsPH and the County/Strategic Health Authority tier, advise that "Gold Control" be established if transmission is occurring in their area and recommend the establishment of a Joint Health Advisory Cell (JHAC)	**ALL LARS**

Tier 3: Local co-ordinated by Regional Services of Local and Regional Services Division supported by other HPA Divisions)	
• If "Gold Control" has been activated, provide a senior member of staff to be part of the JHAC • Advise hospitals to review their emergency plans and be prepared to reduce the number of elective admissions • In collaboration with the Strategic Health Authorities, identify hospitals which will receive only SARS cases • Be available to assist with any contingency <u>Acute Trust Team</u> • Prepare to initiate plans to reduce elective admissions • Prepare plans for cohorting patients • Review availability of intensive care provision • Be prepared to become a SARS-only receiving hospital • Keep the County/Strategic Health Authority Team appraised of any significant developments <u>PCT/Local Authority Team</u> • Ensure that care homes are prepared for cases occurring within their setting • Prepare to initiate plans to reduce elective admissions • Prepare plans for cohorting patients • Review availability of intensive care provision • Be prepared to provide accommodation and care for people being discharged early from SARS-only hospitals • Review mortuary provision • Keep the County/Strategic Health Authority Team appraised of any significant developments	**ALL LARS**

SARS ACTIVITY LEVEL: 5 (Post outbreak and de-escalation of outbreak response)	Lead Responsibility
Critical Control Points • People with a clinical diagnosis of SARS (meeting surveillance case definition) should be promptly identified by local, regional, national, and international communicable disease surveillance systems (CRITICAL CONTROL POINT 1) • Ongoing syndromic surveillance for community acquired and travel associated pneumonia should be maintained (CRITICAL CONTROL POINT 2) • Standards of infection control based upon post outbreak risk assessment should be in place in acute hospitals to reduce the risk of nosocomial transmission (CRITICAL CONTROL POINT 3) **It is important that controls are not relaxed until there is clear indication of the removal of the threat.** • Strongly deter travel to other areas where local transmission Is occurring (CRITICAL CONTROL POINT 4)	
KEY ACTIONS TO ADDRESS CRITICAL CONTROL POINTS **Tier 1: National**	
• Conduct national multi-agency debrief to ensure that key Lessons from the outbreak are captured and remembered and learned	CDSC/ERD
• Update national level SARS contingency plans	ERD
• Establish additional syndromic surveillance as required	CDSC
• Arrange for additional national allocation of human, material and financial resources as required	CEO
• Exercise and test updated national SARS contingency plans	ERD
Tier 2: Regional	
• Conduct regional multi-agency debrief to ensure that key Lessons from the outbreak are captured and remembered and learned • Update regional level SARS contingency plans • Implement additional syndromic surveillance as required • Arrange for additional regional allocation of human, material and financial resources as required • Exercise and test updated regional level SARS contingency plans • Participate in an economic impact assessment and the long term effects of social economic recovery • Maintain or rebuild confidence of the public in the local Healthcare system	**ALL LARS**

Tier 3: Local	
• Conduct County/Strategic Health Authority level multi-agency debrief to ensure that key lessons from the outbreak are captured and remembered and learned • Update County/Strategic Health Authority level SARS contingency plans • Implement additional syndromic surveillance as required • Arrange for additional County/Strategic Health Authority level allocation of human, material and financial resources as required • Exercise and test updated County/Strategic Health Authority level SARS contingency plans • Conduct Unit level debrief to ensure that key lessons from the outbreak are captured and remembered and learned • Update Unit SARS contingency plans • Provide clinical input into syndromic surveillance as required • Arrange for additional Unit level allocation of human, material and financial resources as required • Exercise and test updated Unit SARS contingency plans	**ALL LARS**

Figure 1

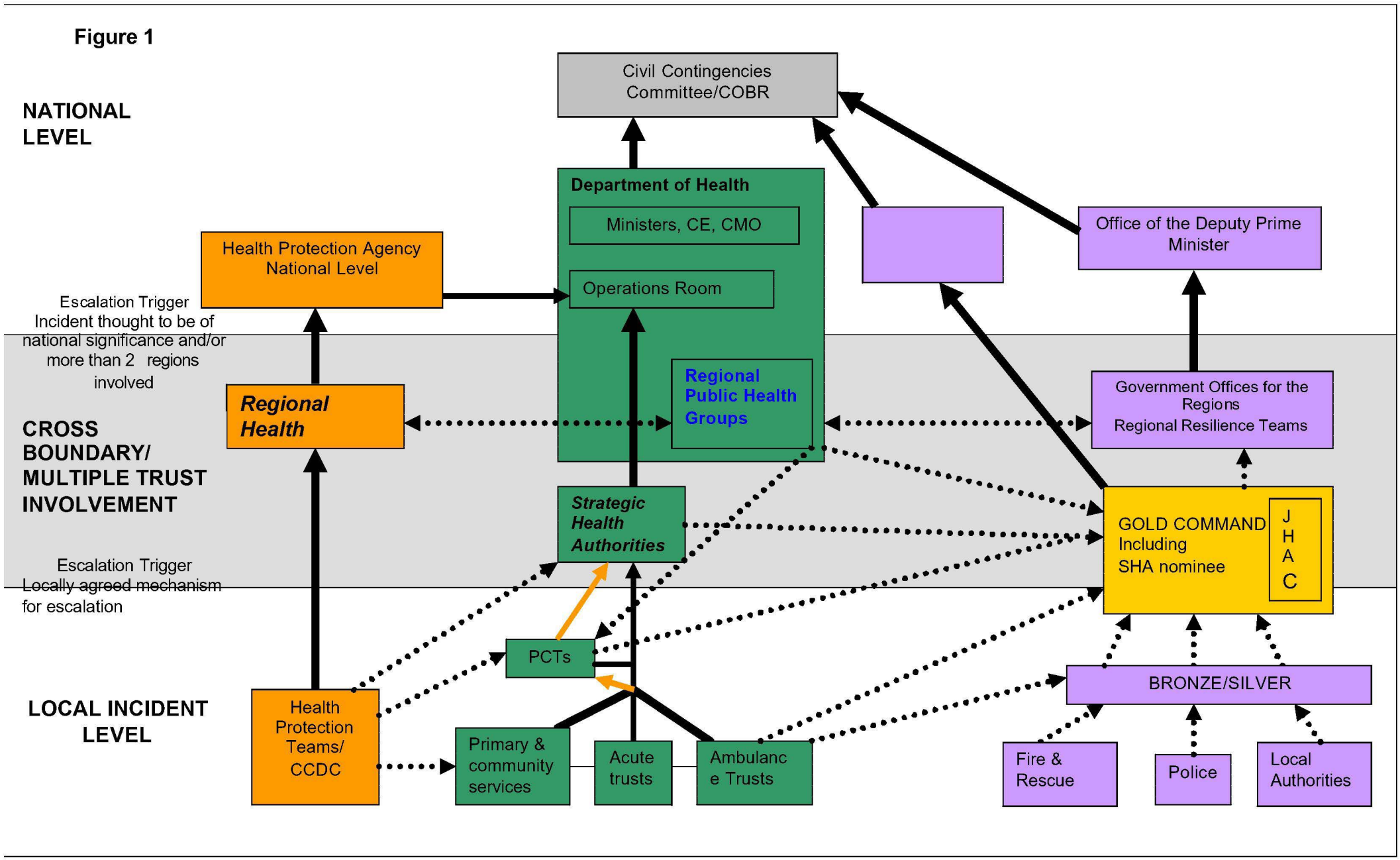

NATIONAL LEVEL
Civil Contingencies Committee/COBR
Department of Health
Ministers, CE, CMO
Operations Room
Regional Public Health Groups
Office of the Deputy Prime Minister
Health Protection Agency National Level
Escalation Trigger
Incident thought to be of national significance and/or more than 2 regions involved
Regional Health
Government Offices for the Regions
Regional Resilience Teams
CROSS BOUNDARY/ MULTIPLE TRUST INVOLVEMENT
Strategic Health Authorities
GOLD COMMAND
Including
SHA nominee
J H A C
Escalation Trigger
Locally agreed mechanism for escalation
PCTs
BRONZE/SILVER
LOCAL INCIDENT LEVEL
Health Protection Teams/ CCDC
Primary & community services
Acute trusts
Ambulance Trusts
Fire & Rescue
Police
Local Authorities

Figure 2 HPA RESPONSE TO SARS LEVELS 1 AND 2

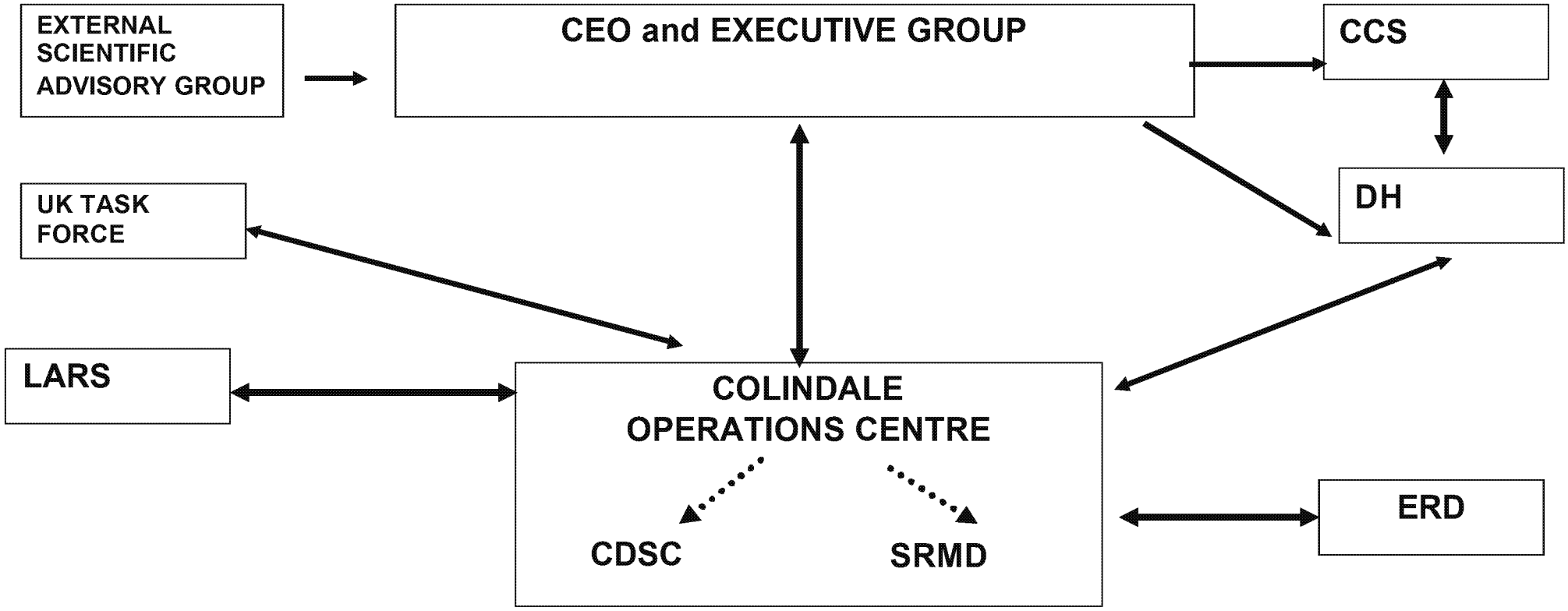
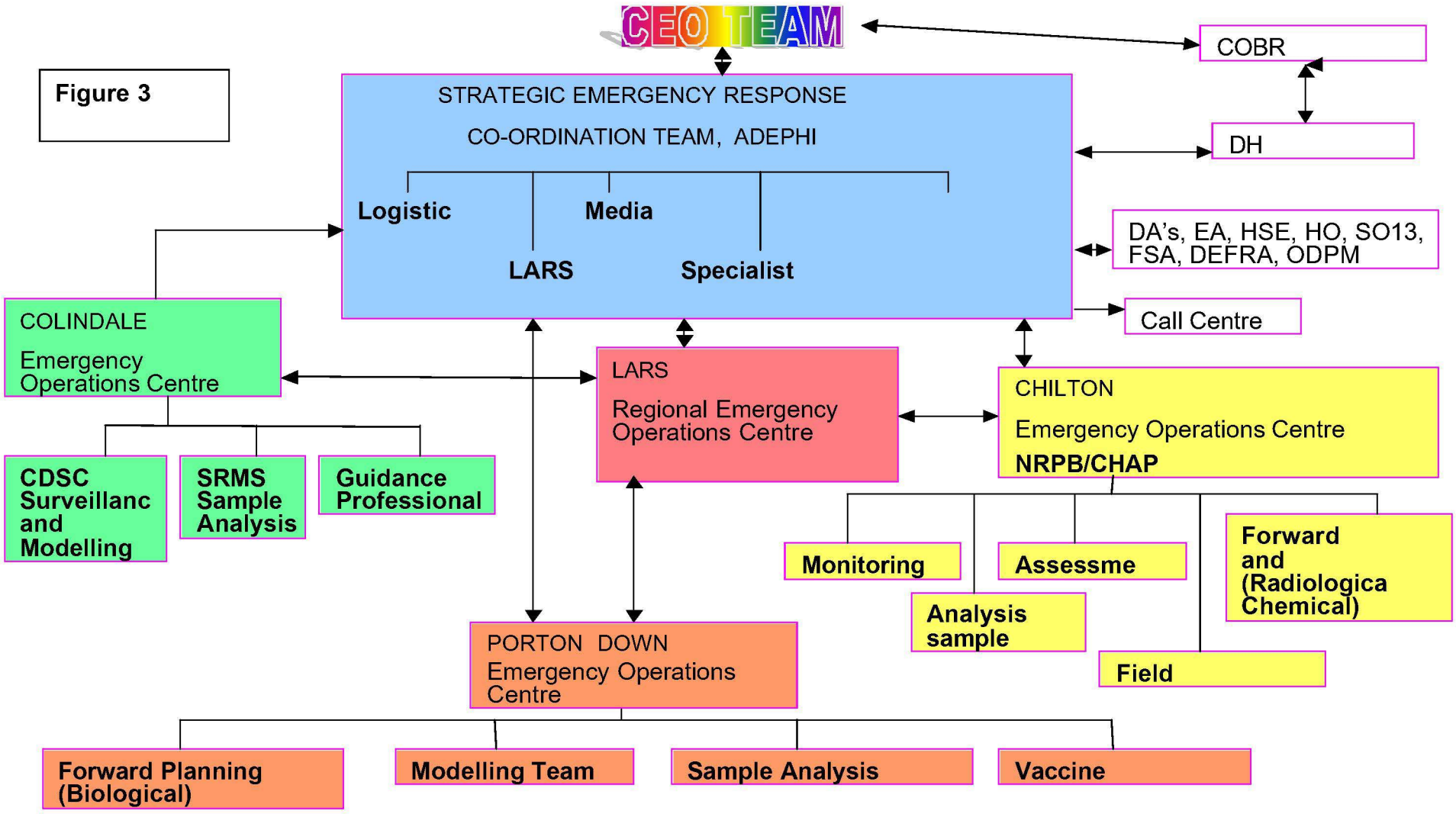


Figure 3



This shows the general arrangements for a broad range of emergencies. The individual teams for each Emergency Operations Centre are for illustrative purposes. Those on the day of an emergency would be appropriate to the circumstances. In the event of a SARS outbreak, the Chilton Emergency Operations Centre is unlikely to be used, but staff from NRPB and CHAP may be used in support functions.

APPENDICES

Appendix 1	**References and websites**
Appendix 2	**Regional template**
Appendix 3	**Trust template**
Appendix 4	**Health Protection Unit template**
Appendix 5	**SARS Testing Services, Winter 2003/2004**

List of Contributors

This document has been produced with contributions from many colleagues within Local and Regional Services, CDSC and the Emergency Response Division of the Health Protection Agency, all listed below.

Name Redacted
Roger Gross
Name Redacted
Peter Horby
Name Redacted
Brian McCloskey
Name Redacted
Martyn Regan
Joyshri Sarangi
Name Redacted
John Watson

Colleagues at Wythenshawe Hospital, Manchester

The sub-group would also wish to acknowledge the helpful and constructive comments received from members of the Health Protection Agency Expert Advisory Group on SARS.

APPENDIX 1

SARS CLINICAL INFORMATION AND GUIDELINES WITH RELEVANT EMERGENCY PLANNING GUIDANCE

Key website addresses for updated information:

- *SARS guidelines: http://www.hpa.org.uk/infections/topics_az/SARS/Guidelines.htm*
- *Case definition: http://www.hpa.org.uk/infections/topics_az/SARS/casedef.htm*
- *Notification form http://www.hpa.org.uk/infections/topics_az/SARS/forms.htm.*

EMERGENCY PLANNING GUIDANCE

General health emergency planning guidance is available on the Department of Health Emergency Planning Co-ordination Unit (EPCU) website at www.doh.go.uk/EPCU two specific documents can be found listed below

PLANNING FOR MAJOR INCIDENTS ~ THE NHS GUIDANCE 1998
http://www.doh.gov.uk/EPCU/nhsguidance.htm

ROLES & RESPONSIBLITES (EMERGENCY PLANNING)
http://www.doh.gov.uk/EPCU/roles.htm

DEALING WITH DISASTER
http://www.ukresilience.info/contingencies/dwd/index/htm

Severe Acute Respiratory Syndrome (SARS)

Regional Contingency Plan Template

Introduction

The purpose of this template is to provide a structured aide memoire to assist Regional Directors to review the preparedness for a regional level response in the event of a re-emergence of SARS

Background to the Development of Local and Regional SARS Planning in the Region

Contingency planning arrangements should ensure that that there are appropriate mechanisms in place for the optimal management of SARS to minimise the effects on the public's health, health and social care services and the local and regional economy.

NHS organisations should already have outbreak control and major incident plans in place and these should be used as the context for any specific actions in response to SARS. The Regional SARS contingency plan addresses issues specific to SARS that may impact on the generic outbreak plans and does not replace existing emergency plans

1.0 Organisational Arrangements for Health Protection Responses to SARS

1.1 The Current Department of Health (DH) and Health Protection Agency (HPA) advice should form the basis for local health protection response arrangements to an outbreak of SARS involving local SARS case(s).

1.2 The diagnosis of a possible case of SARS and/or evidence of a SARS alert should lead to the activation of an outbreak/incident control team.

1.3 Many sources of advice and organisational structures for dealing with an outbreak of SARS within the Region will be the same as those that already exist for managing other major outbreaks of infectious disease and health protection incidents.

1.4 Due to the potential extensive health, social and economic impacts of SARS and the need for co-ordinated management of many disciplines and organisations the Regional Director of Public Health, Regional Resilience Forum and Strategic Health Authorities may be involved within an integrated regional response.

1.5 Possible SARS case(s), as defined according to the current U.K case definitions www.hpa.org.uk/infections/topics_az/SARS/casedef.htm) could present in a Region in the following circumstances with case defining clinical features and relevant travel history:
In the community, including at Port of Entry at an International Airport and or through seaports in a hospitalised patient compatible illness in two or more health care workers in the same health care facility within the same 10 day period (HCW cluster Hospital acquired illness in three or more persons including patients, staff or visitors in the same 10 day period (other hospital cluster)

1.6 Regional arrangements should ensure that the Local and Regional Services Division Central Office and HPA CDSC are informed in the event of a possible case(s) of SARS.

2.0 Initial response to possible SARS cases presenting in the community or in hospital

2.1 Early recognition and appropriate management of initial cases is the key to control of a possible outbreak of SARS.

2.2 All staff dealing with a possible or confirmed SARS outbreak should refer to their organisation's outbreak control and/or major incident plan as well as this SARS Plan.

2.3 The initial response to a suspect SARS case will be from the Local Health Protection Unit and the local PCT as for other outbreaks of infectious disease

2.4 The Plan provides for a rapid escalation to a Regional Response co-ordinated by the lead Regional Epidemiologist supported by the Regional Director and the Regional Director of Public Health.

2.5 The UK SARS case classification for SARS cases must be used by the clinician to exclude the diagnosis of SARS.

2.6 The clinician suspecting a diagnosis of SARS should alert their local CCDC/health Protection Team or if out of hours through local on-call arrangements. The CCDC or their nominated deputy should contact the Regional Epidemiologist who will liase with the SARS Team of CDSC HPA concerning further investigation and management.

2.7 The patient should be managed according to locally adapted integrated algorithms for clinical management, infection control measures and public health management based upon guidance of the UK SARS Task Force and HPA Expert Advisory Group on SARS. (www.hpa.org.uk/infections/topics_az/SARS/guidelines.htm)

3.0 Regional SARS Outbreak Control Arrangements

A Regional SARS Outbreak Team may be convened in the event of any one of, or a combination of, the following:

- High levels of media or public concern following the occurrence of possible case (s) in hospital or the community
- Extensive hospital and or community outbreaks of SARS indicating that the trigger for escalation to contingency levels 2 or above have been reached
- Outbreaks of SARS in hospitals or the community that cross two or more Strategic Health Authority/County areas
- Outbreaks of SARS in hospitals or the community where the required contingency response has exceeded the capacity and/ or capability of local NHS organisations
- In the event of major incident being declared by any organisation following a hospital or community outbreak of SARS.

4.0 A Co-ordinated Outbreak Control Plan for Severe Acute Respiratory Syndrome (SARS) in xxxxxx Region

4.1 The co-ordinated control measures required in an outbreak of SARS are based on the regional major outbreak control plan drawn up on behalf of the following agencies: -

Government Office and Regional Resilience Forum
Strategic Health Authorities
Primary Care Trusts
Acute NHS Trusts
Health Protection Agency
Local Authorities

4.2 The purpose of the plan is: -

a) To describe the roles and responsibilities of relevant agencies involved in a Regional SARS outbreak
b) Outline the response arrangements necessary in the event of a Regional SARS outbreak
c) To provide clear guidance for the co-ordination and control of a Regional SARS outbreak.

4.3 The Regional Epidemiologist will be responsible for deciding when a Regional SARS Incident/Outbreak Team (ROCT) should be convened and the activation of the Regional Outbreak Control Centre (ROCC).

4.4 The Regional Outbreak Team should be chaired by the Regional Epidemiologist on behalf of the RDPH and should develop from the membership of a Regional SARS Contingency Planning Group, and may include representation from the following professional groups and agencies:

- Consultant Virologists and Microbiologists
- Director, Regional Health Protection Agency Laboratory
- Regional Microbiologist
- Consultant Infectious Diseases Physicians
- Hospital Infection Control Doctor
- Nurse Consultant in Communicable Disease / Health Protection
- Community Infection Control Nurse
- Consultants in Communicable Disease Control
- Local Directors / Team Leaders of Health Protection Teams
- Health Emergency Planning Advisor
- Regional Resilience Officer
- Medical Director(s) of Strategic Health Authority (ies)
- Representative(s) of PCT Directors of Public Health
- Representative(s) of Local Authorities
- Regional HPA Press Liaison/Communications Officer
- Ambulance staff
- Police Liaison Officer
- Occupational Health staff

The ROCT will:

- Be accountable to the national SARS Outbreak Control Team through the Director/Deputy Director of the Local and Regional Services Division
- Be established within the Joint Health Advisory Cell (JHAC) arrangements if a major incident has been declared
- Review the evidence for a SARS outbreak, including relevant clinical, epidemiological and microbiological data
- Decide on control measures and ensure that these are co-ordinated and adequately resourced and supported
- Establish Task Groups to lead on key actions e.g. surveillance, contact tracing and case follow up; business continuity and logistics; review of local expert guidance on SARS and Communications
- Review progress of the investigation and control measures and reassess priorities for action
- Define the end of the outbreak and stand down arrangements for resumption of routine health protection services responses
- Lead outbreak debrief to review the performance of the Regional Outbreak Team and identify, capture and remember key lessons to be learnt
- Revise regional contingency plan following the post-outbreak debrief

5.0 Press Officers and Media

Regular statements will be prepared by the Regional / Outbreak Control Team for the Press Officers of the agencies involved. Communications with the media will be made, as far as possible, through the Regional HPA Press Officer.

6.0 Briefing of Director of Local and Regional Services

The Regional Epidemiologist has a responsibility to report any serious outbreak of communicable disease, which would include an outbreak of SARS to the Director of Regional Services and the Regional Director of Public Health.

7.0 Responsibilities of Outbreak Control Team Members

7.1 The Outbreak Control Team members will ensure that all their deputies have a working knowledge of, and have 24-hour access to, the SARS Outbreak Control Plan

7.2 Outbreak Control Team members will be responsible for arranging training for all who may be involved in outbreak control in the use of communication equipment

7.3 The main agencies involved in controlling an outbreak will provide additional professional and secretarial staff if required, including out-of-hours and during public holidays. During an outbreak an informal decision will be made by the ROCC as to which agency can most readily and appropriately provide the additional staff required.

7.4 Each agency will maintain a list of staff that may be contacted in the event of an outbreak. A list of their names and telephone numbers will be kept with the Outbreak Control Plan.

7.5 All principal agencies involved in the control of a SARS outbreak should have direct telephone line access.

7.6 When Regional Outbreak Control Centres are used in co-ordinating control of large outbreaks, these should have:

i) 24-hour unlimited access 7 days a week
ii) Sufficient accommodation for all staff involved
iii) Sufficient telephone / fax lines
iv) A telephone switchboard, manned out-of-hours, or a direct line system / direct telephone
v) IT facilities including Internet access

7.7 A current list of premises, which could be used as Regional Outbreak Control Centres, will be maintained.

Appendix 3

Template for a hospital trust response to a SARS incident

This document is intended to provide a framework for action by NHS Trusts in response to a SARS incident (one or more possible cases). The actions briefly outlined are those considered essential for the management of an incident and assume the proper functioning of other parts of the response network described elsewhere (e.g. Regional response and Health Protection Unit response). The template is generic for use throughout England and Wales and each Trust should establish the detail of their local response based upon it.

The key objectives are to ensure that:

Patients continue to receive treatment and care in a safe environment

Outbreak/Incident team

- notifies the Health Protection team
- receives adequate support in the delivery of an effective infection control service
- monitors the efficacy of measures taken
- documents the incident
- leads the review-and-learn processes post-incident

Managers

- help bed-planning
- manage any necessary staff re-allocations
- order additional equipment and drugs, if necessary
- ensure effective communication (internal, external, SHA, GPs, media)
- ensure that the situation is effectively monitored and that any necessary action is taken without delay

Defining the nature of the incident

For the response to a SARS incident to be proportionate to the likely impact on the Trust, an immediate assessment of the situation is essential together with discussion with the Health Protection Agency (HPA) and appropriate Trust Manager(s).

Depending on the circumstances and the numbers of patients/staff involved, a joint decision will be made by the team of Consultant Microbiologist, HPA and Manager(s), whether to declare (a) a Trust Major Incident or (b) a Major Microbiological Incident.

Trust Major Incident (TMI)

A Tactical (Silver Control) Team is created chaired by an executive Director of Trust. The Trust Control of infection Doctor and/or a member(s) of the Health Protection Agency will be invited to become members of the Trust Tactical (Silver) team and to appoint the Operational (Bronze) command structures.

Trusts should urgently review their major incident plans in the light of a potential SARS outbreak to ensure they are able to respond in the event of:

- Significant additional numbers of seriously ill and infectious patients requiring hospital care
- Potential staffing difficulties if significant numbers of staff become infected or are unwilling to place themselves at risk of infection

If the scale of the outbreak threatens to overwhelm the resources and ability of one or more NHS organisations to cope, then escalation to a regionally co-ordinated response will be required.

Major Microbiological Incident (MMI)
An Operational (Bronze Control) Team is created under the lead of the Consultant Microbiologist. Its main functions are to ensure that:

- Appropriate infection control procedures are in place and are being followed
- A high level of clinical suspicion about possible SARS cases is maintained throughout the Trust
- Cases are isolated without delay
- Contacts are identified and arrangements are made to their follow up
- Regular updates in the situation are made to the Trust Managers

Depending on the circumstances it is possible for a Major Microbiological Incident to be upgraded to a Major Trust Incident and for the latter to be downgraded. Such a decision would be the responsibility of the Trust managers in consultation with the Consultant Microbiologist and the Health Protection Agency.

Key people who need to be informed of possible SARS diagnosis:

- Infection Control Consultant
- Consultant responsible for patient
- Health Protection Team
- Consultant microbiologist/laboratory staff
- Infection control team
- Occupational health
- Trust management
- Nursing and A&E management
- Ambulance service
- Communications officer

Key website addresses for updated information:

- SARS guidelines: http://www.hpa.org.uk/infections/topics_az/SARS/Guidelines.htm
- Case definition: http://www.hpa.org.uk/infections/topics_az/SARS/casedef.htm
- Infection control: http://www.hpa.org.uk/infections/topics_az/SARS/hospguide.htm
- Laboratory investigation:http://www.hpa.org.uk/infections/topics_az/SARS/micro.htm

Notification form http://www.hpa.org.uk/infections/topics_az/SARS/forms.htm

Algorithm for management of a patient with possible SARS presenting to hospital

Possible case of SARS

Case definition for possible SARS

Does the patient have a severe respiratory illness warranting admission which includes:

- Fever ≥38°C **AND**
- Lower respiratory tract symptoms cough, shortness of breath, difficulty breathing **AND**
- Recent travel to an area classified by WHO as a potential zone of re-emergence of SARS *(comprises all provinces of China including Hong Kong)*

NOTE: to fulfil possible case definition CXR evidence also required

http://www.hpa.org.uk/infections/topics_az/SARS/casedef.htm

A&E Triage

- Possible cases should be isolated in a single room (with own toilet/washing facilities) without delay.
- Symptomatic suspected cases should wear good disposable theatre type mask when being transported through public and patient areas.
- Triage staff should immediately inform infection control consultant

Urgently contact Infection Control Doctor / Infectious Disease Consultant (*see following sheet for detailed actions of key staff)*

Clinical examination of patient

Infection control measures during examination

- Good hand hygiene - careful hand washing and alcohol hand rubs where available
- Ask the patient to wear a surgical mask during examination
- Gloves, gown and a respirator should be worn by the healthcare worker when in close contact with the patient.
- Patients should be confined to their rooms and only moved outside for essential procedures, in which case a mask should be worn
- Disposable equipment should be used where possible.
- Visits should be minimised

http://www.hpa.org.uk/infections/topics_az/SARS/hospguide.htm

Investigations

- CXR (portable in room)
- Routine blood tests
- Blood/sputum cultures
- Atypical pneumonia serology
- Urine for legionella & pneumococcal antigen

Samples for influenza reference lab

- Respiratory sample (in VTM)
- EDTA blood 20 mls
- Stool sample
- Urine 20mls
- Acute and 21 day serum 20mls (plain tube)

Samples should be clearly marked **SARS HIGH RISK** and hospital labs should arrange transport to the Influenza Laboratory, *Health Protection Agency, Colindale.*

http://www.hpa.org.uk/infections/topics_az/SARS/micro.htm

Transfer of patient

Liase with local Ambulance Service *(see following sheet for detailed actions of key staff)*

De-contamination of environment

Decontamination measures to be taken

Laundry: wash at max temperature recommended for fabric

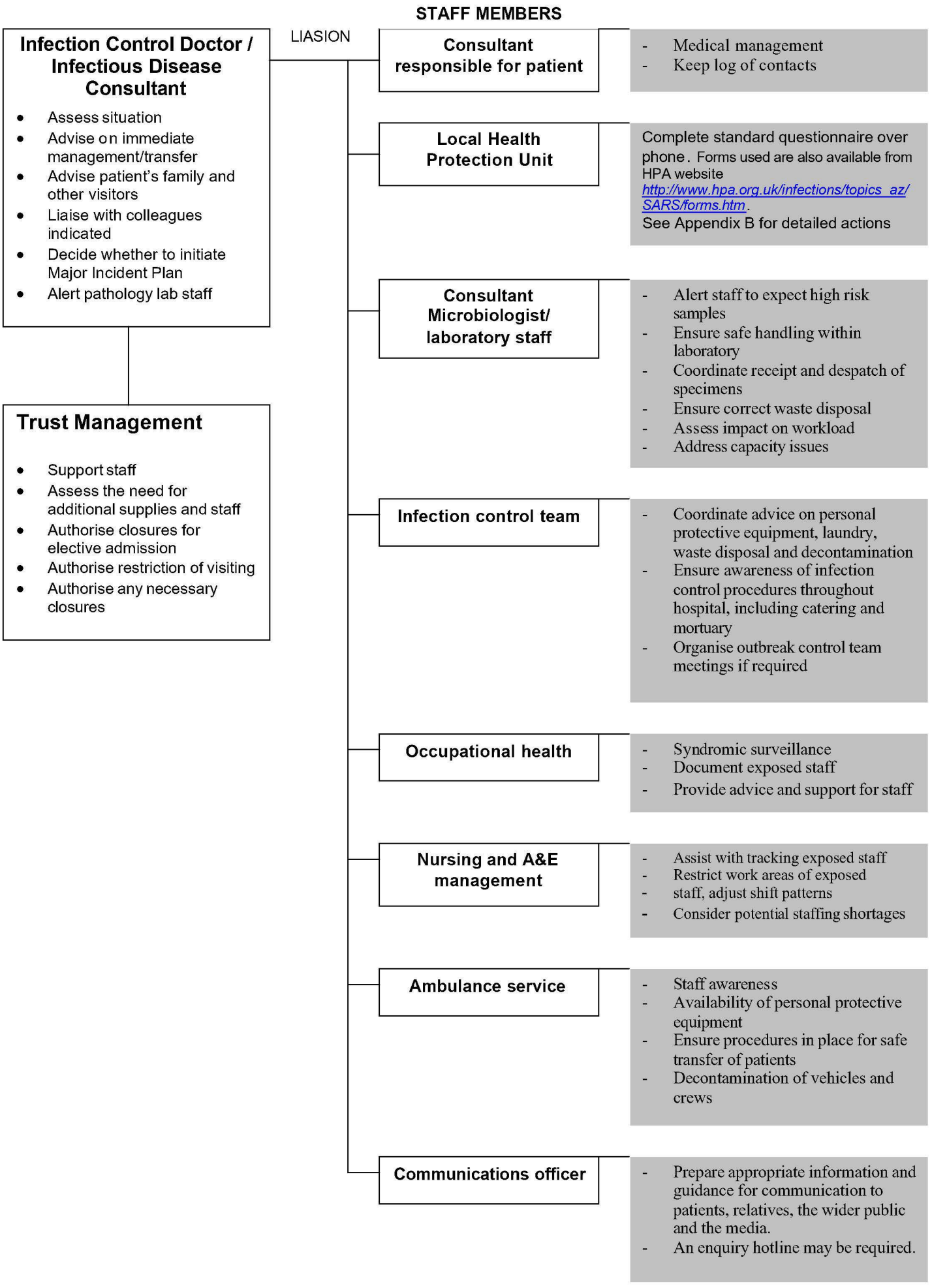
Body fluid spillages: wear mask, gloves and apron, clean using a chlorine releasing agent 10,000ppm (household bleach diluted to 1 in 10)

Hard surfaces: disinfect using a chlorine release agent 1000ppm available chlorine (household bleach diluted to 1-100).

Soft furnishings: use a general-purpose detergent and warm water

Waste: Place in leak-proof yellow clinical waste bags or containers

Algorithm for key staff/actions in response to SARS presenting to hospital



Appendix 4

Template for a Health Protection Unit response to a SARS incident

This document is intended to provide a framework for action by Local Health Protection Units (HPU) in response to a SARS incident (one or more possible cases). The actions briefly outlined are those considered essential for the management of an incident and assume the proper functioning of other parts of the response network described elsewhere (e.g. Regional response and NHS Trust response). The template is generic for use throughout England and Wales and each Health Protection Unit should establish the detail of their local response based upon it.

Key roles of HPU will be:

- to act as a conduit for communication to relevant response partners
- to gather accurate information on travel & exposure history of cases
- to identify contacts of cases
- to maintain active surveillance of contacts
- to ensure relevant investigations on cases ***and*** contacts are carried out
- ensure appropriate isolation facilities are available locally

Key Communications:

- ensure hospital clinicians and NHS services are able to manage a case(s) of SARS using the most up to date information available (NB this includes ensuring the local availability of suitable isolation facilities)
- alert local acute trusts to current situation / information
- alert and provide support & advice to local PCTs and general practitioners and their teams
- alert NHS services generally to any escalation in the number of suspected/confirmed cases

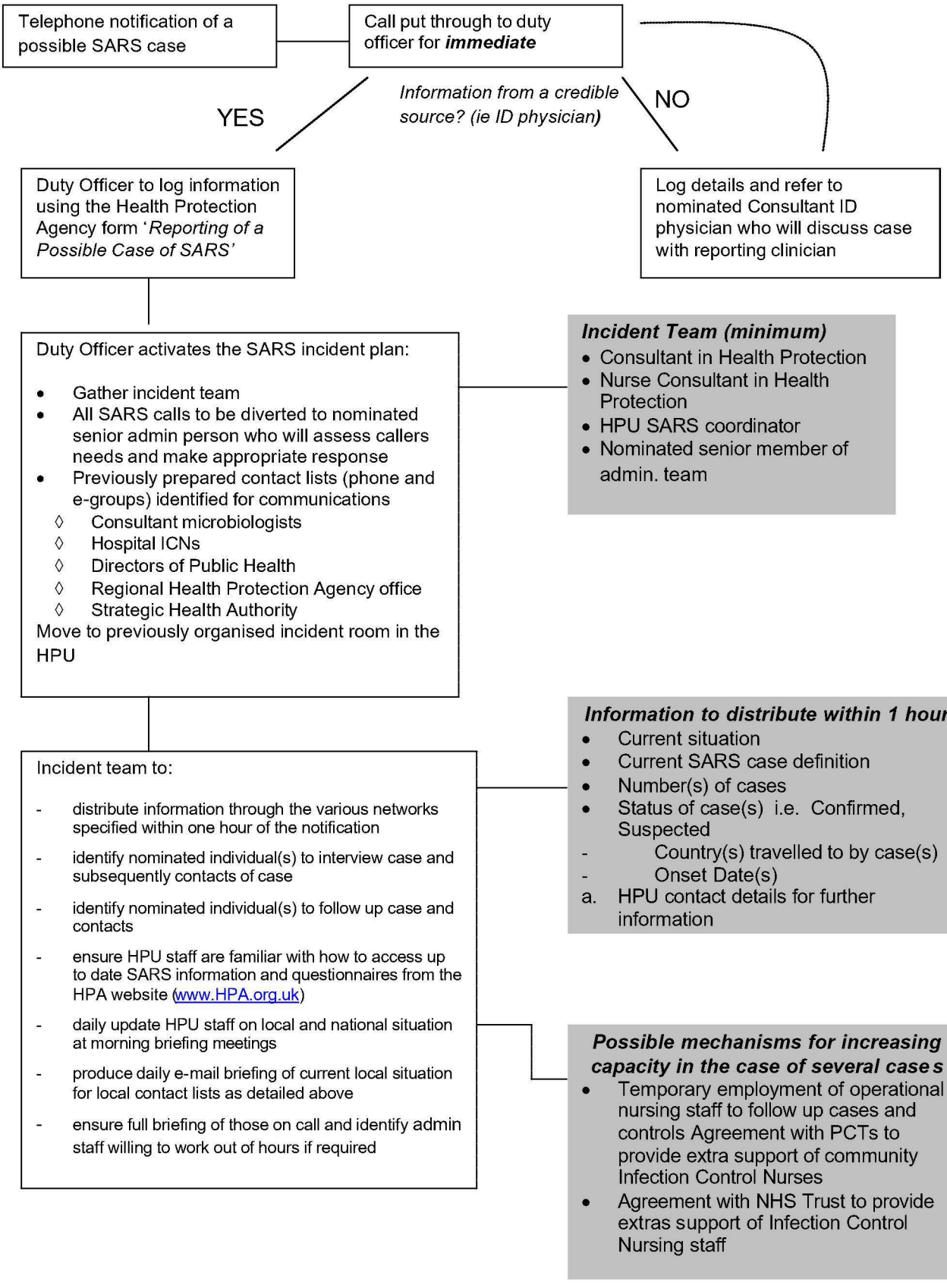
Key Actions:

- co-ordinate enhanced surveillance data
- co-ordinate & provide (with other services when necessary) contact tracing services for the contacts of a suspected or confirmed case(s)
- co-ordinate & provide (with other services when necessary) appropriate follow-up of identified contacts of a suspected or confirmed case of SARS.

Key website addresses for updated information:

- *SARS guidelines: http://www.hpa.org.uk/infections/topics_az/SARS/Guidelines.htm*
- *Case definition: http://www.hpa.org.uk/infections/topics_az/SARS/casedef.htm*
- *Notification form http://www.hpa.org.uk/infections/topics_az/SARS/forms.htm.*

HPU responses to possible case of SARS



Appendix 5

SARS Testing Services, Winter 2003-2004

- Initially all samples requiring SARS dagnostic tests will be referred to the Respiratory Virus Unit, Enteric, Respiratory and Neurological Virus Laboratory, Specialist and Reference Microbiology Division, HPA, Colindale. Details of specimen requirements, shipping instructions and services available are included in this Appendix.

- Currently SRMD Colindale has a capacity to process 50 samples per day for molecular diagnostics including SARS CoV, generic coronaviruses, influenza A and B, RSV and human metapnemovirus. A turnaround time of 24 hours is planned. SARS-CoV serology testing services are also in place. In the event of this capacity being exceeded, SRMD Colindale will refer tests to the back-up centre for SARS molecular testing (HPA Porton Down), which has an additional capacity of 100 samples per day.

- A working group established by LARS is developing plans to establish regional testing for SARS and improved local respiratory diagnostic services. However this will not report before Spring 2004. If further SARS testing capacity is required to support public health responses over this winter, the commercially available Artus PCR test is currently the only realistic option. To follow WHO guidelines, reactive samples should be referred to SRMD Colindale for confirmation. A website reference to the SOP for the Artus PCR is included in this appendix and Regional Microbiologists should review with regional virological colleague's potential local capacity and report.

Sending samples from SARS cases to national reference laboratory, SRM – Health Protection Agency, Colindale.

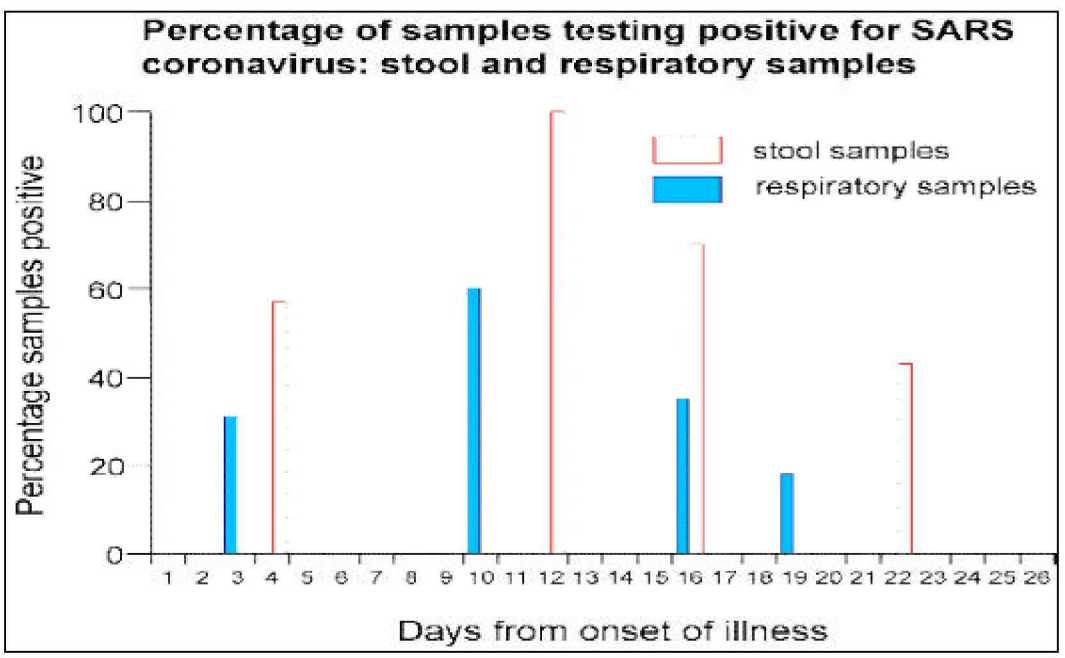
The laboratory address is the Influenza unit, ERNVL, SRM, 61 Colindale Avenue, Colindale, London NW9 5HT. (DX6530006 UN2184)

1.Introduction

The Influenza unit is part of the World Health Organisation (WHO) collaborating laboratory network investigating SARS. WHO has concluded that data developed in a number of the laboratories support the statement that the SARS coronavirus (SARS CoV) is necessary and sufficient to cause the SARS syndrome.

The Influenza unit is leading the UK laboratory investigation and has a number of diagnostic tests for SARS samples.

The WHO International network is in agreement that the gold standard of diagnosis for SARS CoV infection is a serological test. Nucleic acid detection (PCR) tests are "first generation" and not as sensitive as may be required. Additionally, PCR of upper respiratory tract samples may be sub-optimal as the highest virus load is in lower respiratory tract secretions, or lung tissue. Currently, the best data about virus shedding in different body fluids has come from analysis of sequential samples from sick individuals in South East Asia. These data indicate that virus shedding is maximal between 6 and 10 days post illness onset in the respiratory tract. Stool samples have been shown to be positive in 60% by day 6 and 100% at day 13. These data should guide the emphasis on sample collection.



UK samples have mostly been received within 3 to 4 days of illness onset. Based on peak virus shedding data, it is important that samples are repeated in hospitalised SARS cases to increase the likelihood of detection. As data has accumulated it has become evident that the serological response may not be detected in convalescent serum much before 21 days post illness onset.

Once a SARS case is considered clinicians should first contact the Respiratory Division of CDSC (tel: 020 8200 6868) and fax a completed SARS report form, available at <http://hpa.org.uk/infections/topics_az/SARS/repform.pdf>. Once CDSC has been notified then appropriate samples should be sent to the Influenza unit. A guide to the samples required is listed below. If it is uncertain whether samples should be sent to the reference laboratory i.e. a returned traveller not fulfilling all case definition criteria, the case should be discussed with the Influenza unit. Apart from serum samples, the influenza reference laboratory should be contacted for other samples sent.

2. Samples required

Category	Probable	Suspect hospitalised	Suspect at home	Not a case
Samples	**Daily** Respiratory sample (in VTM) EDTA blood 20 mls Stool sample Urine 20mls	Respiratory sample (in VTM) EDTA blood 20 mls Stool sample Urine 20mls		
Serum (plain tube)	Acute serum 20mls	Acute serum 20mls	Acute serum 20mls	Acute serum 20mls
To be collected in ALL cases	Convalescent serum (21 days, 20 mls)	Convalescent serum (21 days, 20 mls)	Convalescent serum (21 days, 20 mls)	Convalescent serum (21 days, 20 mls)

Mild cases in community (including possible or unlikely cases); paired sera only are required

Hospitalised suspect and probable cases – a full complement of specimens are required as listed above. These will be required daily in probable cases.

Respiratory samples: Samples which contain respiratory cells and secretions are requested. Sputum if available is suitable for PCR detection of coronavirus.

Blood: Initial 20 mls of EDTA blood. Acute and convalescent serum (day 21) - 20mls clotted whole blood (plain tube).

Urine: 20-30mls

Stool sample

All samples should be couriered as soon as possible on wet ice. Hays DX entails overnight delay and is not recommended (except when sending sera). Significant results will be discussed with the referring microbiologist or clinician as soon as possible by telephone and a postal report issued. The laboratory will aim to test samples within three days of receipt. If clinical material arrives from individuals where CDSC have not been notified by telephone or fax, analysis may be delayed. Samples must be clearly marked ***SARS, high risk for the attention of Dr Zambon, Influenza unit, ERNVL*** on the outside of the packaging. Full patient and travel details should

be supplied as well as contact details, including a telephone number, for the referring clinician

3. Reference Laboratory Testing

Samples will be tested by RT-PCR for influenza A & B, RSV, hMPV, the coronavirus group and SARS-associated coronavirus. SARS RT-PCR results will be available within 24 hours and other results will be available within three days of receipt of samples. Interim results will be released if only partial results are available; these will be sent to the referring clinician or microbiologist and / or general practitioner. Results will be accompanied with a fact sheet to assist interpretation.

WHO recommendations

The PCR procedure should include appropriate controls in each run, which should yield the expected results. They should include:

- 1 negative control for the extraction procedure and 1 water control for the PCR run
- 1 positive control for extraction and PCR run
- the patient sample spiked with a weak positive control to detect PCR inhibitory substances (inhibition control)

If a positive PCR result has been obtained, it should be confirmed by:

- Repeating the PCR starting from the original sample OR
- Having the same sample tested in a second laboratory OR
- Using a different PCR target on the same sample OR
- Testing a different sample.

Amplifying a second genome region will increase test specificity.

4. How to interpret SARS test results

A positive result from the specific SARS coronavirus PCR means that the patient with SARS has, or recently had, an infection with the SARS-associated coronavirus and this might have been the cause of SARS in this patient.

A negative coronavirus PCR result means that either the patient does not have the virus, or the PCR is not sufficiently sensitive, or because the virus was not present in the sample taken.
The gold standard diagnosis of SARS CoV is paired (day 1 and day 21) serology

SARS is a clinical and epidemiological case definition. If a patient is tested negative by PCR for SARS-associated coronavirus they should still adhere to isolation precautions recommended for all patients with SARS.

In order to make a microbiological diagnosis clinicians who were involved in sending initial samples are urged to make every effort to obtain day 21 serum from SARS patients.

More detailed information on interpreting SARS test results is available at <http://www.hpa.org.uk/infections/topics_az/SARS/resultinterp.htm>

5. Sampling hospital cases

Sampling should be according to local protocols for investigation of pneumonia/severe respiratory infection with particular attention paid to the following aspects:

Comprehensive microbiological investigation

Although samples at the Influenza unit are tested for a range of respiratory viruses, local laboratories should undertake appropriate microbiological investigation to guide case management.

Laboratory handling and containment of samples

ACDP have recommended that samples taken from PROBABLE and SUSPECT SARS cases should be handled at Containment Level 3.

If the local laboratory does not have operational containment level 3 facilities then such samples should be forwarded directly to a nearby laboratory with appropriate facilities. Where an illness is retrospectively identified as PROBABLE OR SUSPECT SARS, any remaining samples should be transferred to containment level 3 facilities. After reviewing existing results and available samples, further local investigation and/or transfer of material to national reference laboratories may be indicated. See notes below regarding the handling of non-microbiology investigations.

Preservation and splitting of samples

Every precaution should be taken to preserve and store material at -70°C prior to transport (preferably by fast courier) to national reference labs.

6. Clinical sample handling

Respiratory samples

- It is anticipated that appropriate diagnostic microbiology for the investigation of atypical pneumonia will be performed local to the case presentation. A broad diagnostic virology strategy, including virus isolation in a range of permissible cell lines is recommended which would capture human influenza viruses, adenoviruses, respiratory syncytial virus, parainfluenza viruses, enteroviruses and human metapneumovirus present in respiratory secretions. Suggested combinations of cell lines include a primary monkey kidney/fibroblast/mammalian epithelial cell line.

- The best respiratory samples for virus detection are samples which include respiratory epithelial cells, taken into virus transport medium which does not contain bovine calf serum.

- A broad diagnostic bacteriology screen to include typical and atypical bacteria, especially chlamydia, mycoplasma and legionella is also recommended. Sputum is appropriate for bacterial investigations, which will also need to be undertaken. Please retain portions of sample at -70°C or lowest temperature available.

Blood
Blood cultures: Automated systems should detect most, if not all bacterial agents.
Acute serum samples: at least 20mls taken into plain tubes. Serum should be separated with precautions appropriate for HIV/hepatitis or other blood borne virus transmission. (Convalescent serology should be collected 21 days later.)

Urine
MSU or CSU or clean catch collection of at least 20 mls into sterile container should be examined according to local protocols and as clinically indicated. Legionella and

pneumococcal antigen detection should be considered. Store remainder for possible subsequent examination at -70ºC or lowest temperature available.

Other samples for clinical microbiology
If cerebrospinal fluid, pleural fluid, pericardial fluid, or any other specimens are taken as part of the clinical diagnostic workup, culture as routine. Reserve a portion of the sample at -70ºC or lowest temperature available.

Non-microbiology clinical samples* eg *haematology and biochemistry
Samples can be processed in the local laboratory.
Biochemistry and haematology samples should be handled as advised by the HSE Liverpool (further enquiries should be to the HSE directly). Samples from PROBABLE OR SUSPECT cases should be handled as for hepatitis and HIV infected samples, handled with a common high standard, and should be labelled and treated as high risk.

7. Information update and dissemination

As the situation continues to evolve, please ensure that the HPA web site is regularly monitored as it is frequently updated. Please share these notes with colleagues as appropriate, and ensure that your local microbiology laboratory staff is prepared to deal with enquiries from GPs, hospital clinicians and public health doctors. Further updated information is regularly distributed via the virology network.

Investigation of cases can be discussed with Dr Maria Zambon or other members of the VRD medical staff of SRMD (02082004400) or CDSC duty doctor if required.

RealArt™ HPA-Coronavirus LC RT-PCR reagents

Optimum performance can be obtained using Boom manual extraction.

Technical details are available at www.artus-biotech.com

Glossary

CBRN	– Chemical, Biological, Radiological and Nuclear
CCDC	– Consultant in Communicable Disease Control
CCS	– Civil Contingencies Secretariat
CDSC	– Communicable Disease Surveillance Centre
CEO	– Chief Executive Officer
CHaPD	– Chemical Hazards and Poisons Division
CMO	– Chief Medical Officer
COBR	– Cabinet Office Briefing Room
COMMS	– Communications
CXR	– Chest X-Ray
DA	– Devolved Administration
DEFRA	- Department for Environment, Food and Rural Affairs
DH	– Department of Health
DPH	– Director Public Health
DTI	– Department of Trade and Industry
EA	– Environment Agency
EC	– European Commission
EDTA	- Ethylenediamine tetra-acetic acid
EPCU	– Emergency Planning Co-ordination Unit
ERC	– Emergency Response Co-ordination
ERD	– Emergency Response Division
FFP	- Filtering Face Piece
FSA	– Food Standards Agency
GP	– General Practitioner
HACCP	– Hazards Analysis Critical Control Point
HCW	– Health Care Worker
HO	– Home Office
HPA	– Health Protection Agency
HPU	– Health Protection Unit
HQ	– Headquarters
HSE	– Health and Safety Executive
ICO	– Incident Co-ordination Officer
ICU	– Intensive Care Unit
ID	– Infectious Disease
IEM	– Integrated Emergency Management
IMT	– Information Management Team
JHAC	– Joint Health Advisory Cell
LARS	– Local and Regional Services
MMI	– Major Microbiological Incident
NEPLG	– Nuclear Emergency Planning Liaison Group
NHS	– National Health Service
NRPB	– National Radiological Protection Board
ODPM	– Office Deputy Prime Minister
OGD	– Other Government Departments
PCT	– Primary Care Trust
RD(s)PH	– Regional Director(s) Public Health
ROCC	– Regional Outbreak Control Centre
ROCT	– Regional Outbreak Control Team
SARS	– Severe Acute Respiratory Syndrome
SARS CoV	– Severe Acute Respiratory Syndrome Coronavirus
SECC	– Strategic Emergency Co-ordination Centre
SECT	– Strategic Emergency Co-ordination Team

SHA	– Strategic Health Authority
SO13	– Special Operations 13, Police
SpR	– Specialist Registrar
SRMD	– Specialist and Reference Microbiology Division
TMI	– Trust Major Incident
UK	– United Kingdom
VTM	– Viral Transport Medium
WAG	– Welsh Assembly Government
WHO	– World Health Organisation
WHO-CSR	– World Health Organisation Dept. of Communicable Disease Surveillance and Response