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1.0 GUIDELINE STATEMENT
Applies to what is best practice in the prevention, minimization and control of Severe Acute Respiratory Syndrome (SARS).

2.0 PURPOSE
The aim of the guideline is to promote awareness of each health care workers responsibility as to the risks of exposure to a suspect / probable / confirmed case of SARS

To uphold standards of best practice and provide best available evidence.

To identify clear roles and responsibility in the management of SARS.

3.0 SCOPE
This guideline applies to all health care staff involved in the care and management of suspect / probable / confirmed SARS cases in the Mid-Western Regional Hospitals.

4.0 LEGISLATION /OTHER RELATED POLICIES

Safety Health & Welfare at work Act (2005) and its associated Regulations (2007)

5.0 GLOSSARY OF DEFINITIONS OF TERMS AND DEFINITIONS
This is to be read in conjunction with Appendix 1 WHO SARS Risk Assessment and Preparedness Framework- RAPF pg. 29

It is notable that public health guidance and case definitions will need to be reviewed and updated if SARS re-emerges anywhere in the world.

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

1. Employed in an occupation associated with an increased risk of SARS-CoV exposure (e.g. staff in a laboratory working with live SARS-CoV/SARS-CoV-like viruses or storing clinical specimens infected with SARS-CoV; persons with exposure to wildlife or other animals considered a reservoir of SARS-CoV, their excretions or secretions, etc).

2. Close contact (having cared for, lived with, or had direct contact with the respiratory secretions or body fluids) of a person under investigation for SARS.

3. History of travel to, or residence in, an area experiencing an outbreak of SARS.

OR
Two or more health care workers with clinical evidence of SARS in the same health care unit and with onset of illness in the same 10-day period.
OR

Three or more persons (health care workers and/or patients and/or visitors) with clinical evidence of SARS with onset of illness in the same 10-day period and epidemiologically linked to a health care facility.

Close contact in relation to SARS is ‘having cared for’, lived with or had face-to-face (within 1 metre / 3 feet) contact with, or having had direct contact with respiratory secretions and / or body fluids of a person with SARS (NDSC: 2005).

Examples of close contact include kissing or hugging, sharing eating or drinking utensils, talking to someone within 3 feet, (1 metre), and touching someone directly. Close contact does not include activities like walking by a person or briefly sitting across a waiting room or office, (CDC: 2005).

1A contact is a person who is at greater risk of developing SARS because of exposure to a SARS case. Risky exposures include having cared for, lived with, or having had direct contact with the respiratory secretions, body fluids and/or excretions (e.g. faeces) of cases of SARS.

2Following the last reported case in an outbreak of SARS, an individual fulfilling the clinical case definition for SARS should be asked about travel to the outbreak area(s) in the preceding 28 days before illness onset.

3In the context of a SARS Alert, the term “health care worker” includes ALL hospital staff. The definition of the health care unit in which the cluster occurs will depend on the local situation. Unit size may range from an entire health care facility if small, to a single department or ward of a large tertiary hospital.

SARS Case Definitions
This should be used in association with HPSC (2005) document.

Suspect Cases
- Fever ≥ 38°C
- Respiratory symptoms (cough or breathing difficulties)
- Contact history with a possible / probable / confirmed SARS case
- Recent travel to a potential zone of re-emergence of SARS

Probable Cases
- Suspect case AND
- CXR infiltrates
  OR
  - Positive coronavirus on >1 assay

Confirmed
Person under investigation
- Fever >38°C
  AND / OR
- Prodromal symptoms (e.g. Malaise, Headache, Myalgia, Chills and Rigors) some cases myalgia and headache may precede the onset of fever by 12-24 hrs (also diarrhoea)
- Respiratory symptoms often do not appear until 2-7 days after the onset of the illness and most often include shortness of breath and/dry cough.
  AND / OR
- Epidemiological link
  AND / OR
• No other cause of illness
• Atypical pneumonia compatible with probable SARS but no epidemiological link AND
• No other cause of illness

**Incubation period:** 2-7 days (up to 10 days)

**Triphasic illness:**
WEEK 1 Prodrome
   • Mild respiratory symptoms
WEEK 2 Progression of respiratory symptoms
   • Respiratory deterioration
WEEK 3 Recovery phase

**Clinical Case Definitions of SARS**
A severe respiratory illness usually requiring hospitalisation.
History of fever or documented fever ≥ 38°C (100.4°F) AND
One or more symptoms of lower respiratory tract illness (cough, difficulty breathing, shortness of breath) AND
Radiographic evidence of lung infiltrates consistent with pneumonia or Acute Respiratory Distress Syndrome (ARDS) OR autopsy findings consistent with the pathology of pneumonia or ARDS without an identifiable cause AND
No alternative diagnosis to fully explain the illness.

It is important that clinicians obtain a detailed travel history from patients with symptoms and signs consistent with clinical SARS as well as ascertain whether other family members and/or close contacts (particularly within the hospital setting) have had a similar illness within the 10 days prior to the patient’s onset of illness.

**6.0 ROLES AND RESPONSIBILITIES**
Staff have a responsibility to make sure they follow instructions, in accordance with local policy, and not place themselves or others in danger. (Safety, Health and Welfare Act 2005)

It is the duty of all Health Care Workers to actively take steps to protect themselves and their patients from disease (DOHC, Standing Advisory Committee 2005).

It is the responsibility of consultants to identify, investigate and manage suspect SARS cases in hospital. They will liaise with public health to notify suspect cases and collaborate in the follow up of convalescent patients (NDSC, Feb 2004).

Doctors should be aware of the SARS Alert System and Case Definitions of SARS to ensure that appropriate Infection Control and Public Health measures are implemented until SARS has been ruled out as a cause of atypical pneumonia or respiratory distress syndrome R.D.S. (NDSC, 2004).

It is the primary responsibility of health care staff to attend education and training on SARS and adhere to this guideline.

Managers should ensure that staff who report to them attend education and training on SARS and are aware of this guideline (Recorded evidence).
Infection Control / Occupational Health / Designated Trainers should provide education and training on SARS to health care staff.

Infection Control staff in consultation with the Infection Control Committee should ensure this guideline is updated according to best practice. It is the responsibility of Public Health to provide information and instructions to contacts discharged home regarding self-monitoring of temperature and for the presence of symptoms up to 10 days after the fever has resolved.

Occupational Health should keep records of all staff who have close contact with patients with suspect / probable / confirmed SARS (contact tracing and monitoring) cases in consultation with Managers to whom health care workers report to.

The Supplies Department Manager should ensure adequate personal protective equipment is in stock. Managers in clinical areas should ensure personal protective equipment is readily available for health care staff.

It is the responsibility of managers to ensure staff who may be involved in the care of patients with suspect or probable SARS have been instructed in the correct use, including correct techniques for donning and removal of personnel protective clothing and equipment.

It is the responsibility of the General Services Manager to ensure standards of hygiene relating to cleaning, decontamination processes of the environment are according to hospital guidelines.

The Nursing Support Services Manager should ensure that equipment (clinical) is cleaned and disinfected according to hospital guidelines.

An outbreak team should be established according NDSC guidelines.

All health care workers should be aware of the clinical symptoms and signs of SARS and the appropriate transmission – based precautions that should be applied.

Corporate responsibility for the implementation of this guideline lies with the General Manager and HSE in accordance with approved regulations.

### 7.0 GUIDELINE

Severe Acute Respiratory Syndrome (SARS) is a viral respiratory illness caused by a novel coronavirus, known as SARS-CoV and preliminary animal studies have isolated the SARS-CoV virus in wild animals native to the Guangdong Province and other parts of China. SARS was first reported in Asia in February 2003. Over the 5 months, the illness spread to more than 30 countries in North America, South America, Europe, and Asia before the SARS global outbreak of 2003 was contained, (CDC: 2005). Four cases were reported between December 2003 and January 2004, all recovered and no known contacts have developed a SARS-like illness.

While much has been learned about SARS including its causation (SARS-CoV), we still have limited knowledge about the epidemiology and ecology of SARS coronavirus infection and its potential to re-emerge has not been ruled out. In view of this, in the post outbreak period, it is imperative that all countries remain alert for the recurrence of
SARS and increase their capacity to detect and respond to SARS should resurgence occur.

The WHO case definitions during the outbreak period relied heavily on epidemiological criteria such as locations of SARS outbreaks to increase the specificity of syndromic clinical criteria for atypical pneumonia or respiratory distress syndrome (RDS). However, epidemiological links to cases of SARS and areas reporting recent local transmission are no longer of use in helping to define incident cases. Furthermore, the non-specific clinical features of SARS, the lack of a current rapid diagnostic test that can reliably detect SARS-CoV in the first few days of illness and the seasonal occurrence of other respiratory diseases, including influenza, may confound any surveillance for SARS and demand a level of quality and intensity which few health care systems worldwide can sustain. Even with the most sophisticated surveillance systems, the first case of SARS in the post-outbreak period may escape early detection.

7.1 Principle and Assumptions in Relation to SARS

- The current recommendations are based on the following principles/assumptions:
- The incubation period is 2 to 10 days.
- Presentation is of a non-respiratory prodromal illness with symptoms including malaise, headache or myalgia concurrent with or followed by sudden onset of high fever. The prodrome lasts 2 to 7 days. Diarrhoea has also been reported during the febrile prodrome.
- The lower respiratory phase begins within 3-7 days after onset of prodrome and peaks in the 2nd week.
- Nearly all laboratory confirmed cases of SARs have x-ray evidence of pneumonia by day 7 of illness i.e. from the onset of prodrome.
- History of exposure to SARS is usually present.
- Transmission occurs through close contact with a symptomatic person. Transmission of SARS is predominantly by droplet spread, unlike other respiratory illnesses such as influenza, which are predominantly airborne infections.
- Close contact means 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 contacts of a probable case are considered to have a higher risk of transmission compared to those with a history of travel to a WHO SARS designated area.
- One of the conclusions from the SARS outbreak was that health care workers are at special risk.
- Infants and children accounted for only a small percentage of cases in the 2003 outbreaks and had much milder disease with better outcomes than adults.
- The cases that are the most ill are the most infectious and infectiousness appears to increase in the second week of the illness.
- There may be transmission during the prodromal period (i.e. when early symptoms, including fever, are present).
- There is no evidence of transmission prior to onset of fever.
- There is no evidence that patients transmit infection 10 days after the fever has resolved.
- Transmission from an asymptomatic person is very unlikely.
- Current infection control measures, including the use of N 95/European EN149:2001 FFP2 masks are effective.
- Information on masks is available on the SARS website (http://www.ndsc.ie/DiseaseTopicsA-Z/SevereAcuteRespiratorySyndrome/) and can be used by public health as necessary when educating cases and their contacts.
• People on active daily surveillance (i.e. not on home quarantine or home isolation), do not have to remain in their homes and can go to work etc. during the active daily surveillance period.
• The period of communicability is up to 10 days following resolution of fever.
• SARS is less infectious but more virulent than most acute respiratory infections e.g. influenza.
• Typical symptoms of SARS-CoV disease may not always be present in the elderly and those with underlying chronic disease such as renal failure. Therefore the diagnosis of SARS should be considered for almost any change in health status when such patients have associated epidemiological risk factors.
• The overall case fatality is approximately 9.6% but is higher in older age groups (50% if aged over 65 years).
• SARS appears to spread by close person-to-person contact. SARS-CoV is thought to be transmitted most readily by respiratory droplets (droplet spread) produced when an infected person coughs or sneezes. Droplets occur when droplets from the cough or sneeze of an infected person are propelled a short distance (generally up to 3 feet / 1 meter) through the air and deposited on the mucous membranes of the mouth, nose, or eyes of persons who are nearby. The virus also can spread when a person touches a surface or object contaminated with infectious droplets and then touches his or her mouth, nose, or eye(s). In addition, it is possible that SARS-CoV might be spread more broadly through the air (airborne spread) or by other ways that are not now known, (CDC: 2005).
• All patients with suspected probable SARS should be cared for using both Respiratory and Contact precautions. However, the essential element in preventing the spread of this infection is good professional practice and routine infection prevention measures, (NDSC: 2004). The most important precaution is frequent hand hygiene or use of an alcohol–based hand gel rub. Avoid touching your eyes, nose and mouth with unclean hands and encourage people around you to cover their nose and mouth with a tissue when coughing or sneezing, (CDC 2005).
• In general, SARS begins with a high fever (temperature greater than 100.4 °F [>38.0 °C]). Other symptoms may include headache, an overall feeling of discomfort, and body aches. Some people also have mild respiratory symptoms at the outset. About 10 percent to 20 percent of patients have diarrhoea. After 2 to 7 days, SARS patients may develop a dry cough. Most patients develop pneumonia, (CDC: 2005).
• Available information suggests that persons with SARS are most likely to be contagious only when they have symptoms, such as fever or cough. Patients are most contagious during the second week of illness. However ten days after symptoms have subsided are recommended in preventing transmission to others. The CDC recommend patients with SARS receive the same treatment that would be used for a patient with any serious community-acquired atypical pneumonia. SARS-CoV is being tested against various antiviral drugs to see if an effective treatment can be found. The incubation period for SARS is typically 2 to 10 days. In a very small proportion of cases, incubation periods of up to 14 days has been reported, (CDC: 2005).

7.2 Investigations

7.2.1 Patients Who Are Defined As Possible, Probable and Confirmed Cases of SARS Will Require Hospitalisation.

If a patient is hospitalised for unexplained pneumonia and has at least one of the exposure factors outlines above, the clinician should:
1. Institute infection control precautions immediately and nurse separately from other patients.
2. Notify the local public health department
3. Local public health department to notify HPSC
4. Consult the Clinical Microbiologist and Infectious Disease Consultant
5. Treat for the common causes of community-acquired pneumonia
6. Perform a diagnostic workup including.
   a) FBC with differential
   b) Pulse oximetry
   c) Blood cultures
   d) Sputum gram stain and culture
   e) Testing for viral respiratory pathogens i.e. RSV, influenza A, B
   f) Urinary antigen testing: legionella and pneumococcal
   g) Other tests: CPK, transaminase levels, LDH, apt, C-reactive protein (NDSC, 2005).

If no alternative diagnosis within 72 hours, consider need for SARS testing in consultation with local public health specialist, consultant microbiologist/virologist, infectious disease physician and HPSC. A single test result is insufficient for the definitive diagnosis of SARS-CoV infection because both false negative and false positive results are known to occur (NDSC, 2005).

7.3 Serum For Anti Coronavirus Antibodies
   - Nosopharyngeal Aspirate
   - OR
   - Sputum
   - AND
   - Stools
   - OR
   - Throat

   Notify Serology (coronavirus screening) Ext 2252 (Serology)

   Coronavirus cultures

   Notify Virus Ref lab


7.4 Contact Tracing and Management of Close Contacts of Sars Cases

7.4.1 GLDefinition:
- The management of contacts will vary depending on whether the index case is a suspect, probable or confirmed SARS case.
- Confirmed contacts (persons who have been exposed) require monitoring.
- Contacts should be given information on SARS.
  @http://www.ndsc.ie/DiseaseTopicsA-Z/SevereAcuteRespiratorySyndrome/.
- Follow up only if source of exposure progresses from person under investigation (PUI) to suspect or probable case.
- Health care workers who are taking Infection Control SARS precautions and wearing Personal Protective Equipment at the time of contact do not require monitoring.
- Patients sharing a ward or waiting room for some time require contact tracing / monitoring.
7.4.2 Contacts of Suspect, Probable or Confirmed Cases Within The Health Care Setting:

- A risk assessment should be undertaken in relation to the index patient.
- The outbreak control team consisting of Consultant Virologist/Microbiologist, Infectious Disease Consultant, Public Health Specialist, Infection Prevention Control Nurse, Hospital Management, Occupational Health Physician, General Services and other relevant staff should meet and monitor developments and advise accordingly.
- Inpatient contacts should be isolated or cohorted away from unexposed patients and transmission-based precautions instituted. Contacts should be placed on fever and symptom surveillance.
- Staff with unprotected exposure to a suspect, probable or confirmed case should be placed on active fever surveillance, and should either be cohorted to care for exposed patients (as above) or placed on home quarantine depending on local circumstances. They should be given information on SARS.

7.5 Planned Admission Pathway (Mwh)

7.5.1 Management of Suspect / Probable SARS Case

- A close contact who develops symptoms of SARS within ten days of contact with a confirmed case should phone their GP and seek medical advice. The GP should inform Director of Public Health (MoH).
- If contacts progress to meet the case definition for suspect, preliminary positive, probable or confirmed SARS as outlined in HPSC Updated Guidelines for the Global Surveillance of SARS available at [http://www.ndsc.ie/DiseaseTropicA-z/SevereAcuteRespiratorySyndrome/HealthcareProfessionals/](http://www.ndsc.ie/DiseaseTropicA-z/SevereAcuteRespiratorySyndrome/HealthcareProfessionals/), they should be referred to hospital by GP with prior arrangement.
- On identification of a suspect/probable SARS case, the attending medical officer should contact the Triage Nurse @ 061 482252, Midwestern Regional Hospital, Limerick.
- The Triage Nurse should inform the Admissions Department or Night Superintendent who will organise the patients admission.
- The Admissions Department or Night superintendent will liaise with Ambulance control when the Isolation room is available.
- The ward (3D) accepting the patient should liaise with the admissions office or the Night Superintendent.
- The Admissions department/Night Superintendent should contact the Medical Registrar on call.
- The Patient will enter the hospital directly via the Main Entrance to the Outpatients Department.
- The Night Superintendent should inform the Security Staff re opening of O.P.D. Entrance door (out of hours).
- The Ambulance staff will escort the patient directly to the ward, when staff are ready to receive the patient.
- The Staff escorting the patient must wear protective clothing (eye protection, particulate mask, disposable gown, gloves)
- The patient under investigation should wear a surgical mask if tolerated.
- Security should be informed by the Admissions office or Night Superintendent to clear the patients’ admission route.
- Admit the patient to Ward 3D for isolation via Ward 3A lifts, (no 3 & 4 medical lifts).
- The X-ray department should be contacted re portable x-ray.
• Children should be admitted to the Paediatric Unit.
• If suspected/probable inpatient, isolate.
• Medical staff to notify the Public Health Department 9:30 – 17:00 @ 061-483338.
• If ambulance required contact 061-482215 / 061-482297, Day/Night and request special ambulance (SARS).
• A member of the Infection Control team should be contacted on identification of a suspected / probable SARS case.
• The Mid-Western Regional Hospital, Limerick, is the main centre for the Health Service Executive, Mid Western Area.

7.6 Walk-In Emergency Admission Pathway (MWRH)

7.6.1 Management of Suspect / Probable SARS Case
• The Public should be advised to identify themselves immediately to the Emergency staff.
• The Triage Nurse must be contacted (immediately)
• The Patient should don a surgical facemask.
• Escort the patient to the triage room and isolate.
• Close the door and open the window.
• Follow SARS precautions as outlined.
• Turn off ventilation system by emergency button located in Sisters office.
• Restrict staff dealing with patient.
• Follow admission procedure according to planned admission (route 3A lifts).
• Inform Cleaning Attendants re cleaning and disinfection of isolation room/equipment.
• Follow SARS precautions re cleaning and disinfection.
• Cleaning Attendants must take SARS precautions.

7.7 A&E Collapsed Admission Pathway (MWRH)

7.7.1 Management of Suspect / Probable SARS Cases:
• Inform Security to clear patients admission route.
• Transport the patient to the resuscitation room.
• Follow SARS precautions as outlined.
• Follow admission procedure according to planned admission (page 10) Patients requiring intensive care nursing to be admitted to HDU via A&E lifts (No1 & 2 Surgical lifts).
• Use Appropriate filters on portable ventilator / C circuit (Hepa filtration on exhalation valve port)
• Don surgical mask on patient as appropriate.
• Follow SARS precautions re cleaning and disinfection.
• Cleaning Attendants must take SARS precautions.
7.8 SARS Precautions:
All patients with suspected probable SARS should be cared for using both Respiratory and Contact precautions. However, the essential element in preventing the spread of this infection is good professional practice and routine infection prevention measures, (NDSC: 2004).

6.8.1 SPECIFIC PRECAUTIONS

1. Hand Hygiene
2. Respiratory protection
3. Eye protection
4. Gloves and gowns
5. Donning and removal of personal protective equipment (PPE)
6. Health care Waste
7. Laundry
8. Aerosol Generating Procedures
9. Environmental Controls
10. Cleaning and Decontamination of the Environment
11. Patient Care Items
12. Patient Transfer
13. Post-mortem

1. HAND HYGIENE
   - Hand Hygiene is the single most important element of SARS infection control.
   - **Perform hand hygiene following all contact with suspect SARS patients and their environment**
   - Disinfect hands before entering and leaving the patients isolation facilities
   - Method as per hospital policy.

2. RESPIRATORY PROTECTION
   - Well-fitting respiratory (mask) during all patient contact (exposure).
   - Respirator (mask) should meet or exceed international standards
     - EU EN149:2001 FFP2
     - US NIOSH N95
   - Surgical mask will provide some protection, if respirator not available.
   - **Respirator (mask) fit is crucial**
     - Fit check respirator every time one is put on
Consider fit testing programme as hospitals likely to care for large numbers of SARS patients, or where aerosol-generating procedures likely.

Removing a respirator (mask)
- Remove gloves and perform hand hygiene prior to removal of mask
- Remove by either;
  1. Breaking mask straps at side of face
  2. Lifting straps over head, from back to front.
- Do not touch front of respirator with un-gloved hands.
- Hand hygiene again after removing mask.
- Dispose according to hospital policy.

3. EYE PROTECTION
- Disposable eye protection (goggles or full face shield) preferred
- Should be worn
  ▪ When providing direct patient care
  ▪ During cough/aerosol generating procedures.
  ▪ Potential for splashing by blood/ body fluids.
- Prescription glasses do not provide adequate protection.

4. GLOVES AND GOWNS
- Gloves are not a substitute for hand hygiene
  ▪ Worn for all patient contact
  ▪ Replaced immediately after any patient care procedures
  ▪ Decontaminate hands before donning new gloves.
- Long sleeved disposable fluid-repellent gowns for all patient contact.

5. DONNING AND REMOVAL OF PROTECTIVE CLOTHING AND EQUIPMENT
- Don PPE before entering patient room
- Remove PPE before leaving patients room
- Remove PPE which minimises risk of contaminating skin or clothing
- Avoid touching face with gloved, or contaminated hands

Summary on the order of removal of PPE
1. Remove gloves and gown
2. Wash/decontaminate hands
3. Remove eye protection
4. Remove respirator (mask)
5. Wash / decontaminate hands again

Gloves
↓
Gown
Decontaminate hands
↓
Eye protection
↓
Mask (mask straps)
↓
Decontaminate hands
6. HEALTH CARE WASTE
   • All used PPE should be considered as health care risk waste
   • Dispose in appropriately labelled health care risk waste bags
   • Dispose in patient’s room,
   • Bags sealed before removal from room.
   • Double bagging not required
   • Dispose according to hospital policy

7. LAUNDRY
   • Transport linen from patient’s room in closed, leak-resistant alginate laundry bags
   • and place in red laundry bag
   • Standard laundry decontamination practices are sufficient

8. AEROSOL-GENERATING PROCEDURES
   SARS Transmission During Aerosol-Generating Procedures
   • Transmission of SARS to health care personnel during aerosol-generating
   • procedures may be particularly significant.
   • Intubation, suctioning and nebulisation specifically implicated.
   • Bronchoscopy, diagnostic sputum induction also possibilities.

Until Risks Better Defined
   • Limit aerosol generating procedures
   • Avoid use of non-invasive positive pressure ventilation (e.g., CPAP, BiPAP)
   • Protect the environment
   • Use closed suctioning devices
   • HEPA filtration on exhalation valve port

Precautions during aerosol generating procedures
   • Procedures must be carried out in a negative pressure isolation room preferably
   • with an anteroom
   • If no anteroom, remove eye protection and respirator immediately after leaving
   • patient’s room.
   • Reassess respirator fit among personnel who may be involved in such procedures.

Precautions during aerosol generating procedures
   • Limit personnel to those essential for performing procedure.
   • Ensure appropriate decontamination of surfaces and equipment after procedure.
   • No evidence to support need for enhanced PPE, such as powered air purified
   • respirator system (PAPRS)
   • Increased complexity may increase risk of inappropriate use or self-contamination
9. ENVIRONMENTAL CONTROLS

**Patient accommodation Recommended**

- Private room. En-suite facilities with engineered negative pressure and filtered air exhaust to outside.
- Preferably with anteroom
- Door closed except when needed for patient access.
- Place notice on door (Please report to nurse in charge).
- The number of hospital staff entering the patients’ rooms should be kept to an absolute minimum i.e. essential personnel only and staff must be given instruction on the required isolation precautions prior to entering the room.
- Limit access to persons essential for providing care.

**If negative pressure room not available**

- Use single rooms with en-suite facilities.
- Maximise natural ventilation. Open windows, if possible away from public areas.
- Control direction of air flow. Use fans to exhaust to outside.
- Designate wards for SARS patients where increased capacity is needed
- Segregate suspect SARS cases from patients being evaluated for SARS until diagnosis is established.
- Place surgical mask on patients as tolerated and compatible with patient care.

**Limit patient contact**

- All visitors should report to nursing staff prior to entering the room, visitors should be kept to an absolute minimum and must be given instruction on the required isolation precautions prior to entering the room.
- Limit all hospital visits to all but essential family members.
- Visitors attending patients should wear protective clothing as follows:
  - Particulate mask
  - Eye protection
  - Disposable gown and apron
  - Disposable gloves.
- Dedicate staff to care for SARS patients.

10. CLEANING AND DECONTAMINATION OF THE ENVIRONMENT

- Environment may be a key to transmission
- Assume environment in which SARS patients are housed is heavily contaminated
- Facilitate daily cleaning by limiting clutter in patient care area
- Clean with detergent and water all surfaces daily.
- Clean / disinfect frequently touched surfaces daily in-patient areas. Bed rails, over-bed table, door knobs, lavatory surfaces, taps, lids of bins, lockers.
- **To Disinfect** clean all surfaces with detergent and water followed by chlorine releasing agent (Presept 2.5gr tabs to one litre of water =1tab =1250ppm)

**Terminal Disinfection**

Following discharge of the patient, isolation facilities must be thoroughly cleaned with warm water and disinfected, 1200ppm av.chlorine (Presept 1 tab). Discard all disposable supplies remaining in the room. Curtains should be sent to the laundry for decontamination (standard).
11. PATIENT CARE ITEMS
- Reusable non-critical items designated for single patient use
  E.g. stethoscopes, sphygmomanometers
- Use disposable equipment wherever possible
- Reusable respiratory equipment. High level disinfection/sterilisation
- Eating utensils. Dish washer @80c

12. PATIENT TRANSFER

Within the hospital
- Movement of affected patients to other wards/departments should be avoided as much as possible. In the event of a transfer please discuss with Infection Control
- Limit movement out of room
- Plan route to avoid well-populated areas
- Notify personnel in receiving area.
- Patient should wear surgical mask during transport.
- Accompanying persons must wear appropriate PPE.

Between institutions
- Transfer only if medically necessary
- Plan exit route from institution
- Accompanying persons must wear appropriate PPE
- Ambulance driver/front seat passengers do not need to wear PPE, if front cab closed off from patient area.

13. POST MORTEM
- Sealed body bag prior to mortuary transfer
- May be opened to allow viewing of deceased
- Mourners viewing deceased must wear PPE
- Mortuary staff must wear PPE
- Autopsy
  - Only in autopsy suite with negative air pressure and minimum 12 air exchanges per hour
  - Double bag all laboratory specimens; do not send specimens via the vacuum transport system. Notify Serology / Microbiology Departments prior to sending clinical specimens.

Laboratory Telephone Numbers

Tel Day:
Serology Department 2254
Microbiology Department 2276

Tel Night:
Microbiology Department 2502
Serology Department 2254
8.0 IMPLEMENTATION PLAN

8.1 This guideline will be implemented by Heads of Disciplines, Nursing Support Services Management, General Services Management, Heads of Departments, Infection and Prevention Control Team in the Mid-Western Regional Hospitals.

8.2 It is the responsibility of Heads of Discipline and Heads of Departments to ensure that this guideline is available/ brought to the attention of staff who report to them in their areas of responsibility.

8.3 Staff have a responsibility to read this guideline and sign the Signature Sheet (Refer to Appendices).

8.4 The Infection Prevention and Control Team will provide education and training sessions to relevant staff as part of the implementation process of this guideline.

8.5 The receipt sheet should be returned to the infection Prevention and Control secretary.

8.6 The Infection Prevention & Control team will be responsible for maintaining guideline receipt sheets from all Wards/Departments. It is the responsibility of Heads of Disciplines and Heads of Departments to maintain records locally.

9.0 REVISION AND AUDIT.

9.1 The Guideline will be reviewed by the Infection Prevention and Control Team and updated as necessary and at least every 2 years.

9.2 An audit will be undertaken within one year of issue.
10.0 REFERENCES


HSE West, Mid-Western Regional Hospitals, Limerick. (2010) Handhygiene Policy

HSE West Mid- Western Regional Hospitals Limerick (2010) Policy on Healthcare Risk Waste and its Segregation & Disposal within the HSE Mid West Area

Midwestern Regional Hospitals (2007) Guideline for the Handling and Segregation of Linen


**Useful website addresses:**

National Disease Surveillance Centre, Ireland.  
<www.ndsc.ie>.

Center for Disease Control and Prevention, United States.  
<www.cdc.gov>.

World Health Organisation.  
<www.who.int>.

USEFUL WEBSITE ADDRESSES:

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Center for Disease Control and Prevention, United States.  
<www.cdc.gov>.

World Health Organisation.  
<www.who.int>.
11.0 APPENDICES

Appendix I WHO RISK ASSESSMENT AND PREPAREDNESS PLAN

1.2 WHO SARS Risk Assessment and Preparedness Framework-RAPF

Table 1 outlines the phases of the SARS Risk Assessment and Preparedness Framework-RAPF. It includes both the national (Irish) and WHO preparedness phases.

<table>
<thead>
<tr>
<th>Who Phase</th>
<th>Action</th>
<th>Irish Phase</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 0</td>
<td>No evidence of SARS-CoV transmission to humans worldwide</td>
<td>Phase 0</td>
<td>No evidence of SARS-CoV transmission to humans worldwide</td>
</tr>
<tr>
<td>Phase 1</td>
<td>Sporadic case(s) of SARS or a common source of transmission that does not result in secondary cases</td>
<td>Phase 1</td>
<td>Heightened threat, SARS cases in other countries with potential for spread to Ireland and UK</td>
</tr>
<tr>
<td>Phase 2, Level 1</td>
<td>Confirmed human-to-human transmission. The magnitude of the outbreak is described in Phase 2, Levels 1 and 2</td>
<td>Phase 1 Level 1</td>
<td>Heightened threat, SARS cases in other countries with potential for spread to Ireland and UK</td>
</tr>
<tr>
<td>Phase 2, Level 2</td>
<td>Chains of transmission in two or more locations but with no evidence of international spread</td>
<td>Phase 2 Level 2</td>
<td>Heightened threat, SARS cases in other countries with potential for spread to Ireland and UK</td>
</tr>
<tr>
<td>Phase 3</td>
<td>International spread</td>
<td>Phase 3 Level 1</td>
<td>Sporadic imported case(s) in Ireland and UK from affected areas outside UK/Ireland</td>
</tr>
<tr>
<td>Phase 3</td>
<td>International spread</td>
<td>Phase 3 Level 2</td>
<td>One or more outbreaks of SARS within a hospital and/or limited community transmission within definable groups in Ireland</td>
</tr>
<tr>
<td>Phase 3</td>
<td>International spread</td>
<td>Phase 3 Level 3</td>
<td>Outbreaks of SARS in Ireland with extensive community transmission</td>
</tr>
<tr>
<td>Phase 4</td>
<td>Slowing down of the outbreak</td>
<td>Phase 4</td>
<td>De-escalation of the outbreak response</td>
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<tr>
<td>Phase 5</td>
<td>Global interruption of SARS-CoV transmission (epidemic halted)</td>
<td>Phase 5</td>
<td>Post-outbreak phase</td>
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</table>

Reference: HPSC Severe Acute Respiratory Syndrome (SARS) 2005 Updated Guidelines for the Global Surveillance of SARS Aug 2005
Appendix II Testing For SARS In The Interepidemic Period

Figure 1. Testing and reporting algorithm for SARS in the inter-epidemic period

SARS ALERT

- Confirmed by national reference laboratory
  - Yes: Preliminary positive’
    - Yes: Confirmed case
      - REPORT TO WHO
    - No: False negative result
- Died: Clinical samples for SARS testing collected at autopsy
- SARS testing is incomplete or not done and/or deceased but neither autopsy nor laboratory tests

Preliminary positive’

- Confirmed by WHO SARS Verification and Reference
  - Yes: Confirmed case
  - No: Discard

False negative result

Reference
NDSC Severe Acute Respiratory Syndrome (SARS) Interim Guideline for Health care Professional Feb 2004
## Appendix III

### Features of SARS That May Help With Clinical Diagnosis

<table>
<thead>
<tr>
<th>SARS</th>
<th>Example</th>
<th>Caution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical history</td>
<td>Sudden onset of flu-like prodrome, fever, dry cough, non-respiratory symptoms e.g. diarrhoea, myalgia, headache and chills/rigors.</td>
<td>Take a travel history, occupational history, history of hospitalization and history of contact with health care facility or person with SARS. The absence of any of these factors in the history should not automatically exclude the diagnosis of SARS.</td>
</tr>
<tr>
<td>Clinical examination</td>
<td>Does not correlate with chest radiology changes</td>
<td>Lack of respiratory signs particularly in groups such as the elderly.</td>
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<tr>
<td>Bedside monitoring</td>
<td>Hypoxia</td>
<td>Temperature may not be elevated on admission. The respiratory rate should be documented.</td>
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<tr>
<td>Haematology investigations</td>
<td>Low lymphocyte count, raised C-reactive protein, prolonged activated partial thromboplastin time.</td>
<td>These changes are non-specific and are not always seen in SARS.</td>
</tr>
<tr>
<td>Biochemistry investigations</td>
<td>Raised lactate dehydrogenase, hepatic transaminases, creatine phosphokinase.</td>
<td>These changes are non-specific and are not always seen in SARS.</td>
</tr>
<tr>
<td>Radiology investigations</td>
<td>CXR changes poorly defined, patchy, progressive changes.</td>
<td>May present as a lobar pneumonia. Pneumothorax and pneumomediastinum may also occur.</td>
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<tr>
<td>Microbiology investigations</td>
<td>Investigate for community acquired and hospital-acquired pneumonias including atypical pneumonias.</td>
<td>Concurrent infections may occur.</td>
</tr>
<tr>
<td>Virology investigations</td>
<td>Investigate for other causes of atypical pneumonia</td>
<td>Interpret SARS-CoV test results with caution, based on the assessment of the population risk of SARS at the local level and the individual risk of SARS.</td>
</tr>
<tr>
<td>Treatment</td>
<td>Lack of response to antibiotic treatment for community-acquired pneumonia, including atypical pneumonia.</td>
<td>All viral pneumonias and a number of bacterial pneumonias will not respond to standard antibiotic treatments. As yet there is no proven treatment for SARS; supportive measures are recommended.</td>
</tr>
</tbody>
</table>

### Reference

HPSC Severe Acute Respiratory Syndrome (SARS) 2005 Updated Guidelines for the Global Surveillance of SARS Aug 2005
Management of persons who may have been exposed to SARS

Persons who may have been exposed

Develops fever AND respiratory symptoms within 10 days (i.e. meets case definition)

Use isolation precautions for 72 hours

Does not progress to meet case definition, but has persistent fever or unresolving respiratory symptoms

Progresses to meet the case definition

Use isolation precautions until 10 days after resolution of fever, provided respiratory symptoms are improving or absent

Develops fever OR respiratory symptoms within 10 days (i.e. does not meet case definition)

Continue isolation precautions for an additional 72 hours, then perform clinical evaluation

Does not progress to meet case definition

Symptoms improve or resolve

Discontinue isolation precautions

Does not develop fever or respiratory symptoms within 10 days

Isolation precautions not recommended

References
HPSC Severe Acute Respiratory Syndrome (SARS) Interim Guidelines for Health Care Profess

HSE West, Mid-Western Regional Hospitals, Limerick, Guideline for the Infection Prevention and Control Management of a Patient with Suspect / Probable / Confirmed Severe Acute Respiratory Syndrome (SARS), MGIP&C 09/10, Revision 02, 09/12
Page 23 of 27
Appendix V Testing For SARS During An Outbreak

Testing and reporting algorithm for SARS during an outbreak

INDIVIDUAL WITH CLINICAL EVIDENCE FOR SARS

*Independently verified at a WHO SARS Verification and Reference Laboratory
OR
*’Preliminary positive’ at a national health authority-designated SARS laboratory

Yes

Tests - ve

Discard

No

SARS Alert in a previously SARS - free country or region

At least one case in >1 chain of transmission previously confirmed by a WHO SARS Verification and Reference Laboratory

Follow testing and reporting algorithm for the interepidemic

Yes

Is epidemiologically linked to a verified chain of transmission

No

Lost to follow-up, or deceased with neither autopsy nor laboratory tests performed

Has a single positive SARS antibody test, or a positive RT-PCR from a single clinical sample or assay at a national health authority designated SARS laboratory

Manage as SARS until epidemiological and/or laboratory evidence supports the diagnosis or the patient is discarded

Yes

‘Confirmed’

No

‘Probable’

Tests -

Discard

‘Unverifiable’ case

REPORT TO WHO

See 2.3 ‘The laboratory diagnosis of SARS’ and 2.5 ‘Laboratory case definition for SARS’ for the tests and quality assurance required for the confirmation of SARS.

Reference: NDSC Severe Acute Respiratory Syndrome (SARS) Interim Guideline for Health care Professional Feb 2004

HSE West, Mid-Western Regional Hospitals, Limerick.(2010) Handhygiene Policy.
**Appendix VI Signature Sheet:**

I have read, understand and agree to adhere to the attached Guideline.

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