

***Guidance on the use of  
respirator type masks in the  
management of SARS  
for healthcare workers***

# Background to SARS

- Spread of the virus
  - Severe Acute Respiratory Syndrome first appeared in Guangdong, China, Nov 2002, was named as SARS in March 2003 and verified as a *Coronavirus* in April 2003
  - The most likely route of transmission is through inhalation of infected respiratory droplets, spread through:
    - Close contact (see appendix definition)
    - Splashes to mucous membranes
    - Contamination of hands from patients/ patients' environment
    - Shedding in faeces also occurs (this is thought to be through aerosolising of faeces)



27/02/2004

SCIEH (CK)

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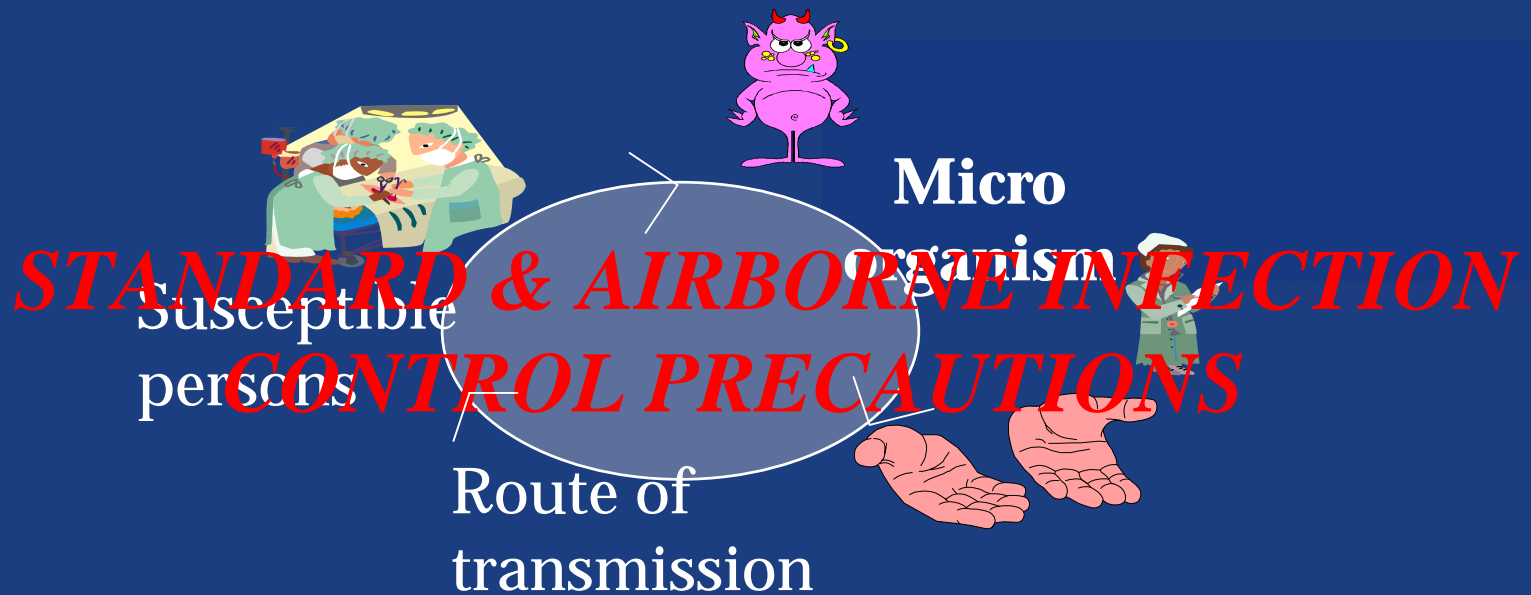
## Background to SARS (2)

- The epidemiological significance of SARS and potential for aerosol spread has warranted the application of airborne precautions (respirator masks and negative pressure isolation) in order to limit the spread and impact of the disease as far as possible.

# Understanding the spread of infection...

- Consider the potential for:
  - **The ease of transmission**
  - **The route of transmission**
- Epidemiological significance
- Presence of susceptible individuals

*Risk assessment of the likelihood of circumstances to facilitate the spread of infection is essential in the prevention, control and management of all infectious diseases*



Application of Standard Infection Control Precautions and additional Airborne Precautions are the first line recommendations in the care of those persons with suspect/probable SARS in order to stop the spread of infection

# Standard Infection Control Precautions

- In the first instance should:
  - Be applied by all healthcare workers to prevent the spread of all micro-organisms, including SARS
  - Be applied appropriately in all healthcare settings (including in the community) whether infection is known to be present or not
  - Protect you, the person you are caring for and all associated others

# Summary of Standard Infection Control Precautions



#	Standard Infection Control Precaution	Rationale
1	<b>Hand Hygiene</b> <ul style="list-style-type: none"> <li>➤ At the right times</li> <li>➤ In the most appropriate way for the situation.</li> </ul>	Frequently called the single most important action to protect against cross infection.
2	<b>Personal protective equipment</b> <ul style="list-style-type: none"> <li>➤ Gloves</li> <li>➤ Aprons – gowns – footwear</li> <li>➤ Eye and mouth protection</li> </ul>	To protect skin, eyes, face and clothing from contamination/soiling/splashing & potentially harmful micro-organisms.
3	<b>Prevention of occupational exposure to infection</b> <ul style="list-style-type: none"> <li>➤ Cover all breaks in skin</li> <li>➤ Avoid sharps injuries</li> <li>➤ Avoid splashes with blood or body fluids</li> <li>➤ Report any exposure incidents</li> </ul>	To additionally protect HCWs, carers and others, from exposure to micro-organisms that cause infection e.g. hepatitis B, C, HIV, MRSA

# Summary of Standard Infection Control Precautions (2)



#	Standard Infection Control Precaution	Rationale
4	Management of blood and body fluid spillages	To protect all of those in the surrounding area from exposure to micro-organisms in spillages that could cause harm
5	<b>Management of care equipment</b> <ul style="list-style-type: none"> <li>➤ Prevent re-use of single use devices</li> <li>➤ Prevent single patient use devices being used on other patients</li> <li>➤ Ensure re-usable devices are decontaminated</li> </ul>	To ensure that items are not a factor in the spread of potentially infectious micro-organisms
6	<b>Environment control</b>	To ensure the care setting, its fixtures and fittings and other items within it are adequately decontaminated and maintained to ensure safe handling and prevent cross infection occurring through this route

# Summary of Standard Infection Control Precautions (3)



#	Standard Infection Control Precaution	Rationale
7	<b>Safe disposal of waste including sharps</b> ➤ At all levels	To prevent the risk of inappropriate, avoidable exposure, thus protecting HCWs and others
8	<b>Linen</b> ➤ Safe handling, transport and processing	To prevent the risk of inappropriate, avoidable exposure to micro-organisms on linen, thus protecting HCWs and others
9	<b>Appropriate patient placement</b>	To prevent exposure of others and the environment to potentially infectious micro-organisms

# Additional precautions for SARS

- Airborne precautions



- Negative pressure isolation rooms
- Use of respirator type masks



## ISOLATION OF SARS CASES - PATIENT CARE ALGORITHM

ALL CASES SHOULD BE ISOLATED AS FOLLOWS, IN DESCENDING ORDER OF RESOURCES AVAILABLE:



Negative pressure isolation room with ante-room, hand washing and toilet facilities (monitoring of the negative pressure is essential)



Single room with handwashing and toilet facilities only (no negative pressure facility)



Single room with handwashing facilities only



Single room with no additional facilities

# The Use of Respirator Type Masks

- *Respirator type masks are just one element that should provide, but cannot guarantee, protection against the SARS virus.*
- *They should ensure that virus particles do not enter respiratory tracts*
- The high specification masks currently being recommended for SARS:
  - have been classified as FFP3 (minimum 98% efficiency)
  - can have an exhalation valve to reduce moisture build up
  - are designed to cover a large surface area – minimising hot air inside, giving maximum filtration and fitting a wide range of faces
    - however facial hair can cause problems with the fit of any masks

# Guidance on the Use of Respirator Type Masks

- When should they be worn?
  - Respirator type masks **must** be donned **before** entering an area where a patient with suspect /probable SARS is being cared for

# Guidance on the Use of Respirator Type Masks

- How?
  - Instructions are provided by the supplying company
  - They must be well fitting (fit checked and tested) before entering the patient area
    - Fit checking must be carried out each time before entering the patient area (see next slide)
    - If you cannot achieve a proper fit do not enter the area

# 8835 Respirator

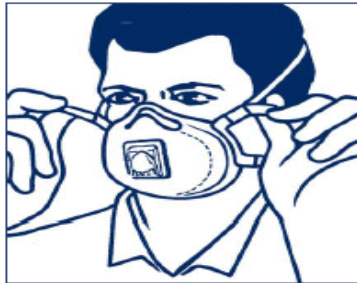
## Fitting Instructions



1. Thread top elastic strap through top buckles. Repeat for bottom strap and buckles. Place the bottom elastic strap around the head just below the ears. Untwist the strap.



2. Place the top elastic strap around the head, above the ears. Untwist the strap.



3. Adjust tension by pulling tabs of each strap, as shown.



4. Using both hands, mould metal nosepiece comfortably to shape of nose.



5. Strap tension may be decreased without removing respirator from the head by pushing out on the back of the buckles. If you cannot achieve a proper fit do not enter contaminated area. See your Supervisor.



6. The seal of the respirator on the face should be fit-checked prior to wearing in the work area.  
a) Cover the front of the respirator with both hands, being careful not to disturb the position of the respirator.  
b) Inhale sharply.  
A negative pressure should be felt inside respirator. If any leakage is detected, adjust position of respirator and/or tension of strap. Retest the seal. Repeat the procedure until the respirator is sealed properly.

**Note - do not use with beards or other facial hair that may inhibit contact between the face and the edge of the respirator.**

Respiratory protection is only effective if it is correctly selected, fitted and worn throughout the time when the wearer is exposed to hazards.

3M offers advice on the selection of products and training in the correct fitting and usage.

For help with selecting the most appropriate forms of PPE and relevant Health & Safety legislation, or for more detailed product information, please contact the 3M Health & Safety Helpline on: 0870 60 800 60.

Within the Republic of Ireland: 1 800 320500



Occupational Health and Environmental Safety Group  
3M United Kingdom PLC

3M House, PO Box 1,  
Market Place, Bracknell,  
Berkshire RG12 1JU

3M Ireland

3M House, Adelphi Centre, Upper Georges St.  
Dun Laoghaire  
Co. Dublin, Ireland

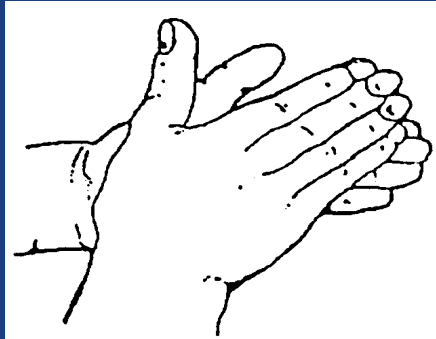
# Fit testing

- Additionally in 2004, the Health and Safety Executive introduced guidance on fit testing of respiratory protective equipment facepieces  
(<http://www.hse.gov.uk/pubns/asbestos.pdf>)
- This document describes the testing that should be carried out:
  - as part of the initial selection of the respiratory device
  - to ensure adequate protection is provided against transmission of micro-organisms
  - particularly prudent for those healthcare workers caring for SARS cases
- This requirement supports COSHH Regulations (2002)
- Local support and guidance for application of this procedure is required

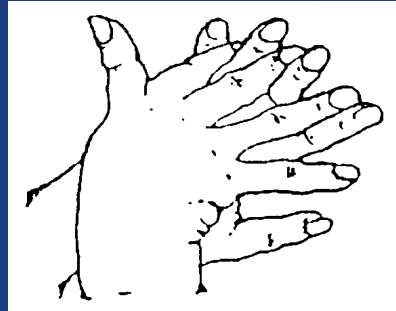
# Important Points

- Once a respirator mask is on it **must** not be touched
- If you feel you cannot breath with it on, leave the area immediately **and then** remove it
- **Respirator masks must only be removed once you have left the patient room/area**
- Remove it by handling ***the straps only***
- Dispose of it immediately as per local clinical waste procedures
- Wash your hands immediately after disposing of it
- If the mask becomes damaged, wet, visibly soiled or contaminated leave the area and dispose of it

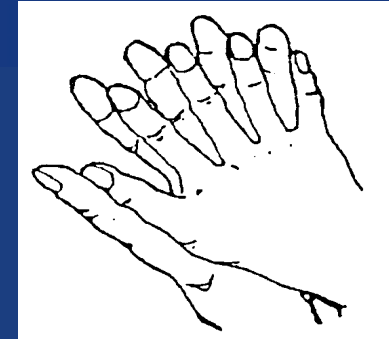
# The Importance of Correct Hand Hygiene



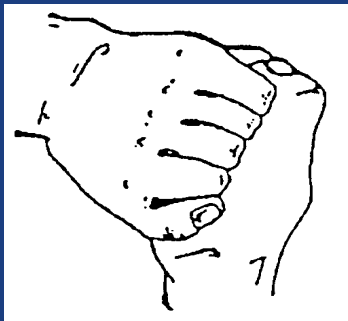
1. Palm to Palm



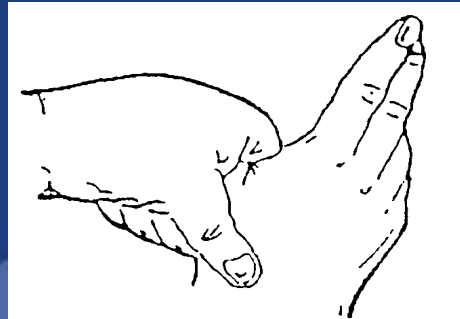
2. Right palm over left dorsum and left palm over right dorsum



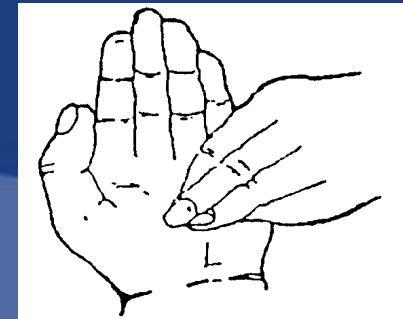
3. Palm to Palm fingers interlaced



4. Backs of fingers to opposing palms with fingers interlocked



5. Rotational rubbing of right thumb clasped in left palm and vice versa



6. Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa<sub>18</sub>

# Additional Points

- There are key differences between respirator type masks and surgical masks:
  - Surgical masks are not thought to provide protection against airborne infection
  - They do not seal well to the face
  - They are more suited to preventing droplets being expelled by the wearer or protecting them from splashes
  - If a respiratory device is not available, surgical masks can be worn, closely fitted to the face as they may provide some protection

# Additional Points

- You should not reuse respirator masks
- You should not clean respirator masks
- Respirator type masks should not be worn by patients (in particular a respirator mask with an exhalation valve must never be worn by a patient)
  - **Patients should wear surgical masks if required to limit droplet/aerosol spread, e.g. on transfer**
- At this time the use of powered respirator suits is not being recommended for use with SARS cases
- Good general hygiene is essential for healthcare workers, including care of uniforms
  - **If a healthcare worker should experience any respiratory symptoms they should report to their doctor/occupational health department and should not care for patients during this time**

# Further information on the management of SARS cases in hospitals and respirator masks

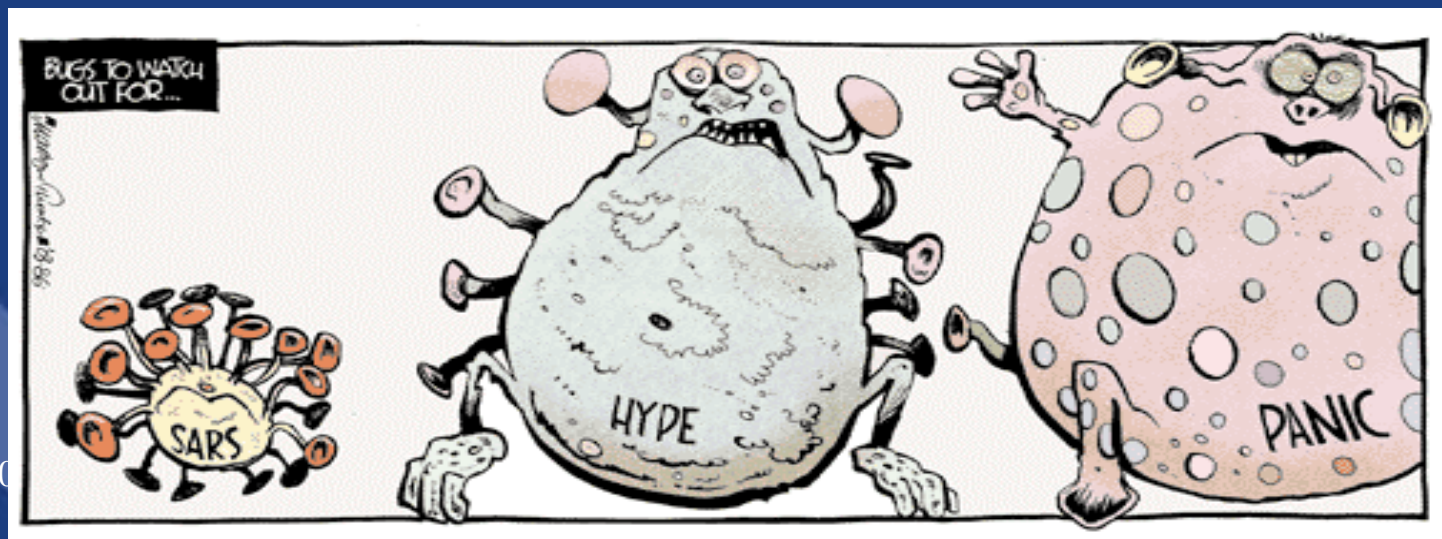
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[http://www.show.scot.nhs.uk/scieh/infectious/respiratory/SARS/SARS\\_facemask\\_faq.htm](http://www.show.scot.nhs.uk/scieh/infectious/respiratory/SARS/SARS_facemask_faq.htm)

[http://www.show.scot.nhs.uk/scieh/infectious/respiratory/documents/sars/Guidance\\_use\\_respirator\\_masks.pdf](http://www.show.scot.nhs.uk/scieh/infectious/respiratory/documents/sars/Guidance_use_respirator_masks.pdf)

# Summary

- There is a risk of transmission when caring for suspect or probable SARS cases
- Standard Infection Control Precautions are essential in preventing spread of infection at all times
- The correct use of respirator type masks is crucial and must be adopted by healthcare workers caring for those patients with suspect or probable SARS



# Appendix – Definition of close contact

- Close contact means healthcare worker or persons having cared for, lived with or had face-to-face (within 1 metre) contact with, or having had direct contact with respiratory secretions and/or body fluids of a person with SARS

UK Case Definitions for SARS (draft) – Health Protection Agency Jan 04