

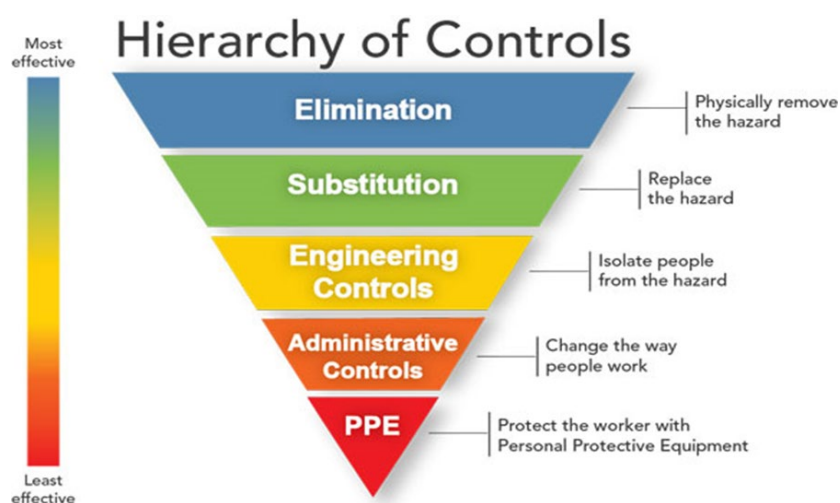
Appendix 17 – Risk Assessment

Principles for Health and Care Settings: Hierarchy of Controls

Controlling exposures to occupational hazards, including the risk of infection, is the fundamental method of protecting staff and users of a health and care facility/workplace. Below is a graphic specifying the general principles of prevention legislated in the Management of Health and Safety at Work Regulations 1999, Regulation 4, Schedule 1. It details the most to the least effective hierarchy of controls (HoC) and is applied across a wide range of occupational settings to support and optimise staff and service user safety. It should also be used within health and care settings to help prevent the transmission of infection. An [SBAR detailing evidence](#) in support of its inclusion within health and care settings is available.

For the purpose of this document the term ‘service user’ refers to individuals being cared for in health and care settings.

Figure 1: Hierarchy of controls



Centers for disease control and prevention. [The National Institute for Occupational Safety and Health. Hierarchy of Controls. 2015.](#)

When applying infection prevention and control precautions (IPC) at organisational, local clinical/care level and individual level, the HoC should be considered when applying Standard Infection Prevention and Control Precautions (SICPs) and Transmission Based Precautions (TBPs) recognising that the most effective method of control (elimination) is employed first.

This inherently results in safer control systems. It is recognised that elimination of risk may be challenging within health and care settings due to the nature of the services provided. Where that is not possible, all other controls must be considered in sequence.

Personal protective equipment (PPE) is the last in the HoC and may be the only mitigating control when caring for a service user.

Elimination

The most effective controls involve physically removing hazards where possible. It is important to take reasonable preventative actions to eliminate the risk of exposure to infectious agents.

Examples in practice may include, but are not limited to:

- Consideration of telephone or digital consultations where possible. Services may adopt a hybrid approach whereby they choose to see some service users face to face and others via digital consultation – this should be determined locally by means of a risk assessment.
- Regular symptom vigilance must be always in place and arrangements made for staff to leave the health and care setting if they become unwell during a shift.
- Visitors should not enter a health or care facility if they have a suspected or confirmed infection, or have been advised to self-isolate, unless exceptional circumstances have been agreed with clinical and infection prevention and control or health protection teams.

Substitution

Substitution involves replacing a process or a practice where possible, aiming to remove the identified hazard. Examples in practice may include, but are not limited to:

- consider the use of an alternative venue to reduce risk wherever practicable, for example use a non-shared, large, well ventilated room near front door of the facility
- rearrange non-urgent appointments (if possible)
- arrange a home visit (if possible)

Engineering Controls

Engineering controls isolate people from the identified hazard, by removing or containing the hazard. Examples in practice may include, but are not limited to:

- take steps to prevent overcrowding
- utilise mechanical ventilation where available and improve natural ventilation by opening doors and windows if safe to do so (following a local risk assessment)
- ensure optimal bed and chair spacing throughout health and care settings
- ensure effective equipment and environmental cleaning is in place
- where airborne precautions are required utilise single rooms for performing aerosol generating procedures (AGPs)

Patient/service user placement

Recognising that many service users with a transmissible infection require to be admitted to health and care settings, placement is an important factor in preventing onward transmission coupled with the other elements of SICPs and TBPs.

Health and care settings must seek to identify and prepare the most suitable clinical/care area for planned placement of service users with a known or suspected infection or colonisation. Where possible, this process should form part of organisational IPC planning undertaken for

each clinical/care area in advance rather than at the time of service user admission/attendance. Health and care facilities should assess clinical/care areas considered most to least optimal for placement of service users with transmissible infection which also needs to take account of clinical need and service access and take the form of a structured risk assessment.

When caring for service users with **infections spread by the droplet or airborne route**, [ventilation](#) plays a key role in IPC. If the risk assessment concludes that an unacceptable risk of transmission remains within an environment after rigorous application of the HoC (e.g. unable to defer service user care, area poorly ventilated AND overcrowded) and only if there are no other more optimal lower risk areas suitable for service user placement, then health and care organisations may consider utilising the area for this purpose with provision of respiratory protective equipment (RPE) (FFP3 respirators) for the staff working in this area. This takes account of guidance issued by the World Health Organization (WHO) [occupational health and safety for healthcare workers](#).

As a minimum, the risk assessment should take account of the following:

- Does the room capacity allow for all bed/treatment chairs to meet bed/chair spacing requirements in line with current guidance and taking into consideration ergonomics?
- Is the area mechanically ventilated and meets a minimum of 6 air changes per hour (ACH)?

Ventilation in health and care settings

Adequate ventilation reduces the number of infectious particles in the air by dilution. It helps reduce the risk of transmission of infections spread by the droplet/airborne route – the risk is greater in areas that are poorly ventilated. This section is not intended to contain technical detail on ventilation but rather provide over-arching advice on the considerations for health and care settings in the context of infections spread by the droplet/airborne route and risk reduction. The content below should be read in conjunction with the relevant national guidance relating to ventilation in the built environment.

Several studies have linked transmission of respiratory viruses to recirculating air conditioners, with the high velocities created by these units potentially allowing larger viral aerosols to remain airborne over longer distances. It is also possible that directional flow from desk fans could have a similar effect however the evidence of this is weak. Fans should be avoided as much as

possible and should not be used without prior local risk assessment. [An SBAR details the considerations for risk assessing fan use.](#)

[\(SHTM 03-01 Part A\) Ventilation for Healthcare - Design and validation](#) details the ventilation requirements for health and care settings and notes that 6 ACH is considered adequate for general areas within health and care settings. Some areas of health and care, for example theatres, treatment rooms, dental surgeries, require higher specification of mechanical ventilation as outlined in the section below titled 'mechanical ventilation'. Dental settings may also refer to [SDCEP Ventilation Information for Dentistry](#). It is recognised that many health and care areas are not installed with mechanical ventilation systems to achieve a minimum of 6 ACH and NHS boards/care providers are not required to upgrade ventilation throughout all their estate (unless this is part of the existing strategic plans). However, it should be noted that where mechanical ventilation provides 6 ACH or more, that respiratory pathogen transmission risk is reduced.

Service users with confirmed or symptoms of a transmissible respiratory infection must not be placed in a positive pressure room.

Mechanically ventilated areas

NHSScotland boards/health and social care providers should seek assurance that their ventilation systems comply with guidance to which they were designed, including:

- [Best practice guidance for healthcare engineering policies and principles \(SHTM 00\)](#)
- [Ventilation for Healthcare - Design and validation \(SHTM 03-01 Part A\)](#)
- [SHPN 36 Part 2 NHS Dental Practices in Scotland](#)

Ensure ventilation systems are well maintained ensuring functionality of air handling units and correct delivery of assigned air change rates.

Naturally ventilated areas (No mechanical ventilation)

Ensure areas are ventilated as much as and as frequently as possible by opening windows if a local risk assessment permits. Where local risk assessments do not allow for windows being opened (e.g., weather conditions, service user safety concerns), consider if other mitigations

within the HoC can be applied to reduce risk. Consideration should be given to any other safety risks associated with opening the windows where adjacent building works are in progress – this should be recorded in relevant [HAI SCRIBE](#) documentation associated with building works. If possible, open windows at different sides to get a cross flow of ventilation. Where it is safe to do so, doors may be opened. NB fire doors must NEVER be propped open.

Aerosol Generating Procedures (AGPs) undertaken on service users with infection spread by the droplet/airborne route should be avoided in shared spaces and rooms with less than 6 ACH and this includes rooms limited to natural ventilation. A single side room should be used with all staff wearing appropriate PPE, AGP fallow times adhered to and ensuring the door remains closed during the AGP and resulting AGP fallow time. See [Appendix 16](#) of the NIPCM for more information on AGPs and associated post AGP fallow times.

Administrative Controls

Administrative controls are about changing the way people work. Suggested controls include, but are not limited to:

- try to limit movement of service users with known or suspected infection where possible, by undertaking procedures in their room, rather than transferring to another department or area.
- try to reduce staff numbers where possible, for example consider reducing numbers involved in ward rounds and utilise digital methods for meetings.

Personal Protective Equipment (PPE)

PPE is the last level of control in the hierarchy.

- Use PPE, when a risk assessment indicates this is required.
- Ensure PPE is used as per the National Infection Prevention and Control Manual and Care Home Infection Prevention and Control Manual.
- Ensure all staff required to wear respiratory protective equipment (RPE) have been fit tested. This is a legal requirement for employers.

- Ensure adequate stock and availability of PPE to protect staff, service users, and visitors.

Although used for source control rather than personal protection, it is also important to ensure the use of face coverings where they are indicated.