Public Services Delivery
Scotland

NHS
SCOTLAND

Surgical Face Masks Literature Review

Executive Summary

Version 1.0

3 August 2026

Antimicrobial Resistance & Healthcare Associated Infection (ARHAI) Scotland
An NHS Scotland Assure Service, part of Public Services Delivery Scotland

Contents

Introduction

This literature review informs the surgical face masks content in the National Infection Prevention and Control Manual (NIPCM) and the Care Home Infection Prevention and Control Manual (CH IPCM):

- NIPCM section 1.4 ‘Personal Protective Equipment (PPE)’ in Chapter 1.
- NIPCM section 2.4.1 ‘Surgical masks’ in Chapter 2
- CH IPCM section 4 ‘Personal Protective Equipment (PPE) in Chapters 1 and 2
- Appendix 6 – Putting on and removing PPE
- Appendix 11 - Patient placement considerations and respiratory protection, including R1, R2 and R3 respiratory agents
- Appendix 15 – Mask selection and use algorithm for infectious agents

There are three documents to note:

- The Literature review which provides a comprehensive systematic review of the evidence
- Considered judgement forms which outline the evidence base and expert opinion used to develop the recommendations and good practice points (GPP) for each literature review research question. Also detailed are the benefits, potential harms, feasibility of implementation, value judgements, intentional vagueness, and exceptions associated with the recommendations and good practice points.
- Evidence tables which detail all the included studies and provide an assessment of the evidence for each research question of the literature review.

Scope

Research questions

There are 13 research questions (RQ) in this literature review. With this update, research questions are no longer separated into standard infection prevention and control (SICP)- and transmission-based precautions (TBP)-specific objectives; the focus is now on the use of surgical masks for the purpose of infection prevention and control within health and care settings. RQ2 was added for the first time, with the aim of outlining how surgical face masks are currently described within the literature; it does not have any associated recommendations or good practice points.

- RQ 1 What legislative requirements or standards must surgical face masks adhere to for infection control purposes?
- RQ 2 What is a surgical face mask?
- RQ 3 What type of surgical face masks are recommended for health and care setting?
- RQ 4 What design features are desirable for surgical face masks?
- RQ 5 When should health and care workers wear a surgical face mask?
- RQ 6 When should patients/service users of health and care facilities wear a surgical face mask?
- RQ 7 When should visitors of health and care facilities wear a surgical face mask?
- RQ 8 When is eye-face protection required in addition to a surgical face mask?
- RQ 9 When should surgical face masks be removed/changed?
- RQ 10 Where and how should surgical face masks be donned/put on?
- RQ 11 Where and how should surgical face masks be doffed/taken off?
- RQ 12 How should surgical face masks be disposed of?
- RQ 13 How should a surgical face mask be stored?

Change to Practice

There has (as of August 2026) been a significant change to the transmission mode descriptors within the NIPCM; the historical ‘droplet’ and ‘airborne’ transmission mode descriptors have been replaced with the new term ‘air’ transmission. However, healthcare workers will continue to wear a surgical face mask as a minimum when caring for patients that are suspected or confirmed to be infected with an infectious agent that was previously described as being transmitted via the ‘droplet’ route. This includes when caring for patients suspected or confirmed to be infected with respiratory infectious agents that are now classified as ‘R1’ infectious agents, as per GPP5.5. All other non-respiratory infectious agents that were previously termed as ‘droplet’ transmitted, will continue to require use of a surgical face mask, as per GPP5.1 (‘A type IIR fluid resistant surgical face mask should be worn by health and care workers when splashing or spraying of blood or body fluids is anticipated’).

There is a new GPP that supports the use of a surgical face mask by healthcare workers (and visitors) at all times when within the care area (room, bay, or cohort area) of patients with suspected or confirmed R1 respiratory infection, as provided in GPP10.3. This is intended to reduce the risk of far-field exposure to respiratory particles. Reinforcing protection against far-field exposure, GPP9.5 advises removal of surgical face masks after exiting the room if the mask is being worn for personal protection against suspected or confirmed respiratory infection; this is applicable to healthcare workers and visitors. If not being worn for protection against respiratory protection (for example, blood or urine splash risk), the surgical face mask can be removed at the nearest disposal point, as per GPP11.4. There is also a new GPP that supports sessional use of masks, without requiring a mask change between patients, when providing care to cohorted patients, as per GPP9.3 (‘Surgical face masks should be changed between patients unless sessional use is indicated’). This new GPP does not remove the need to change a mask if it becomes contaminated. Sessional use of other types of PPE is not recommended in the NIPCM.

There are new GPPs that support the extended use of surgical face masks by healthcare workers (GPP5.6), patients (GPP6.2) and visitors (GPP7.3) as an IPC measure during epidemics or periods of high rates of local transmission of respiratory infectious agents. Previously this was only applicable to healthcare

workers and mostly implemented in hospital settings. This may support greater use of masks during the winter season as a precautionary measure to help reduce transmission in health and care settings.

There is a greater focus on protection of immunocompromised patients in this update. GPP5.7 advises healthcare workers to wear a surgical face mask when providing care to severely immunocompromised patients where protective isolation is indicated, as determined by the clinical team. This protection is reinforced in GPP7.4 ('Health and care settings should consider the provision of surgical face masks for visitors when visiting any patient who is severely immunocompromised or being cared for in protective isolation'). GPP6.3 advises that severely immunocompromised patients should wear a type II or type IIR surgical face mask when outside protective environments, where they are tolerable and do not compromise clinical care. Previously this was advised only during periods of construction and/ or renovation; this has been updated to account for the higher risk of infection that is ever present in this patient cohort, and the significant impact that infection could have on their treatment and recovery. These new GPPs may result in wider mask use in this patient cohort, and by healthcare workers caring for them.

Regarding the provision of transparent surgical face masks, those responsible for procurement should now ensure that transparent surgical face masks meet the specifications outlined in BS EN 146833:2025, as per GPP3.3. Previously, transparent surgical face masks had to meet the standards set out in the NHS England 'Transparent Face Mask Technical Specification', which was officially withdrawn in March 2023.

Change to recommendations (R) and good practice points (GPP)

There are several good practice points that are 'new' in terms of appearing for the first time in this latest literature review update however these are reflective of current practice. This includes GPP5.8 ('Where a patient presents with symptoms indicative of a transmissible respiratory infection and the likely causative agent cannot be determined, health and care workers should (as a minimum) wear a type IIR surgical face mask'), and GPP10.7 ('When multiple items of PPE are required, surgical face masks should be donned (put on) second in the sequence following an apron /

gown'). Although GPP10.7 has been included as a new GPP, this does not indicate a change in the current sequence for donning PPE; PPE donning sequences are detailed in Appendix 6 of the NIPCM (putting on and removing PPE).

Hand hygiene is advised before and after removal (GPP11.3) and after disposal (GPP12.3) of a surgical face mask. Although GPP11.3 advises hand hygiene immediately after removal, this would incorporate the action of disposal of the mask at the same time therefore, in practice, hand hygiene would be performed only once (immediately after the mask has been removed and disposed of). Stakeholders requested this to be made clear in the NIPCM.

GPP7.5 is new and advises that, during enablement of essential visiting, visitors with a suspected or confirmed respiratory infection should wear a surgical face mask on entry to the facility. This may result in wider use of masks in these scenarios and it is hoped that this GPP will support the key principles of essential visiting as per the Scottish Government hospital visiting guidance and adult care home visiting guidance, and adherence to Anne's Law.

Summary of Recommendations (R) and Good Practice Points (GPP)

Research Question 1: What legislative requirements or standards must surgical face masks adhere to for infection control purposes?

R1.1	**All UK legislation that is relevant to surgical face mask use (used for personal protection and for source control) must be adhered to, including the PPER, COSHH, the Health and Safety at Work etc. Act and the Medical Device directive (MDD/03/42/EEC).**
GPP1.1	**Those procuring surgical face masks for use in Scottish health and care settings should ensure the masks are compliant with the relevant standards (listed in appendix 3 of the literature review).**

Research Question 2: What is a surgical face mask?

This research question aimed to outline how surgical face masks are currently described within the literature. It therefore does not have any associated recommendations or good practice points.

Research Question 3: What type of surgical face masks are recommended for health and care settings?

GPP3.1 **Surgical face masks required for use in health and care settings to provide personal protection should be Type IIR as per BS EN 14683:2025. [New]**

GPP3.2 **Surgical face masks required for use in health and care settings to provide source control should be Type II or Type IIR as per BS EN 14683:2025. [New]**

GPP3.3 **When there are communication barriers due to mask use in health and care settings, transparent surgical face masks (that meet the specifications of BS EN 146833:2025) should be used. [New]**

Research Question 4: What design features are desirable for surgical face masks?

GPP4.1 **When selecting or procuring surgical face masks, preference should be given to masks that have an integral nose clip or wire to ensure a good fit. [New]**

GPP4.2 **When selecting or procuring surgical face masks, preference should be given to masks that have an easily identifiable inner and outer surface. [New]**

Research Question 5: When should health and care workers wear a surgical face mask?

GPP5.1 **A Type IIR fluid resistant surgical face mask should be worn by health and care workers when splashing or spraying of blood or body fluids is anticipated.**

GPP5.2 A Type IIR fluid resistant surgical face mask should be worn by scrubbed members of the theatre surgical team during surgical procedures.

GPP5.3 Non-scrubbed members of the theatre team should consider wearing a Type IIR surgical face mask.

GPP5.4 A Type IIR fluid resistant surgical face mask should be worn when preparing equipment for, and performing invasive clinical procedures, for example: intra-articular (joint) injections, central venous catheter insertion, invasive spinal procedures (such as myelography, lumbar puncture and spinal anaesthesia).

GPP5.5 Health and care workers should wear a Type IIR surgical face mask as a minimum when delivering care to patients who are suspected or confirmed to be infected with an R1* respiratory infectious agent. [New]

*R1 = respiratory infectious agents that can cause human disease and may be a hazard to employees but are unlikely to spread to the community and there is usually effective prophylaxis or treatment available.

GPP5.6 The extended use of Type IIR surgical face masks by health and care workers should be considered as an enhanced infection prevention and control measure during epidemics or periods of high rates of local transmission of respiratory infectious agents. [New]

GPP5.7 Heath and care workers should wear a Type IIR surgical face mask when providing care to severely immunocompromised service users where protective isolation is indicated, as determined by the clinical team. [New]

GPP5.8 Where a patient presents with symptoms indicative of a transmissible respiratory infection and the likely causative agent cannot be determined, health and care workers should (as a minimum) wear a Type IIR surgical face mask. [New]

Research Question 6: When should patients/service users of health and care facilities wear a surgical face mask?

GPP6.1	**Where it does not compromise clinical care and is tolerable, patients/ service users who have a suspected or confirmed respiratory infection should wear a Type II or Type IIR surgical face mask when outside their dedicated room and when a healthcare worker enters their room.**
GPP6.2	**The extended use of surgical face masks, within health and care settings, by all patients/ service users should be considered, where they are tolerable and do not compromise clinical care, as an enhanced infection prevention and control measure during epidemics or periods of high rates of local transmission of respiratory infectious agents. [New]**
GPP6.3	**Severely immunocompromised patients should wear a type II or type IIR surgical face mask when outside protective environments, where they are tolerable and do not compromise clinical care. [New]**

Research Question 7: When should visitors of health and care facilities wear a surgical face mask?

GPP7.1	**Visitors should wear a surgical face mask when visiting a patient who has a suspected or confirmed respiratory infection. [New]**
GPP7.2	**Visitors should wear a surgical face mask when there is a risk of splash and spray of blood or body fluids from the patient, if participating in patient care. [New]**
GPP7.3	**The extended use of surgical face masks by visitors should be considered as an enhanced control measure during epidemics or periods of high rates of local transmission of respiratory infectious agents. [New]**
GPP7.4	**Health and care settings should consider the provision of surgical face masks for visitors when visiting any patient who is severely**

	immunocompromised or being cared for in protective isolation. [New]
GPP7.5	**During enablement of essential visiting, visitors with a suspected or confirmed respiratory infection should wear a surgical face mask on entry to the facility. [New]**

Research Question 8: When is eye-face protection required in addition to a surgical face mask?

Evidence and recommendations regarding eye and face protection use have already been considered within the Eye and Face Protection Literature Review.

Research Question 9: When should surgical face masks be removed/changed?

GPP9.1	**Surgical face masks should be removed or changed if they become damaged, damp, wet, soiled or contaminated.**
GPP9.2	**Surgical face masks should be removed following the completion of a clinical procedure/task.**
GPP9.3	**Surgical face masks should be changed between patients unless sessional use is indicated. [New]**
GPP9.4	**When worn for prolonged periods (sessional or extended use), surgical face masks should be changed when moving between clinical areas (e.g. wards) and when moving from a clinical to a non-clinical area. [New]**
GPP9.5	**Where indicated for personal protection during the care of (or while visiting) patients with suspected or confirmed respiratory infection, surgical face masks should be removed after exiting the patient/ service user's room. [New]**

Research Question 10: Where and how should surgical face masks be donned/put on?

GPP10.1	**Hand hygiene should be performed before donning (putting on) a surgical face mask.**

GPP10.2 The surgical face mask's integrity should be examined before donning; if there is any visible damage or defect (holes or tears) it should not be used.

GPP10.3 Where indicated for personal protection during the care of patients with suspected or confirmed respiratory infection, a surgical face mask should be donned (put on) prior to entering the care area (rooms, bays or cohort areas) and kept on whilst in the care area. [New]

GPP10.4 The following steps should be followed when donning a surgical face mask:

- Ensure the fluid repellent side is facing outwards
- For masks with ear loops, secure ear loops by placing the loops behind the ears
- For masks with ties, bring the top ties to the crown of the head and secure with a bow, then tie the bottom ties at the nape of the neck
- If present, shape the flexible nose wire/clip over the bridge of the nose for a secure fit
- Extend and adjust the mask so that it covers the nose, mouth and chin, without gaps.

GPP10.5 The front of a surgical face mask should not be touched once fitted to the face; if this should occur, hand hygiene should be performed.

GPP 10.6 A surgical face mask should be worn only on the face and not, for example, hanging around the neck or from an ear.

GPP10.7 When multiple items of PPE are required, surgical face masks should be donned second in the sequence following an apron/gown. [New]

Research Question 11: Where and how should surgical face masks be doffed/taken off?

GPP11.1	**Surgical face masks should be removed by handling the loops or ties only and any direct contact with the front of the mask should be avoided as it may be contaminated.**
GPP11.2	**Surgical face masks with ties should be removed by untying or breaking the bottom ties first followed by the top ties. Masks with ear loops should be removed from each side, with the head tilted forward.**
GPP11.3	**Hand hygiene should be performed immediately before and after removal of a surgical face mask. [New]**
GPP11.4	**A surgical face mask should be doffed (removed) at the nearest disposal point; this should be following exit from the care area (room, bay or cohort area) when worn for the care of patients with suspected or confirmed respiratory infection. [New]**

Research Question 12: How should surgical face masks be disposed of?

GPP12.1	**Used surgical face masks should be disposed of immediately after their removal into an appropriate waste receptable.**
GPP12.2	**Used surgical face masks should only be handled by the ties or loops during disposal.**
GPP12.3	**Hand hygiene should be performed immediately after disposal of a surgical face mask.**

Research Question 13: How should a surgical face mask be stored?

R13.1	**Appropriate storage arrangements in a well-defined space must be provided for PPE to protect it from contamination, loss or damage.**
GPP13.1	**Surgical face masks should be stored within their original packaging in an appropriate dedicated room or allocated space that is**

accessible and near to the intended point of use, outside of patient rooms/zones.