

**Personal Protective
Equipment (PPE):
Aprons/Gowns Literature
Review
Executive Summary**



Version 1.0

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Executive Summary

This literature review informs the 'Personal Protective Equipment – Aprons/Gowns' 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'](#) in Chapter 1, [section 2.4 'Personal Protective Equipment' in Chapter 2](#)
- CH IPCM [section 4 'Personal Protective Equipment \(PPE\)'](#) in Chapter 1, and [section 4 'Personal Protective Equipment \(PPE\): Respiratory Protective Equipment \(RPE\)'](#) in Chapter 2
- [Appendix 6 - Putting On and Removing PPE](#)

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 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 nine research questions (RQ) in this literature review. One new RQ was added in this update (RQ 7), which looked to capture how reusable aprons/gowns should be reprocessed.

- Legislative requirements and standards are described in RQ 1 and throughout the review, where applicable.
- RQ 2 covers what type(s) of aprons/gowns should be used in health and care settings.
- RQ 3 covers when should aprons/gowns should be worn in health and care settings.
- RQ 4 and 6 covers how and where should aprons/gowns be donned (put on) and doffed (taken off) respectively.
- RQ 5 covers when should aprons/gowns be removed/changed.
- RQ 7 covers how should reusable aprons/gowns be reprocessed.
- RQ 8 covers how aprons/gowns should be disposed of.
- RQ 9 covers how aprons/gowns should be stored.

Change to Practice

There is no significant change to practice expected as a result of this literature review update. It is understood that recommendations (R) and good practice points (GPP) developed are reflective of current practice.

Change to Recommendations and Good Practice Points

The question set was reviewed, and the previously separated SICPs and TBPs specific objectives were combined to focus on “use in health and care settings”.

- A new research question: How should reusable aprons/gowns be reprocessed? was added.

- The research question: When are reusable aprons/gowns appropriate? was removed and now covered under “What type(s) of aprons/gowns should be used in health and care settings?”

The following questions were modified from the previous review.

- Are there any legislative requirements for the use of aprons/gowns as PPE for infection control purposes? (Modification: The term ‘or standards (BS/EN/ISO)’ was added)
- When/where should aprons/gowns be worn for SICPs? and TBPs? (Modification: These were combined, and the term ‘where’ was removed)
- How should aprons/gowns be donned? (Modification: How and where should aprons/gowns be donned (put on)?)
- How should aprons/gowns be doffed? (Modification: How and where should aprons/gowns be doffed (taken off)?)

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

Research Question 1: Are there any legislative requirements or standards (BS/EN/ISO) for the use of aprons/gowns as PPE for infection control purposes?

R1.1	Employers must provide PPE which affords adequate protection against the risks associated with the task being undertaken.
R1.2	Employers must provide adequate instruction and information on how to correctly use, clean, maintain, and store PPE.
R1.3	Employees (i.e., health and care workers) have a responsibility to comply by ensuring that suitable PPE is worn correctly for the task being carried out.

R1.4	PPE must fit appropriately and, if being worn with other pieces of PPE, the employer must make sure that the pieces are compatible with each other and in wearing them together, do not reduce the level of protection.
R1.5	Employers must ensure that PPE is maintained in good working order and in a clean condition.
R1.6	PPE must be either CE or UKCA marked and comply with the Personal Protective Equipment (Enforcement) Regulations 2018.
GPP1.1	Aprons and gowns intended for use as PPE in health and care settings should meet the relevant standards as detailed in Appendix 4 of the literature review.

Research Question 2: What type(s) of aprons/gowns should be used in health and care settings?

GPP2.1	Where an apron is required in health and care settings, it should be plastic, fluid-repellent, single-use and disposable.
GPP2.2	Where a gown is required in health and care settings, it should be full-body, long-sleeved and fluid-repellent; it can be either disposable or reusable (launderable).
GPP2.3	The type of aprons or gowns used in health and care settings should be selected based on the task being undertaken and the anticipated levels of body fluid exposure.
GPP2.4	A sterile gown should be used for invasive procedures that require aseptic technique.

Research Question 3: When should aprons/gowns be worn in health and care settings?

GPP3.1	Aprons or gowns should be worn only when exposure to blood, body fluids, secretions, or excretions through close contact with a patient or any activity or procedure is anticipated.
GPP3.2	A plastic, fluid repellent, single use, disposable apron should be worn, if risk assessment indicates contamination of uniforms or clothing with blood, body fluids, used or infectious laundry, and chemicals or cleaning products is likely.
GPP3.3	A full body, long sleeved, fluid-repellent gown should be worn instead of an apron, if there is a risk of extensive splashing or contamination with blood or body fluids.
GPP3.4	The decision to wear either an apron or gown should be based on an assessment of the anticipated levels of body fluid exposure.
GPP3.5	Visitors assisting with patient care should consider wearing an apron or gown, as appropriate to the care activity being undertaken.
GPP3.6	A sterile gown should be worn to prevent contamination of a sterile field during invasive procedures requiring sterile techniques or surgery.
GPP3.7	All scrubbed members of the operating theatre surgical team should consider wearing sterile gowns.
GPP3.8	Gowns should not be routinely worn by staff and visitors on entrance to high-risk units, including intensive care units (ICUs) and hematopoietic stem-cell transplantation (HSCT) units, but should be considered as part of source control PPE when in close contact with or caring for a patient in protective isolation.

Research Question 4: How and where should aprons/gowns be donned (put on)?

GPP4.1	Hand hygiene should be performed before donning an apron or gown and surgical hand antisepsis should be performed before donning a sterile gown.
GPP4.2	Aprons or gowns should be donned first, followed by other PPE items.
GPP4.3	Aprons or gowns should be donned before entry to the room, cubicle, or patient care area.
GPP4.4	Reusable gowns should be visually inspected for integrity before donning.
GPP4.5	When donning an apron, it should cover as much of the front of the body as possible and be secured at the back by ties. To don an apron:

- Remove apron from the roll or dispenser.
- Open it outwards ensuring the inner surface (when stored) faces the patient to prevent any contamination on its outer surface (based on storage) coming into contact with the patient.
- Place the neck loop over your head.
- Position the apron to cover as much of the front of your body as possible.
- Fix the apron in place by tying the waist straps behind your back.

GPP4.6 When donning a gown:

- Gowns should be secured at the back of the neck and waist.
- They should fully cover torso from neck to knees, arms to end of wrists, and wrap around the back.

GPP4.7 When donning a sterile gown for an aseptic procedure:

- Aseptic technique should be followed, and team member assistance may be required.

Research Question 5: When should aprons/gowns be removed/changed?

GPP5.1	Aprons or gowns should be worn for only one task, procedure, or episode of patient care, and doffed when contaminated, after completion of task, procedure, or episode of patient care and between care for different patients.
GPP5.2	Soiled aprons or gowns should be removed as soon as possible.
GPP5.3	Sessional use of gowns should only be considered as part of a pandemic response plan.

Research Question 6: How and where should aprons/gowns be doffed (taken off)?

GPP6.1	Aprons and gowns should be removed in a manner that avoids contact with the contaminated outer surface and therefore self-contamination.
GPP6.2	Hand hygiene should be performed after removal of aprons and gowns and before removal of eye protection and/or surgical mask/respirator.
GPP6.3	In regard to a PPE ensemble, gloves should be removed first, followed by aprons or gowns, eye protection and mask.
GPP6.4	To remove an apron:

- Untie or break the fastening at the neck.
- Pull the apron away from the neck and shoulders, taking care to only touch the inside surface, i.e., ensuring the apron is dirty side to dirty side.

- Untie or break the fastening at the back of the waist.
- The apron should then be folded or rolled into a ball and placed in the appropriate waste stream.
- Perform hand hygiene.

GPP6.5 To remove a gown:

- Unfasten the ties at the back of neck and waist.
- pull away from neck and shoulders to avoid touching the outer 'contaminated' side of the gown.
- Using a peeling motion, the gown should be pulled down from each shoulder so that the gown is turned inside out.
- Taking care to avoid contact with the body, the gown should be rolled into a ball and placed in either the appropriate laundry or waste stream.
- Perform hand hygiene.

GPP6.6 Aprons or gowns should be removed before leaving the patient room or care area, or in the anteroom if one is available.

Research Question 7: How should reusable aprons/gowns be reprocessed?

- GPP7.1 Reusable gowns should be used for one task or care episode and then be sent for laundering or reprocessing.**
- GPP7.2 Reusable gowns should be reprocessed according to the manufacturer's instructions.**
- GPP7.3 A process should be in place for monitoring/tracking the number of reprocessing cycles and monitoring the quality of reusable gowns to detect any defect.**

Research Question 8: How should aprons/gowns be disposed of?

GPP8.1	Aprons and single-use gowns should be disposed of into the appropriate waste stream in accordance with local policies for waste management.
GPP8.2	Hand hygiene should be performed following apron or gown disposal.
GPP8.3	Reusable gowns should be placed in a designated container or laundry bag(s) in accordance with NHSScotland or organisation’s linen policy.

Research Question 9: How should aprons/gowns be stored?

R9.1	Aprons and gowns must be properly stored in a designated area, following the manufacturer’s instructions.
GPP9.1	Aprons and gowns should be stored away from direct sunlight, heat sources and liquids, including chemicals, in an area that is clean and protects them from contamination.