NHS National Services Scotland

Personal Protective Equipment (PPE): Aprons and gowns literature review

Evidence Tables

Version 1.0

27 October 2025

Antimicrobial Resistance & Healthcare Associated Infection (ARHAI) Scotland
An NHS Scotland Assure Service

Version history

This literature review will be updated in real time if any significant changes are found in the professional literature or from national guidance/policy.

Version	Date	Summary of changes
1.0	27 October 2025	First version to accompany version 2.0 of the literature review.

Contents

Introduction

All studies which are critically appraised as part of the literature review are assigned a grade of evidence based on the SIGN 50 methodology grading system (SIGN, 2019), which allows scientific studies to be assessed for quality using a number of reviewing forms (available from the SIGN website). Guidelines are appraised and graded using the AGREE II grading system (details available from the AGREE website).

Main conclusions from evidence sources (studies and guidance) are summarised along with a brief description of the methods and limitations within evidence table entries. Evidence sources with sufficient quality, which specifically answer a defined research question, are grouped together to enable the formation of an overall assessment regarding the evidence base.

Evidence grading

The following grades were given to the papers included in this evidence table:

Grade	Description
1++	High quality meta analyses, systematic reviews of RCTs, or RCTs with a very low risk of bias
1+	Well conducted meta analyses, systematic reviews of RCTs, or RCTs with a low risk of bias
1-	Meta analyses, systematic reviews of RCTs, or RCTs with a high risk of bias
2++	High quality systematic reviews of case-control or cohort studies. High quality case-control or cohort studies with a very low risk of confounding, bias, or chance and a high probability that the relationship is causal
2+	Well conducted case control or cohort studies with a low risk of confounding, bias, or chance and a moderate probability that the relationship is causal
2-	Case control or cohort studies with a high risk of confounding, bias, or chance and a significant risk that the relationship is not causal
3	Non-analytic studies, for example case reports, case series

Grade	Description
4	Expert opinion

Grade	Description
AGREE 'Recommend'	This indicates that the guideline is of high overall quality and can be considered for use in practice without modifications.
AGREE 'Recommend with modifications'	This indicates that the guideline is of moderate overall quality. This could be due to insufficient or lacking information in the guideline for some items. If modifications are made, the guideline could still be considered for use in practice when no other guidelines on the same topic are available.
AGREE 'Do not Recommend'	This indicates that the guideline is of low overall quality and has serious shortcomings. Therefore, it should not be recommended for use in practice.

Research questions for evidence tables

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

Question 2: When should aprons/gowns be worn in health and care settings?

Question 3: What type(s) of aprons/gowns should be used in health and care settings?

Question 4: How should reusable aprons/gowns be reprocessed?

Question 5: How and where should aprons/gowns be donned (put on)?

Question 6: When should aprons/gowns be removed/changed?

Question 7: How and where should aprons/gowns be doffed (taken off)?

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

Question 9. How should aprons/gowns be stored?

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

Evidence added to Literature Review V2.0

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. UK Statutory Instrument No. 8 Health and Safety The Personal Protective Equipment at Work (Amendment) Regulations. 2022. Came into force 6th April 2022.	Legislation	**Mandatory**	N/A	N/A	N/A

Assessment of evidence

"These Regulations may be cited as the Personal Protective Equipment at Work (Amendment) Regulations 2022 and come into force on 6th April 2022."

"They extend employers' and employees' duties regarding personal protective equipment (PPE)"

"These Regulations amend the Personal Protective Equipment at Work Regulations 1992 ("PPER 1992") to extend the duties contained in regulations 4 to 11 of the PPER 1992 from employees to workers, and to update cross-references to other legislation".

This legislation does not directly answer other research questions.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. UK Statutory Instrument No. 390 Health and Safety. The Personal Protective Equipment (Enforcement) Regulations 2018.	Legislation	**Mandatory**	N/A	N/A	N/A

Assessment of evidence

"These Regulations may be cited as the Personal Protective Equipment (Enforcement) Regulations 2018 and come into force on 21st April 2018."

"These Regulations revoke S.I. 2002/1144 with savings".

"Regulation (EU) 2016/425 (as incorporated into UK law) sets out the essential health and safety requirements that must be met before PPE products can be placed on the GB market. The purpose of the legislation is to ensure safe and effective products are placed on the GB market by requiring manufacturers to show how their products meet the 'essential health and safety requirements'. The Personal Protective Equipment (Enforcement) Regulations 2018 provide a system for the enforcement of the 2016 Regulation."

"To obtain a CE mark, manufacturer of PPE should comply with these regulations (date dependent). These regulations do not affect end users of PPE who should ensure the CE marking is present in line with the Personal Protective Equipment at Work Regulations 1992".

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. Regulation 2016/425 and the Personal Protective Equipment (Enforcement) Regulations 2018: Great Britain. January 2024. Accessed 8 July 2024	Legislation	**Mandatory**	N/A	N/A	N/A

Assessment of evidence

Scope: "Regulation (EU) 2016/425 (as incorporated into UK law) sets out the essential health and safety requirements that must be met before PPE products can be placed on the GB market. The purpose of the legislation is to ensure safe and effective products are placed on the GB market by requiring manufacturers to show how their products meet the 'essential health and safety requirements'.

"The Personal Protective Equipment (Enforcement) Regulations 2018 provide a system for the enforcement of the 2016 Regulation".

"4. Requirements

The essential health and safety requirements (listed in Annex II) apply to PPE within the scope of the 2016 Regulation as amended as appropriate. Under Article 19, all PPE within scope must undergo a conformity assessment procedure in accordance with its risk categorisation (specified in Annex I) to demonstrate compliance with the essential requirements".

This guidance sets out the standards that PPE products supplied in the UK must conform to and requires that all PPE is UKCA (UK Conformity Assessed) marked. These markings demonstrates that an item has been manufactured to required standard and passed the appropriate tests for the PPE type and intended use/purpose.

Assessment of evidence
This legislation does not directly answer other research questions.

Evidence from previous update(s)

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. Health and Safety at Work etc. Act 1974.	Legislation	**Mandatory**	N/A	N/A	N/A

Assessment of evidence
The Health and Safety at Work Act is the generic health and safety legislation for the UK and broadly covers the use of PPE and risk, but is not health and/or care specific. General duties of employers (to employees and general public) and employees (to themselves and to each other) are provided. Duties for those who are self-employed are also outlined. “An Act to make further provision for securing the health, safety and welfare of persons at work, for protecting others against risks to health or safety in connection with the activities of persons at work, for controlling the keeping and use and preventing the unlawful acquisition, possession and use of dangerous substances, and for controlling certain emissions into the atmosphere; to make further provision with respect to the employment medical advisory service; to amend the law relating to building regulations, and the Building (Scotland) Act 1959; and for connected purposes.” “It shall be the duty of every employer to ensure, so far as is reasonably practicable, the health, safety and welfare at work of all his employees.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. UK Statutory Instrument No. 2677 Health and Safety. The Control of Substances Hazardous to Health Regulations 2002.	Legislation	**Mandatory**	N/A	N/A	N/A

Assessment of evidence

This legislation provides detailed information on protection of employees regarding substances that are hazardous to health. These include “micro-organisms such as bacteria, viruses, fungi, and the agents that cause transmissible spongiform encephalopathies (TSEs)”

Covers risk of exposure which is work related.

Exposure to harmful substances should be eliminated/prevented in the workplace, but where avoidance of this is not reasonably practicable, control measures should be employed which are appropriate to the activity and consistent with the risk assessment.

“where adequate control of exposure cannot be achieved by other means, the provision of suitable personal protective equipment”

PPE should be suitable for the intended purpose, fit the wearer appropriately and comply with PPE regulations 2002.

Employer should take all reasonable steps to ensure that PPE is used properly.

Employers should ensure that PPE “is maintained in an efficient state, in efficient working order, in good repair and in a clean condition”

“Every employer shall ensure that personal protective equipment, including protective clothing, is:

(a) properly stored in a well-defined place;

(b) checked at suitable intervals; and

(c) when discovered to be defective, repaired or replaced before further use.”

Assessment of evidence
Following use, PPE should be “removed on leaving the working area and kept apart from uncontaminated clothing and equipment”. The employer shall ensure that removed/disposed PPE is “subsequently decontaminated and cleaned or, if necessary, destroyed”.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. UK Statutory Instrument No. 2966 Health and Safety. Personal Protective Equipment at Work Regulations 1992.	Legislation	**Mandatory**	N/A	N/A	N/A

Assessment of evidence
Note: Below information taken from both the 1992 regulations and 2022 amendment. Reference to 2022 amendment required in the review and added to evidence table. 2022 amendments to 1992 regulation in **bold**. Provision of personal protective equipment Regulation 4: “(1) Every employer shall ensure that suitable personal protective equipment is provided to his workers who may be exposed to a risk to their health or safety while at work except where and to the extent that such risk has been adequately controlled by other means which are equally or more effective.” “(3) […] personal protective equipment shall not be suitable unless— (a) it is appropriate for the risk or risks involved and the conditions at the place where exposure to the risk may occur;

Assessment of evidence
(b) it takes account of ergonomic requirements and the state of health of the person or persons who may wear it; (c) it is capable of fitting the wearer correctly, if necessary, after adjustments within the range for which it is designed; (d) so far as is practicable, it is effective to prevent or adequately control the risk or risks involved without increasing overall risk; (e) it complies with any enactment (whether in an Act or instrument) which implements in Great Britain any provision on design or manufacture with respect to health or safety in any relevant Community directive listed in Schedule 1 which is applicable to that item of personal protective equipment". Compatibility of PPE: Regulation 5: "(1) Every employer shall ensure that where the presence of more than one risk to health or safety makes it necessary for his **worker** to wear or use simultaneously more than one item of personal protective equipment, such equipment is compatible and continues to be effective against the risk or risks in question". "(2) Every self-employed person shall ensure that where the presence of more than one risk to health or safety makes it necessary for him to wear or use simultaneously more than one item of personal protective equipment, such equipment is compatible and continues to be effective against the risk or risks in question". Assessment of PPE: Regulation 6: "(1) Before choosing any personal protective equipment […] an employer or self-employed person shall ensure that an assessment is made to determine whether the personal protective equipment they intend will be provided is suitable. (2) The assessment required by paragraph (1) shall include— (a) an assessment of any risk or risks to health or safety which have not been avoided by other means; (b) the definition of the characteristics which personal protective equipment must have in order to be effective against the risks referred to in sub-paragraph (a) of this paragraph, taking into account any risks which the equipment itself may create; (c) comparison of the characteristics of the personal protective equipment available with the characteristics referred to in sub-paragraph (b) of this paragraph.

Assessment of evidence
(3) Every employer or self-employed person who is required by paragraph (1) to ensure that any assessment is made shall ensure that any such assessment is reviewed if— (a) there is reason to suspect that it is no longer valid; or (b) there has been a significant change in the matters to which it relates, and where as a result of any such review changes in the assessment are required, the relevant employer or self-employed person shall ensure that they are made". Maintenance and replacement of PPE: Regulation 7: "(1) Every employer shall ensure that any personal protective equipment provided to his **workers** is maintained (including replaced or cleaned as appropriate) in an efficient state, inefficient working order and in good repair. (2) Every self-employed person shall ensure that any personal protective equipment provided to him is maintained (including replaced or cleaned as appropriate) in an efficient state, in efficient working order and in good repair". Accommodation for PPE: Regulation 8: "Where an employer or self-employed person is required, by virtue of regulation 4, to ensure personal protective equipment is provided, he shall also ensure that appropriate accommodation is provided for that personal protective equipment when it is not being used". Information, instruction and training: Regulation 9: "(1) Where an employer is required to ensure that personal protective equipment is provided to an **worker**, the employer shall also ensure that the **worker** is provided with such information, instruction and training as is adequate and appropriate to enable the **worker** to know— (a) the risk or risks which the personal protective equipment will avoid or limit; (b) the purpose for which and the manner in which personal protective equipment is to be used; and

Assessment of evidence
(c) any action to be taken by the **worker** to ensure that the personal protective equipment remains in an efficient state, in efficient working order and in good repair as required by regulation 7(1). (2) Without prejudice to the generality of paragraph (1), the information and instruction provided by virtue of that paragraph shall not be adequate and appropriate unless it is comprehensible to the persons to whom it is provided". Use of PPE: Regulation 10: "(1) Every employer shall take all reasonable steps to ensure that any personal protective equipment provided to his employees by virtue of regulation 4(1) is properly used. (1) Every **worker** shall use any personal protective equipment provided to him by virtue of these Regulations in accordance both with any training in the use of the personal protective equipment concerned which has been received by him and the instructions respecting that use which have been provided to him by virtue of regulation 9. (3) Every self-employed person shall make full and proper use of any personal protective equipment provided to him by virtue of regulation 4(2). (4) Every worker and self-employed person who has been provided with personal protective equipment by virtue of regulation 4 shall take all reasonable steps to ensure that it is returned to the accommodation provided for it after use". Reporting loss or defect: Regulation 11: "Every worker who has been provided with personal protective equipment by virtue of regulation 4(1) shall forthwith report to his employer any loss of or obvious defect in that personal protective equipment".

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
BS EN 13795-1 2019: Surgical clothing and drapes. Requirements and test methods	Standards	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
"This document gives information on the characteristics of single-use and reusable surgical gowns and surgical drapes used as medical devices for patients, clinical staff and equipment, intended to prevent the transmission of infective agents between clinical staff and patients during surgical and other invasive procedures. This document specifies test methods for evaluating the identified characteristics of surgical drapes and gowns and sets performance requirements for these products". **Limitations:** • Full text not accessible					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
BS EN 13921: 2007. Personal protective equipment - Ergonomic principles.	Standards	**Level 4**	N/A	N/A	N/A

Assessment of evidence
“This European Standard provides guidance for the writers of personal protective equipment (PPE) product standards on the specification of ergonomic requirements”. “The application of ergonomic principles to PPE allows optimisation of the balance between protection and usability”.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
BS EN ISO 22612:2005. Clothing for protection against infectious agents. Test method for resistance to dry microbial penetration.	Standards	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
“This test method provides a means for assessing the resistance to penetration through barrier materials of bacteria-carrying particles”. This document EN ISO 22612 describes a test method, with the associated equipment, that may be used to determine a material's resistance to dry penetration of bacteria on particles in the size range most typical for human skin scales”. **Limitations:** • Full text not accessible					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
BS EN ISO 22610:2006. Surgical drapes, gowns and clean air suits, used as medical devices, for patients, clinical staff and equipment. Test method to determine the resistance to wet bacterial penetration.	Standards	**Level 4**	N/A	N/A	N/A

Assessment of evidence

"This International Standard specifies a test method, with associated test apparatus (see Annex A), which is used to determine the resistance of a material to the penetration of bacteria, carried by a liquid, when subjected to mechanical rubbing".

Limitations:

- Full text not accessible

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

Evidence added to Literature Review V2.0

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Association of perioperative Registered Nurses (AORN) Guideline Quick View: Sterile Technique. 2018. AORN Journal: Vol. 108 (6), 705-710. DOI: 10.1002/aorn.12458	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

The guidance summary provides recommendations that are specific to Operating room settings.

Recommendations:

“Select the type of surgical gown by the task and anticipated degree of exposure to blood, other body fluids, or other potentially infectious materials.

Select and wear a surgical gown that wraps around your body, completely covering the back.”

Limitations:

- References not provided.

Assessment of evidence
• Guidance developed for nursing staff working in the USA and may not be fully applicable to Scottish health and care settings. • Lack of detail provided to determine if a systematic literature review was carried out to obtain evidence.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health security Agency (UKHSA). Preventing and controlling infections 2024. Accessed 3 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Scope: This page provides general guidance for staff in children and young people settings, including education settings on the prevention and control of infections. **Recommendations:** “for individuals with continence aids change continence pads in a designated area. […] Wear appropriate personal protective equipment (PPE), such as disposable gloves and a disposable plastic apron”. “If there is a risk of splashing or contamination with blood or bodily fluids during an activity, wear disposable gloves and plastic aprons. Gloves and aprons should be single-use disposable, non-powdered vinyl/nitrile or latex-free and CE marked”. “Managing cuts, bites, nose bleeds and bodily fluid spills					

Assessment of evidence
[…] Use Standard Infection Prevention and Control (SIPC) precautions to reduce the risk of unknown (and known) disease transmission. These include […] wearing a disposable plastic apron". **Limitations:** • No references or details on how guidance was developed. • Not specific to health and care settings

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health & Social Care Guidance (DHSC). Infection prevention and control: resource for adult social care 2024. Accessed 4 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Scope: This resource provides general infection prevention and control (IPC) principles to be used in combination with advice and guidance on managing specific infections for those responsible for setting and maintaining standards of IPC within adult social care in England. **Recommendations:** "Wear plastic disposable aprons when there is a risk that clothing may be exposed to blood, body fluids, secretions, or excretions".					

Assessment of evidence
"Use plastic disposable aprons for one procedure or one episode of care". **Limitations:** • No references or details on how guidance was developed.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health & Social Care Guidance (DHSC). Infection prevention and control: quick guide for care workers. 2024. Accessed 4 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Scope: This page provides Infection prevention and control guidance for care workers in adult social care settings. **Recommendations:** "If there is an extensive risk of splashing, fluid repellent gowns should be worn instead of apron" **Limitations:** • No references or details on how guidance was developed.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
European Centre for Disease Prevention and Control (ECDC). Infection prevention and control and preparedness for COVID-19 in healthcare settings – Sixth update. 9 February 2021. Accessed 4 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Scope: "This document aims to provide guidance to healthcare facilities and healthcare providers in the European Union/European Economic Area (EU/EEA) and the United Kingdom (UK) on preparedness and infection prevention and control (IPC) measures for the management of possible and confirmed cases of COVID-19 in healthcare settings, including long-term care facilities (LTCFs)."

Target audience: "National public health agencies, hospital administrators, LTCF administrators and healthcare workers in EU/EEA countries and the United Kingdom (UK)."

ECDC will update this document based on the evolving situation and if new relevant information arises.

Recommendations:

"Gloves and a long-sleeved gown are recommended when there is risk for contact with body fluids and in settings where contamination is presumably high, such as where aerosol generating procedures are performed".

All those present for an AGP should wear a well-fitted respirator, visor or goggles, long-sleeved impermeable protective gown, and gloves.

Assessment of evidence
Transporting possible or confirmed COVID-19 cases – “gloves and a long-sleeved gown are recommended when there is risk for contact with body fluids.” **Limitations:** • No details on how expert gather evidence and reach consensus for guidance development.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
European Centre for Disease Prevention and Control (ECDC). Considerations for infection prevention and control practices in relation to respiratory viral infections in healthcare settings. 2023 Accessed 4 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Scope: “This document aims to support the development of guidance for healthcare facilities and healthcare providers in the European Union/European Economic Area (EU/EEA) on infection prevention and control (IPC) measures for the management of patients with respiratory tract viral infection in healthcare settings.”					

Assessment of evidence
Target audience: “National public health agencies, healthcare facility administrators, IPC and other professionals developing relevant IPC guidance and healthcare workers in EU/EEA countries.” **Recommendations:** “Gloves and a long-sleeve gown are recommended when there is a risk of exposure to body fluids and in settings where there is a high risk of exposure to respiratory viruses, such as when performing procedures with a high risk of transmission (also referred to as ‘aerosol-generating procedures’ - AGPs)” “High-risk medical procedures (‘Aerosol-generating procedures’) All those present should wear [...], a long-sleeved impermeable single-use protective gown”. “Aprons can be used in place of gowns, especially when the risk of contact with body fluids is low” no type given. **Limitations:** • No details on how expert gather evidence and reach consensus for guidance development.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Personal protective equipment. Laboratory biosafety manual, fourth edition and associated monographs.	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
2020. Accessed 5 July 2024.					

Assessment of evidence

Scope: “This monograph provides an overview of the types of PPE that might be required as part of core laboratory requirements. It also offers options for PPE when heightened control measures have been identified as necessary and covers the types of PPE that should be used when high-risk operations need to be performed within maximum containment measures”.

“The monograph focuses on the use of PPE to prevent exposure to biological agents; however, other hazards such as sharps and chemicals will also be considered”.

Recommendations:

“4.1. Laboratory coats and additional body protection

Heightened control measures may require the following additions or alternatives to normal laboratory coats: […]

- alternative protective clothing, such as gowns and coveralls with a zip flap for protection against splashes;
- an additional apron, fluid-resistant laboratory coat and/or disposable fluid-resistant sleeves, for example, for procedures where the possibility of large splashes cannot be discounted”.

“4.1.2 Gowns

Gowns offer a similar range of coverage as laboratory coats, although generally they are solid-front, back-closing garments with elasticized cuffs that can be worn on top of personal clothing or scrubs. Disposable gowns are generally intended as single-use items of PPE; however, they can on occasion be worn a few times before disposal, where the risk assessment specifies that the likelihood of contamination is low. Alternatively, wraparound reusable gowns may also be used, although they require regular decontamination and laundering”.

“4.1.3. Coveralls

Assessment of evidence
Coveralls cover the whole body and are generally worn on top of scrubs or personal clothes. Depending on the quality, they may be disposable or reused if properly decontaminated. Care must be taken while removing coveralls to prevent any contamination of the person wearing them. Coveralls with a zip flap should be considered for protection against splashes". **Limitations:** • No details on how expert gather evidence and reach consensus for guidance development. • May not be applicable to all healthcare settings

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
National Health and Medical Research Council (NHMRC). Australian Guidelines for the Prevention and Control of Infection in Healthcare. 2019. v.11.24. Updated 8 April 2024. Accessed 8 July 2024	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Aim: “By assisting healthcare workers to improve the quality of the care they deliver, these Guidelines aim to promote and facilitate the overall goal of infection prevention and control: the creation of safe healthcare environments through the implementation of evidence-based practices that minimise the risk of transmission of infectious agents”. Scope: “The Guidelines provide a nationally accepted approach to infection prevention and control, focusing on core principles and priority areas for action. They provide a basis for healthcare workers and healthcare facilities to develop detailed protocols and processes for infection prevention and control specific to local settings. The Guidelines have been developed to specifically support improved infection prevention and control in acute health settings.” **Recommendations:** “Practical info Aprons and gowns The type of apron or gown required depends on the degree of risk, including the anticipated degree of contact with infectious material and the potential for blood and body substances to penetrate through to clothes or skin. Gowns and aprons used in clinical areas should be fluid impervious”. “Table 15. Recommended use and characteristics of aprons/gowns” **Plastic apron** (Fluid impervious, Single-use, for one procedure or episode of patient care, and Disposable) is recommended for general use when there is the possibility of sprays or spills or exposure to blood or body substances during low-risk procedures and during contact precautions when patient contact is likely. **Gown** (Fluid impervious, Single-use and Disposable) is recommended to protect the healthcare worker’s exposed body areas and prevent contamination of clothing with blood, body substances, and other potentially infectious material. Moreover, the choice of sleeve length depends on the procedure being undertaken, the extent of risk of exposure of the healthcare worker’s arms, the volume of body substances likely to be encountered, and the probable time and route of transmission of infectious agents. **Full body gown** (Fluid impervious, Single-use, and long sleeved so clothing and exposed upper body areas are protected) is recommended when there is a risk of contact of the healthcare worker's skin with a patient's broken skin, extensive skin to skin contact (e.g. lifting a patient with scabies), or a risk of contact with bloody and body substances which are not contained (e.g. vomiting). This is

Assessment of evidence
also recommended when there is the possibility of extensive splashing of bloody and body substances or there is a risk of exposure to large amounts of body substances (e.g., in some operative procedures). This must always be worn in combination with gloves and other PPE where indicated. **Sterile gown** (Pre-packaged) should be worn for procedures that require an aseptic field. **Limitations:** • Stated in the introduction that all recommendations are based on systematic reviews, however there is insufficient evidence within the guidance to support this. • Recommendations are mostly for acute care settings and may not be applicable to other healthcare settings. • May not be Generalisable to Scottish health and care settings • Recommendations are mostly based on low quality evidence and Guidance

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Infection prevention and control during health care when coronavirus disease (COVID-19) is suspected or confirmed. July 2021.	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 8 August 2024.					

Assessment of evidence

Scope: This interim guidance "provides updated guidance to support safe health care through the rigorous application of IPC procedures for the protection of patients, staff, caregivers and visitors b in health care settings".

Recommendations:

"Contact and droplet precautions.

Use appropriate PPE: medical mask, eye protection (googles or face shield), **long-sleeved gown** and medical Gloves".

Use long-sleeved gown along with other appropriate PPE while managing infectious waste.

When "performing AGPS or in settings where AGPS are regularly performed among patients with suspected or confirmed COVID-19 (e.g., intensive care units, semi-intensive care units, emergency departments):

[…]

PPE items required include […] **long-sleeved gown"**.

Health workers performing AGPS should use a waterproof apron if the procedure is expected to produce a large volume of fluid that might penetrate the gown and fluid resistant gowns are not available".

"When surgical procedures in COVID-19 patients cannot be postponed, surgical staff in the operating room should use contact and droplet precautions that include […] gown (apron may be required if gowns are not fluid resistant and surgical staff will perform a procedure that is expected to generate a high volume of fluid)".

Limitations:

- COVID-19 specific and may not be applicable to all infections or settings

Evidence from previous update(s):

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
ASID (HICSIG) position statement: infection control guidelines for patients with influenza-like illnesses, including pandemic (H1N1) influenza 2009, in Australian health care facilities. The Medical Journal of Australia. 2009; Vol 191 (8) p454-458.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Australasian Society for Infectious Diseases, Healthcare Infection Control Special Interest Group and the Australian Government Department of Health and Ageing members. In high aerosol-risk settings, use of particulate mask, eye protection, impervious long-sleeved gown If contact with blood or body fluids is anticipated, an impervious gown/apron and gloves are required. Staff involved in surface cleaning of potentially contaminated areas should wear a surgical mask, protective eyewear, disposable impervious gowns, and gloves.					

Assessment of evidence
HCWs exposed to aerosol-generating procedures (Box 3) should wear P2 (N95) particulate filter masks, protective eyewear, disposable impervious gowns and gloves.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Kennedy L. Implementing AORN Recommended Practices for Sterile Technique. AORN 2013; 98(1): 15-23.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Scrub attire described as “either a freshly laundered or single-use, long sleeved jacket with cuffs extending to the wrists and the jacket snapped closed”. For surgical procedures products should be selected “in accordance with the barrier performance class of the product to provide adequate protection consistent with anticipated exposure to blood, body fluids, and other potentially infectious materials.” “Factors to consider include the volume of irrigation fluid; the potential for splashing, spraying, pooling, and soaking; the anticipated loss of blood; and the type and mode of surgery”. An example of considerations for selection of surgical gowns is provided “personnel at the surgical field should have their backs completely covered, but the gown should not be so large that the material can unintentionally come in contact with unsterile items. The sleeves of the gown should cover the arms down to the wrist comfortably so the cuffs of the gown will not pull out of the gloves”.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Mehta Y, Gupta A, Todi S, et al. Guidelines for prevention of hospital acquired infections. Indian J Crit Care Med. 2014; 18:149-63.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Indian society of critical care medicine A “sterile gown is required only for aseptic procedures and for the rest, a clean, non-sterile gown is sufficient.”					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Siegel JD, Rhinehart E, Jackson M, et al. Guideline for isolation precautions: preventing transmission of infectious agents in health care settings. 2007.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
This guideline provides recommendations for reducing the transmission of infectious agents to patients and HCWs in the United States. **Recommendations** “Standard precautions […] Personal protective equipment […] Gowns Wear a gown appropriate to the task to protect skin and prevent soiling or contamination of clothing during procedures and patient care activities when contact with blood, body fluids, secretions, or excretions is anticipated”. “Isolation Gowns. Isolation gowns are used as specified by Standard and Transmission-Based Precautions to protect the HCW’s arms and exposed body areas and prevent contamination of clothing with blood, body fluids, and other potentially infectious material. The need for and the type of isolation gown selected is based on the nature of the patient interaction, including the anticipated degree of contact with infectious material and potential for blood and body fluid penetration of the barrier”.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Royal College of Nursing (RCN). Essential Practice for Infection Prevention and Control Guidance for nursing staff.	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
2017.					
Assessment of evidence					
“Disposable plastic aprons provide a physical barrier between clothing/skin and prevent contamination and wetting of clothing/uniforms during bathing/washing or equipment cleaning”. “Impervious (i.e. waterproof) gowns should be used when there is a risk of extensive contamination of blood or body fluids or when local policy dictates their use in certain settings”.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
American Academy of Ophthalmology. Information Statement. Infection Prevention in Eye Care Services and Operating Areas. August 2012.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Wear a gown, that is appropriate to the task, to protect skin and prevent soiling or contamination of clothing from the patient, environment Use disposable gowns where possible.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
perioperative Registered Nurses (AORN). Recommended Practices for Selection and Use of Surgical Gowns and Drapes. AORN Journal. 2003; Vol 77 (1).	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Materials used for surgical gowns should be resistant to penetration by blood and other body fluids as necessitated by their intended use.

Short procedures during which there is little or no anticipated exposure to blood or body fluids can be completed successfully using a surgical gown with minimal barrier protection.

Protective barriers against microorganisms, particulates, and fluids wicking through. One should also be aware of in the influence of pressure or leaning on flooded areas of the material.

Surgical gowns should be free from holes and defects. They should be resistant to tears, punctures and abrasions.

Surgical gowns and drapes should be low-linting, references Edmiston et al, “Airborne particulates in the OR environment,” AORN Journal 69 (June 1999) 1169-1 183.

Reusable materials used for surgical gowns and drapes should be compatible with the method of disinfection/sterilisation.

Surgical gowns and drapes should resist combustion.

Surgical gowns and drapes should be comfortable and contribute to maintaining the wearer’s desired body temperature.

Surgical gowns and drapes should be free of toxic ingredients and allergens.

Assessment of evidence
Surgical gowns should have limited memory and be flexible enough to conform loosely to the wearer's body while at the same time protect the wearer from contamination from blood and body fluids.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Gemmell L, Birks R, Radford P, et al. Association of Anaesthetists of Great Britain and Ireland. Guidelines. Infection Control in Anaesthesia. The Journal of the Association of Anaesthetists of Great Britain and Ireland. 2008; Vol 63 p1027-1036.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Full body, fluid-repellent gowns should be worn where there is a risk of extensive splashing of blood, body fluids, secretions and excretions. Sterile gowns should be worn when invasive procedures are undertaken.					

Assessment of evidence
Disposable plastic aprons are often worn on wards in situations where there is a risk of physical soiling of clothing in order to prevent transmission of infection between patients.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Health Protection Agency. Prevention and control of infection in care homes: an information resource. 2013. Accessed 6 August 2024.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
“This resource aims to provide care home mangers, Care Quality Commission inspectors and Health Protection Units a common source of information on the prevention and control of infection in care homes”. “A disposable plastic apron should be worn during direct care, bedmaking or when undertaking the decontamination of equipment.”					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Holzmann RD, Liang M, Nadiminti H, et al. Blood exposure risk during procedural dermatology. J Am Acad Dermatol. 2008; 58(5):817-825.	Observational study	**Level 3**	Four dermatologists (Three in academic practice and one in private practice) performed at least 100 dermatological excisional procedures each, for a total sample size of 500. They wore a Gown for each procedure and gown contamination level was assessed.	N/A	Immediately postoperatively, gown surfaces were inspected for macroscopic blood spots under overhead lighting with a white background.

Assessment of evidence

Scope: This observational study evaluated the incidence of physician blood contamination during procedural dermatology. A survey was also conducted on 700 physicians affiliated with American College of Mohs Surgery (ACMS) to ascertain their strategies and attitudes toward exposure to bloodborne disease during procedures.

This study highlights the need for wearing a surgical gown while performing excisional dermatological procedures. Not sterile.

Limitations:

- the very small number (4) of surgeons involved in the study.
- May not be generalizable to Scottish healthcare settings.
- Specific techniques or experience levels might influence the gown splash rate.

Assessment of evidence
• blood splash incidence rate by surgeon did not vary significantly (p=0.9034) • No details on how participants were recruited, seems like convenience sampling. • Participants could not be blinded to study. • Response bias for the survey. • Dermatologists who are part of the ACMS may not represent the wider workforce. • Conclusions could not be drawn from the survey as a lack of detail given e.g., the surgeons the lack of blood exposure risk claim might be due to the PPE they are wearing.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Rathore MH, Jackson MA, et al. Infection prevention and control in paediatric ambulatory settings. American Academy of Pediatrics. 2017.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
This position statement provides practical information that on IPC procedures for ambulatory medical settings. “Fluid-impermeable gowns or aprons should be worn during procedures that are likely to generate splashes of blood or other body fluids”.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health and Safety Executive (HSE). Health and safety in care homes. 2014.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Wear single use gloves and disposable aprons for high risk/messy activities.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organisation (WHO). Infection prevention and control of epidemic and pandemic prone acute respiratory infections in health care. 2014.	Guidelines	**AGREE II: Recommend with modifications**	N/A	N/A	N/A
Assessment of evidence					
Scope: “This document provides recommendations and other information relating to IPC measures for ARIs in health-care settings, with specific emphasis on ARIs that have the potential for rapid spread and may cause epidemics or pandemics (or both)”.					

Assessment of evidence
Target audience: “The document is intended for IPC professionals and members of IPC teams, health-care managers and policy-makers. The secondary audience is health-care workers, including doctors, nurses, allied health professionals, auxiliary and community health workers, and others involved in provision of health care”. **Recommendations:** “Appropriate PPE when providing care to patients presenting with ARI syndromes may include a combination of: medical mask (surgical or procedure mask); gloves; **long-sleeved gowns**; and eye protection (goggles or face shields)”. “Use PPE, including gloves, **long-sleeved gowns**, eye protection (goggles or face shields), and facial mask (surgical or procedure mask, or particulate respirators) during aerosol-generating procedures that have been consistently associated with an increased risk of transmission of ARI pathogens”. “Standard precautions […] Gowns […] Select a gown that is appropriate for the activity and the amount of fluid likely to be encountered. If the gown in use is not fluid-resistant, wear a waterproof apron over the gown if splashing or spraying of potentially infectious material is anticipated”. “Rational use of personal protective equipment […] If resources are limited and disposable PPE items are not available, use reusable items (e.g. disinfectable cotton gowns) and disinfect properly after each use”. Avoid reuse of disposable PPE items. It is not known whether reusing disposable PPE is as safe and effective as using new PPE, and reuse may increase the risk of infection for health-care workers”. “Contact Precautions […]

Assessment of evidence
PPE Put on PPE when entering the room and remove it when leaving. PPE includes: […] Gowns: Use either a disposable gown made of synthetic fibre, or a washable cloth gown; ensure that the gown is the appropriate size to fully cover the areas to be protected If the gown is permeable, wear an apron to reduce fluid penetration (do not use an apron alone to prevent contact contamination)". "Personal protective equipment for handling dead bodies Wear a disposable, long-sleeved, cuffed gown; if the outside of the body is visibly contaminated with body fluids, excretions, or secretions, ensure that this gown is waterproof. If no waterproof gown is available, wear a waterproof apron in addition to the gown". "Personal protective equipment during autopsy PPE to be provided during autopsy includes: […] single-use, fluid-resistant, long-sleeved gown". **Limitations:** • No search strategy provided. • A specific list of ARIs and AGPs not provided. • Out-dated as per planned update, should have been updated in 2016. • Grading/appraisals are not provided per study, extent to which individual studies were used to create recommendations not clear. • Recommendations are based on limited, low-quality evidence and expert opinion.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Loveday HP, Wilson JA, Pratt RJ, et al. epic3: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England. Journal of Hospital Infection. 2014; 1-70.	Guidelines	**AGREE II: Recommend with modifications**	N/A	N/A	N/A

Assessment of evidence

"National evidence-based guidelines for preventing HCAI in NHS hospitals were first published in January 20011 and updated in 2007. This second update was commissioned by the Department of Health in 2012 for publication in 2013."

Purpose: "These guidelines describe clinically effective measures that are used by healthcare workers for preventing infections in hospital and other acute healthcare settings"

Target users: "[…] they are aimed at hospital managers, members of hospital infection prevention and control teams, and individual healthcare practitioners."

Recommendations:

"Disposable plastic aprons must be worn when close contact with the patient, materials or equipment pose a risk that clothing may become contaminated with pathogenic microorganisms, blood or body fluids". Class D/GPP/H&S

"Full-body fluid-repellent gowns must be worn where there is a risk of extensive splashing of blood or body fluids on to the skin or clothing of healthcare workers". Class D/GPP/H&S

Assessment of evidence
Note: Class D - Evidence level 3 or 4; or extrapolated evidence from studies rated as 2+ GPPs - Recommended best practice based on the clinical Practice experience of the Guideline Development Advisory Points Group and patient preference and experience H&S - Health and Safety **Limitations:** • Unclear systematic literature process (no search strategy provided, differing search dates for topics, unclear extraction process and grading of papers). • Potentially outdated, guideline has not been updated as was stated. • The link between recommendations and supporting evidence is also unclear, and mostly based on expert opinion.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
National Institute for Health and Care Excellence (NICE). The National Clinical Guidelines Centre (NCGC). Infection: prevention and control of healthcare-associated infections	Guidelines	**AGREE II: Recommend with modifications**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
in primary and community care. 2012.					

Assessment of evidence

Scope: “This clinical guideline is a partial update of 'Infection control: prevention of healthcare associated infection in primary and community care' (NICE clinical guideline 2; 2003)”. The relevant information within this document is from the 2012 update.

Target audience: “all adults and children receiving healthcare for which standard infection-control precautions apply in primary care and community care”.

Recommendations:

“When delivering direct patient care:

wear a disposable plastic apron if there is a risk that clothing may be exposed to blood, body fluids, secretions or excretions or wear a long-sleeved fluid-repellent gown if there is a risk of extensive splashing of blood, body fluids, secretions or excretions onto skin or clothing”.

Limitations:

- Unclear how many researchers contributed to the systematic literature searches and evidence synthesis.
- Recommendations are based on limited, very low-quality evidence and expert opinion.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
American Association of Nurse Anesthetists (AANA). Infection Prevention and Control Guidelines for Anesthesia Care. 2015.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Non-sterile gowns should be worn when there is a “risk of limb contamination”.

Sterile gowns should be worn for:

- “Insertion of pulmonary artery catheters and central venous catheters.
- Invasive procedures (e.g., surgery”.

“Wear a gown that provides appropriate coverage”.

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

Evidence added to 2023 update:

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Commission for Hospital Hygiene and Infection Prevention (Kommission für Krankenhaushygiene und Infektionsprävention, “KRINKO”). Infection prevention requirements for the medical care of immunosuppressed patients: recommendations of the Commission for Hospital Hygiene and Infection Prevention (KRINKO) at the Robert Koch Institute.	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
GMS Hygiene & Infection Control. 2022; Vol. 17 Pages 1-36. DOI: 10.3205/dgkh000410					

Assessment of evidence

Scope: “The overall aim of these updated recommendations is to reduce the incidence of nosocomial infection in immunosuppressed patients, if possible, to unavoidable events, thereby increasing patient safety, improving their quality of life and reducing the morbidity and mortality associated with nosocomial infection”.

Target: “These recommendations are aimed at all professionals who are directly or indirectly involved in the medical care of immunosuppressed patients, particularly doctors and the relevant medical professional associations, nursing staff, hygiene professionals (infection control specialists, IPC link doctors, IPC nurses, physiotherapists, technical staff, public health services, hospital administrative staff, doctors working for health insurance companies, medical students and trainees [e.g. in healthcare and nursing])”.

Recommendations:

“In order to contain certain transmissible infectious agents, wearing suitable, exclusively patient-specific protective clothing (e.g., aprons, gowns) for activities in which close patient contact could contaminate work clothing with blood, faeces, urine or secretions, and in general when caring for patients with diarrhoea, vomiting or extensive wounds”.

- KRINKO does not recommend Gowns for all visitors, except in appropriate treatment situations or for specific infection epidemiology reasons in the general population because there is no scientific evidence that they help to prevent infection.
- The KRINKO recommends that staff and relatives should use patient-specific protective gowns for close contact with very severely immunocompromised patients in protective isolation.

Assessment of evidence
• "Close contacts isolated with the patient should pay particular attention to basic hygiene measures within the isolation room (HD, protective gown when providing care, e.g. washing" • "In some hospitals, it has proven beneficial for these parents to wear a gown (and SM, depending on the pathogen) outside the isolation room if they are not leaving the ward immediately." **Limitations:** • Lack of detail to determine if a systematic literature review was carried out to obtain evidence. • Guidance developed in Germany and may not be fully applicable to Scottish health and care settings. • No information provided on how evidence was graded and how Guidance consensus was reached. • No mention of process or schedules for update.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Chambers CE, Eisenhauer MD, McNicol LB, et al. Infection control guidelines for the cardiac catheterization laboratory: society guidelines revisited.	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Catheterization and cardiovascular interventions: official journal of the Society for Cardiac Angiography & Interventions. 2006; 67(1):78-86. .					

Assessment of evidence

Scope: “These Society for Cardiovascular Angiography and Interventions (SCAI) guidelines are presented as recommendations to assist cardiac catheterization laboratory directors and managers in establishing laboratory policy”.

“The society’s updated guidelines provide useful recommendations to assist cardiac catheterization personnel in updating or establishing infection control policies for their own institution”.

Recommendations:

- The operator should wear a nonporous gown to prevent the contamination that occurs when porous cloth gowns become wet with blood or other fluids.

Limitations:

- Lack of detail to determine if a systematic literature review was carried out to obtain evidence.
- Guidance developed in USA and may not be fully applicable to Scottish health and care settings.
- No information provided on how evidence was graded and how Guidance consensus was reached.
- No mention of process or schedules for update.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Kohn WG, Collins AS, Cleveland JL, et al. Guidelines for Infection Control in Dental Health-Care Settings. Centers for Disease Control and Prevention. MMWR Recomm Rep. 2003 Dec 19; 52(17):1-61.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Scope: "This report consolidates recommendations for preventing and controlling infectious diseases and managing personnel health and safety concerns related to infection control in dental settings".

Guidelines were developed by the CDC staff members in collaboration with other infection control authorities. It is stated "wherever possible, recommendations are based on data from well-designed scientific studies. […] In the absence of scientific evidence for such practices, certain recommendations are based on strong theoretical rationale, suggestive evidence, or opinions of respected authorities based on clinical experience, descriptive studies, or committee reports. In addition, some recommendations are derived from federal regulations. No recommendations are offered for practices for which insufficient scientific evidence or lack of consensus supporting their effectiveness exists."

Recommendation categories provided:

Category IA. Strongly recommended for implementation and strongly supported by well-designed experimental, clinical, or epidemiologic studies.

Assessment of evidence
Category IB. Strongly recommended for implementation and supported by experimental, clinical, or epidemiologic studies and a strong theoretical rationale. Category IC. Required for implementation as mandated by federal or state regulation or standard. When IC is used, a second rating can be included to provide the basis of existing scientific data, theoretical rationale, and applicability. Because of state differences, the reader should not assume that the absence of a IC implies the absence of state regulations. Category II. Suggested for implementation and supported by suggestive clinical or epidemiologic studies or a theoretical rationale. Unresolved issue. No recommendation. Insufficient evidence or no consensus regarding efficacy exists. **Target**: "This report is designed to provide guidance to DHCP for preventing disease transmission in dental health-care settings, for promoting a safe working environment, and for assisting dental practices in developing and implementing infection-control programs". **Recommendations:** "IV. PPE B. Protective Clothing 1. Wear protective clothing (e.g., reusable, or disposable gown, laboratory coat, or uniform) that covers personal clothing and skin (e.g., forearms) likely to be soiled with blood, saliva, or OPIM (IB, IC)". "VI. Sterilization and Disinfection of Patient-Care Items C. Receiving, Cleaning, and Decontamination Work Area 5. Wear appropriate PPE (e.g., mask, protective eyewear, and gown) when splashing or spraying is anticipated during cleaning (IC)". **Limitations**: • No information provided on the experts/authorities contributing to guidelines. • Unknown how Guidance consensus was reached.

Assessment of evidence
• No evidence of systematic review, or methods of obtaining scientific evidence used/cited. • The studies contributing to the evidence base for each recommendation are not clear. • May be outdated as was last updated in 2003. • May not be fully applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health security Agency (UKHSA). Preventing and controlling infections. 2024. Accessed 3 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Scope: This page provides general guidance for staff in children and young people settings, including education settings on the prevention and control of infections. **Recommendations:** “For individuals with continence aids. […] Wear appropriate personal protective equipment (PPE). such as disposable gloves and a disposable plastic apron, and change after every child or young person”.					

Assessment of evidence
"If there is a risk of splashing or contamination with blood or bodily fluids during an activity, wear disposable gloves and plastic aprons. Gloves and aprons should be single-use disposable, non-powdered vinyl/nitrile or latex-free and CE marked". "For aerosol generating procedures (AGPs) […] Wear eye and face protection, apron and gloves to protect against the splashing or spraying of blood and bodily fluids from AGPs". "If clothing is contaminated with blood or bodily fluids. […] wear gloves and aprons when handling soiled linen or clothing". "Cleaning blood and bodily fluid spills […] Use gloves and an apron if you anticipate splashing". "Managing cuts, bites, nose bleeds and bodily fluid spills […] Use Standard Infection Prevention and Control (SIPC) precautions to reduce the risk of unknown (and known) disease transmission. These include […] wearing a disposable plastic apron". **Limitations:** • No references or details on how guidance was developed. • Not specific to health and care settings

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health & Social Care Guidance (DHSC). Infection prevention and control: quick	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
guide for care workers. 2024. Accessed 4 July 2024.					

Assessment of evidence

Scope: This page provides Infection prevention and control guidance for care workers in adult social care settings.

Recommendations:

“Wear gloves and aprons if you expect to come into contact with non-intact skin, mucous membranes, blood or body fluids”.

“Aprons and gloves should be worn if carrying out an AGP on an individual. If there is an extensive risk of splashing, fluid repellent gowns should be worn instead of apron”.

Limitations:

- No references or details on how guidance was developed.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health & Social Care Guidance (DHSC). Infection prevention and control: resource for adult social care.	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
2024. Accessed 4 July 2024.					

Assessment of evidence

Scope: This resource provides general infection prevention and control (IPC) principles to be used in combination with advice and guidance on managing specific infections for those responsible for setting and maintaining standards of IPC within adult social care in England.

Recommendations:

“Wear plastic disposable aprons when there is a risk that clothing may be exposed to blood, body fluids, secretions, or excretions. This could include activities such as personal care or handling dirty laundry”.

“Gowns should be worn where there is a risk of extensive splashing of body fluids and aprons would provide insufficient cover”.

“Management of laundry

[…] use an apron to protect worker clothing from used or infectious laundry

[…] Handle used laundry safely by wearing a single use or washable apron to protect your clothing if necessary”.

Limitations:

- No references or details on how guidance was developed.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centres for Disease Control and Prevention (CDC). Implementation of Personal Protective Equipment (PPE) Use in Nursing Homes to Prevent Spread of Multidrug-resistant Organisms (MDROs). Updated 22 July 2022. Accessed 4 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Scope: “This document is intended to provide guidance for PPE use and room restriction in nursing homes for preventing transmission of MDROs, including as part of a public health response.”

Recommendations:

Gown is indicated for use as part of **Standard Precautions** while taking care of all residents depending on anticipated exposure to: Blood, Body fluids, Mucous membranes, non-intact skin, and potentially contaminated environmental surfaces or equipment.

Gown is indicated for use as part of **Enhanced Barrier Precautions** for high-contact resident care activities such as Dressing, Bathing/showering, Transferring, providing hygiene, changing linens, changing briefs or assisting with toileting, Device care or use (central line, urinary catheter, feeding tube, tracheostomy/ventilator), and Wound care (any skin opening requiring a dressing) for all residents with

Assessment of evidence
any Infection or colonization with an MDRO when Contact Precautions do not otherwise apply, Wounds and/or indwelling medical devices (e.g., central line, urinary catheter, feeding tube, tracheostomy/ventilator) regardless of MDRO colonization status. Gown is indicated for use as part of **Contact Precautions** while entering the room of all residents infected or colonized with a MDRO in any of the following situations: presence of acute diarrhoea, draining wounds or other sites of secretions or excretions that are unable to be covered or contained, for a limited time period, as determined in consultation with public health authorities, on units or in facilities during the investigation of a suspected or confirmed MDRO outbreak when otherwise directed by public health authorities all residents who have another infection (e.g., C. difficile, norovirus, scabies) or condition for which contact precautions is recommended by CDC. **Limitations:** • No references provided. • Unknown evidence base for guidance or how this has been formed • May not be fully applicable to Scottish health and care settings

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
European Centre for Disease Prevention and Control (ECDC). Infection prevention and control and preparedness for COVID-19 in healthcare settings – Sixth update.	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
9 February 2021. Accessed 4 July 2024.					

Assessment of evidence

Scope: “This document aims to provide guidance to healthcare facilities and healthcare providers in the European Union/European Economic Area (EU/EEA) and the United Kingdom (UK) on preparedness and infection prevention and control (IPC) measures for the management of possible and confirmed cases of COVID-19 in healthcare settings, including long-term care facilities (LTCFs).”

Target audience: “National public health agencies, hospital administrators, LTCF administrators and healthcare workers in EU/EEA countries and the United Kingdom (UK).”

Recommendations:

“Gloves and a long-sleeved gown are recommended when there is risk for contact with body fluids and in settings where contamination is presumably high, such as where aerosol generating procedures are performed”.

“Aprons can be used in place of gowns, especially when the risk of contact with body fluids is low”.

All those present for an AGP should wear a well-fitted respirator, visor or goggles, long-sleeved impermeable protective gown, and gloves.

Transporting possible or confirmed COVID-19 cases – “gloves and a long-sleeved gown are recommended when there is risk for contact with body fluids.”

“Staff engaged in environmental cleaning and waste management should wear a medical mask, eye protection (visor or goggles), gloves and a gown”.

Limitations:

- No details on how expert gather evidence and reach consensus for guidance development.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
European Centre for Disease Prevention and Control (ECDC). Considerations for infection prevention and control practices in relation to respiratory viral infections in healthcare settings. 2023. Accessed 4 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Scope: "This document aims to support the development of guidance for healthcare facilities and healthcare providers in the European Union/European Economic Area (EU/EEA) on infection prevention and control (IPC) measures for the management of patients with respiratory tract viral infection in healthcare settings."

Target audience: "National public health agencies, healthcare facility administrators, IPC and other professionals developing relevant IPC guidance and healthcare workers in EU/EEA countries."

Recommendations:

"Gloves and a long-sleeve gown are recommended when there is a risk of exposure to body fluids and in settings where there is a high risk of exposure to respiratory viruses, such as when performing procedures with a high risk of transmission (also referred to as 'aerosol-generating procedures' - AGPs)"

Assessment of evidence
"High-risk medical procedures ('Aerosol-generating procedures') All those present should wear [...], a long-sleeved impermeable single-use protective gown". "Aprons can be used in place of gowns, especially when the risk of contact with body fluids is low". "For RSV infections, particularly in infants, young children and immunocompromised adults, the use of gloves, gowns and face mask or eye protection (e.g., goggles) is recommended". **Limitations:** • No details on how expert gather evidence and reach consensus for guidance development.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Personal protective equipment. Laboratory biosafety manual, fourth edition and associated monographs. 2020. Accessed 5 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Scope: “This monograph provides an overview of the types of PPE that might be required as part of core laboratory requirements. It also offers options for PPE when heightened control measures have been identified as necessary and covers the types of PPE that should be used when high-risk operations need to be performed within maximum containment measures”. “The monograph focuses on the use of PPE to prevent exposure to biological agents; however, other hazards such as sharps and chemicals will also be considered”. **Recommendations:** “4.1. Laboratory coats and additional body protection Heightened control measures may require the following additions or alternatives to normal laboratory coats: […] - alternative protective clothing, such as gowns and coveralls with a zip flap for protection against splashes. - an additional apron, fluid-resistant laboratory coat and/or disposable fluid-resistant sleeves, for example, for procedures where the possibility of large splashes cannot be discounted”. “4.1.1. Aprons Additional hazard-specific splash protection may be required for certain procedures, such as, removing specimens from liquid nitrogen, when handling liquid chemicals, during autopsy, or where large volumes of liquid are being handled.” “4.1.2 Gowns Gowns offer a similar range of coverage as laboratory coats, although generally they are solid-front, back-closing garments with elasticized cuffs that can be worn on top of personal clothing or scrubs. Disposable gowns are generally intended as single-use items of PPE; however, they can on occasion be worn a few times before disposal, where the risk assessment specifies that the likelihood of contamination is low. Alternatively, wraparound reusable gowns may also be used, although they require regular decontamination and laundering”. “4.1.3. Coveralls

Assessment of evidence
Coveralls cover the whole body and are generally worn on top of scrubs or personal clothes. Depending on the quality, they may be disposable or reused if properly decontaminated. Care must be taken while removing coveralls to prevent any contamination of the person wearing them. Coveralls with a zip flap should be considered for protection against splashes". **Limitations:** • No details on how expert gather evidence and reach consensus for guidance development. • May not be applicable to all healthcare settings

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
National Health and Medical Research Council (NHMRC). Australian Guidelines for the Prevention and Control of Infection in Healthcare. 2019. v.11.24. Updated 8 April 2024. Accessed 8 July 2024	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Aim: “By assisting healthcare workers to improve the quality of the care they deliver, these Guidelines aim to promote and facilitate the overall goal of infection prevention and control: the creation of safe healthcare environments through the implementation of evidence-based practices that minimise the risk of transmission of infectious agents”. Scope: “The Guidelines provide a nationally accepted approach to infection prevention and control, focusing on core principles and priority areas for action. They provide a basis for healthcare workers and healthcare facilities to develop detailed protocols and processes for infection prevention and control specific to local settings. The Guidelines have been developed to specifically support improved infection prevention and control in acute health settings”. **Recommendations:** “3.2.2 Contact precautions. [conditional recommendation] […] It is suggested that when working with patients who require contact precautions, healthcare workers should: perform hand hygiene. put on gloves and gown upon entry to the patient care area”. “3.3 Personal protective equipment [Conditional recommendation] 29. It is suggested that clean aprons/gowns should: - be appropriate to the task being undertaken. - be worn for a single procedure or episode of patient care where contamination with body substances is likely”. “3.4. Management of multi-resistant organisms and outbreak situations 3.4.1. Multi-resistant organisms

Assessment of evidence
[Conditional recommendation] 32. It is suggested that contact precautions be considered for all patients colonised or infected with a multi-resistant organism (MRO) where there is anticipated patient and/or environmental contact, including: - performing hand hygiene and putting on gloves and gowns before entering the patient-care area” “Practical info Aprons and gowns The type of apron or gown required depends on the degree of risk, including the anticipated degree of contact with infectious material and the potential for blood and body substances to penetrate through to clothes or skin. Gowns and aprons used in clinical areas should be fluid impervious. […] Aprons/gowns are routinely used upon entering the room of a patient requiring contact precautions. Clean aprons or gowns should be appropriate to the task being undertaken”. “Table 15. Recommended use and characteristics of aprons/gowns” **Plastic apron** (Fluid impervious, Single-use, for one procedure or episode of patient care, and Disposable) is recommended for general use when there is the possibility of sprays or spills or exposure to blood or body substances during low-risk procedures and during contact precautions when patient contact is likely. **Gown** (Fluid impervious, Single-use and Disposable) is recommended to protect the healthcare worker’s exposed body areas and prevent contamination of clothing with blood, body substances, and other potentially infectious material. Moreover, the choice of sleeve length depends on the procedure being undertaken, the extent of risk of exposure of the healthcare worker’s arms, the volume of body substances likely to be encountered, and the probable time and route of transmission of infectious agents. **Full body gown** (Fluid impervious, Single-use, and long sleeved so clothing and exposed upper body areas are protected) is recommended when there is a risk of contact of the healthcare worker's skin with a patient's broken skin, extensive skin to skin contact (e.g. lifting a patient with scabies), or a risk of contact with bloody and body substances which are not contained (e.g. vomiting). This is also recommended when there is the possibility of extensive splashing of bloody and body substances or there is a risk of exposure to

Assessment of evidence
large amounts of body substances (e.g., in some operative procedures). This must always be worn in combination with gloves and other PPE where indicated. **Sterile gown** (Pre-packaged) should be worn for procedures that require an aseptic field. “Table A2.3. Standard precautions for procedures” This outlines the use of standard precautions for a range of example procedures. It is stated however that decision-making involves a risk assessment of the procedure to be performed. However, no information regarding how to undertake this is provided. This table states that Gown should be worn for the following procedures: general medical examination (if splash risk likely), wound examination/dressing (for grossly infected wounds), vaginal delivery, intravascular access device insertion (where maximum barrier precautions are used), surgical aseptic technique procedure (such as lumbar puncture), insertion of urinary catheter (if exposure risk likely), urinary catheter care (if exposure risk likely), suctioning endotracheal tube and tracheostomy (if exposure risk likely), major dental procedure and routine intra-oral dental procedures (if exposure risk likely). “Table A2.4. Use of standard and transmission-based precautions” This provides a general overview of PPE requirements per precaution type and states that a local risk assessment should always be undertaken to determine PPE requirement. Gowns are recommended to be worn as part of Standard precautions when there is potential exposure to blood or body substances and as part of Contact, droplet and Airborne precautions. “Table A2.5. Precautions for specific infections and conditions” Fluid-resistant or impermeable gowns is recommended as part of barrier protection against blood and body substances upon entry into room of patients with Viral haemorrhagic fevers (VHF) Crimean-Congo, Ebola, Lassa, and Marburg. “Rationale Wearing of gowns and aprons is justified to reduce healthcare associated infection. Wearing of personal protective clothing (gowns and aprons) is an internationally accepted practice when: - healthcare workers are in close contact with the patient, materials or equipment that may lead to contamination of skin, uniforms or other clothing with infectious agents.

Assessment of evidence
- there is a risk of contamination with blood, body substances, secretions or excretions (except sweat) Gowns are used to protect the healthcare worker's exposed body areas and prevent contamination of clothing with blood, body substances, and other potentially infectious material". Note: "Conditional Recommendation: Concludes that the desirable effects of adherence to a recommendation probably outweigh the undesirable effects. Overall, the recommendation is based on supportive evidence and a strong theoretical rationale and is recommended for implementation". **Limitations:** • Stated in the introduction that all recommendations are based on systematic reviews, however there is insufficient evidence within the guidance to support this. • Recommendations are mostly for acute care settings and may not be applicable to other healthcare settings. • May not be generalisable to Scottish health and care settings • Recommendations are mostly based on low quality evidence and Guidance

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Moore DL. Canadian Paediatric Society, Infectious Diseases and Immunization	Position statement	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Committee, Ottawa, Ontario. Infection prevention and control in paediatric office settings. Paediatrics & Child Health. 2018; 23(8):e176-e190. Accessed 9 July 2024.					

Assessment of evidence

Scope: "This document updates the Canadian Paediatric Society position statement published in 2008. It discusses published recommendations and areas of controversy, and provides suggestions and recommendations based on professional opinion".

Target audience: "This statement is directed to physicians who care for children in general paediatric office settings. Specialty ambulatory care settings, where invasive procedures such as dialysis, parenteral therapy, endoscopy, or outpatient surgery or dentistry are routinely performed, may require additional measures".

Recommendations:

"In the absence of data from paediatric office settings, the following recommendations are based on Guidance and extrapolations from other health care settings".

"Routine Practices' for care of all patients

[…]

Personal protective equipment

Assessment of evidence
[…] A gown should be worn to protect clothing during procedures likely to generate splashes of blood, body fluids, secretions, or excretion". "Additional precautions. […] Contact precautions. […] A gown should be worn when clothing will have direct contact with the patient or with potentially contaminated surfaces or items". **Limitations:** • No details on how expert gather evidence and reach consensus for guidance development. • May not be applicable to all healthcare settings. • May not be generalisable to Scottish/UK healthcare settings

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health & Social Care Guidance (DHSC). Infection prevention and control (IPC) in adult social care: acute respiratory infection (ARI).	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
2024. Accessed 9 July 2024.					

Assessment of evidence

Scope: “This guidance provides information on infection prevention and control (IPC) measures for ARI, including COVID-19. It applies to adult social care providers, managers of adult social care services and adult social care staff in England.

The guidance also contains information that is relevant to local authorities, NHS services, service users, personal assistants, unpaid carers and visitors in adult social care settings and services in England”.

Recommendations:

“When and how to use gloves and aprons

Gloves and aprons should be used when there is a risk of exposure to mucous membranes, blood or body fluids.

Aprons and gloves should be worn if carrying out an AGP on an individual. If there is an extensive risk of splashing, fluid repellent gowns should be worn instead of aprons”.

Limitations:

- No references or details on how guidance was developed.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health & Social Care Guidance (DHSC). PPE requirements when caring for a person with suspected or confirmed acute respiratory infection (ARI). 2024. Accessed 9 July 2024.	Poster	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Scope: This table presents a summary of PPE requirements when caring for a person with suspected or confirmed ARI

Recommendations:

When giving personal care to a person with suspected or confirmed ARI

- A single use disposable apron is recommended only if risk assessment indicates likely contact with blood and body fluids.
- A single use disposable fluid-repellent gown is recommended in place of an apron if risk of extensive exposure to blood or body fluids is likely.

For general cleaning duties in the room of a person with suspected or confirmed ARI

- A single use disposable apron should only be worn if risk assessment indicates likely contact with blood, body fluids, chemicals or cleaning products.

Assessment of evidence
"For tasks other than those listed above, at least when within 1m of a person with suspected or confirmed ARI" - A single use disposable apron should only be worn if risk assessment indicates likely contact with blood and body fluids For Aerosol Generating Procedure (AGP) on a person with suspected or confirmed ARI - A single use disposable apron is recommended. - A single use disposable fluid-repellent gown is suggested in place of an apron if there is a risk of extensive splashing

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Stuart RL, Marshall C, Harrington G et al. ASID/ACIPC position statement – Infection control for patients with Clostridium difficile infection in healthcare facilities. Infection, Disease & Health. 2019; 24(1):32-43. Accessed 9 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Scope: "The Australasian Society for Infectious Diseases (ASID) and the Australian Infection Control Association (AICA), now known as the Australasian College of Infection Prevention and Control (ACIPC)".					

Assessment of evidence
"The statement updated in 2017 to reflect new literature available. The authors reviewed the 2011 position statement and critically appraised new literature published between 2011 and 2017 and relevant current infection control guidelines to identify where new evidence had become available or best practice had changed". **Recommendations:** "Contact precautions. Use personal protective equipment (PPE) (gowns/aprons and gloves) on entry to patient rooms". "There are no data to show that gown/apron use reduces CDI transmission. However, because reduction in contamination of clothes is likely via the use of gowns/aprons, this is still recommended". "If the visitor is assisting with care of the patient, gowns/aprons and gloves should be worn to protect their clothing and hands". **Limitations:** • Limited generalisability outside of C. difficile infection. • May not be applicable to all healthcare settings. • May not be generalisable to Scottish/UK healthcare settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Infection prevention and control during health care when coronavirus disease (COVID-19) is	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
suspected or confirmed. July 2021. Accessed 8 August 2024.					

Assessment of evidence

Scope: This interim guidance "provides updated guidance to support safe health care through the rigorous application of IPC procedures for the protection of patients, staff, caregivers and visitors in health care settings".

Recommendations:

"Contact and droplet precautions.

Use appropriate PPE: medical mask, eye protection (googles or face shield), **long-sleeved gown** and medical Gloves".

Use long-sleeved gown along with other appropriate PPE while managing infectious waste.

"It is not necessary for health workers to wear […] aprons during routine care".

When "performing AGPs or in settings where AGPS are regularly performed among patients with suspected or confirmed COVID-19 (e.g., intensive care units, semi-intensive care units, emergency departments):

[…] PPE items required include […] **long-sleeved gown"**.

Health workers performing AGPS should use a waterproof apron if the procedure is expected to produce a large volume of fluid that might penetrate the gown and fluid resistant gowns are not available".

"When surgical procedures in COVID-19 patients cannot be postponed, surgical staff in the operating room should use contact and droplet precautions that include […] gown (apron may be required if gowns are not fluid resistant and surgical staff will perform a procedure that is expected to generate a high volume of fluid)".

Assessment of evidence
Limitations: • COVID-19 specific and may not be applicable to all infections or settings

Evidence from previous update(s):

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australasian Society for Infectious Diseases (ASID). Healthcare Infection Control Special Interest Group and the Australian Government Department of Health and Ageing members. (HICSIG) Position statement: infection control guidelines for patients with influenza-like illnesses, including pandemic (H1N1) influenza 2009, in	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian health care facilities. The Medical Journal of Australia. 2009; 191(8), p454-458.					
Assessment of evidence					
In high aerosol-risk settings, use of particulate mask, eye protection, impervious long-sleeved gowns, and gloves. If contact with blood or body fluids is anticipated, an impervious gown/apron and gloves are required. Staff involved in surface cleaning of potentially contaminated areas should wear a surgical mask, protective eyewear, disposable impervious gowns and gloves. HCWs exposed to aerosol-generating procedures should wear particulate filter masks (N95), protective eyewear, disposable impervious gowns and gloves.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Holzmann RD, Liang M, Nadiminti H, et al. Blood exposure risk during procedural dermatology. J Am Acad Dermatol. 2008; 58(5):817-825.	Observational study	**Level 3**	Four dermatologists (Three in academic practice and one in private practice) performed at least 100 dermatological excisional procedures each, for a total sample size of 500. They wore a	N/A	Immediately postoperatively, gown surfaces were inspected for macroscopic blood spots under overhead lighting with a white background.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
			Gown for each procedure and gown contamination level was assessed.		

Assessment of evidence

Scope: This observational study evaluated the incidence of physician blood contamination during procedural dermatology. A survey was also conducted on 700 physicians affiliated with American College of Mohs Surgery (ACMS) to ascertain their strategies and attitudes toward exposure to bloodborne disease during procedures.

- "Blood splash contamination was found in 66.4% (CI: 62.3, 70.5) of the procedures of all 4 surgeons. The incidence per surgeon did not vary much […] (P = .9034)".
- "Blood splashes on the gowns were found in 42% (CI: 37.7, 46.3) of all cases, in 22.8% during MMS excisions and in 45.1% during repairs after MMS excision".
- "Splash incidence on the gowns occurred in 52.2% of FTSG, in 56.4% of flaps, and in 20.2% of primary repairs".
- The physicians in this study were not aware of blood splash at the time of contamination.

This study suggests that a significant number of excisional dermatological procedures result in blood contamination of gowns and also suggests that they may go unnoticed by the operator. Thus, highlighting the need for wearing a surgical gown.

Limitations:

- Experience level of physician was not considered when recruiting participant
- Duration of each activity not considered
- Possible prior contamination of gown was not considered.

Assessment of evidence
• The very small number (4) of surgeons involved in the study. • May not be generalizable to Scottish healthcare settings • Specific techniques or experience levels might influence the gown splash rate. • Blood splash incidence rate by surgeon did not vary significantly (p=0.9034) • No details on how participants were recruited, seems like convenience sampling. • Participants could not be blinded to study. • Response bias for the survey. • Dermatologists who are part of the ACMS may not represent the wider workforce. • Conclusions could not be drawn from the survey as a lack of detail given e.g., the surgeons the lack of blood exposure risk claim might be due to the PPE they are wearing.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Kennedy L. Implementing AORN Recommended Practices for Sterile Technique. AORN 2013; 98(1): 15-23.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
"This guidance in setting up, maintaining, and monitoring a sterile field provides perioperative nurses with methods to help ensure optimal care of their patients". Sterile surgical gown is recommended for every surgical team member prior to a surgical procedure.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Mehta Y, Gupta A, Todi S, et al. Guidelines for prevention of hospital acquired infections. Indian J Crit Care Med. 2014; 18:149-63.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Indian society of critical care medicine "Wear a gown to prevent soiling of clothing and skin during procedures that are likely to generate splashes of blood, body fluids, secretions or excretions." "Use maximal sterile barrier precautions (cap, mask, sterile gown and sterile gloves) and a sterile full-body drape while inserting CVCs, peripherally inserted central catheters, or guidewire exchange"

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health and Safety Executive (HSE). Health and safety in care homes. 2014.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Wear single use gloves and disposable aprons for high risk/messy activities.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Siegel JD, Rhinehart E, Jackson M, et al. Guideline for isolation precautions: preventing transmission of infectious agents in health care settings. 2007.	**Guidance**	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
This guideline provides recommendations for reducing the transmission of infectious agents to patients and HCWs in the United States. **Recommendations** “Standard precautions					

Assessment of evidence
[…] Personal protective equipment […] Gowns Wear a gown appropriate to the task to protect skin and prevent soiling or contamination of clothing during procedures and patient care activities when contact with blood, body fluids, secretions, or excretions is anticipated. Wear a gown for direct patient contact if the patient has uncontained secretions or excretions. Routine donning of gowns on entrance into a high-risk unit (eg, ICU, NICU, HSCT unit) is not indicated. […] Patient care equipment and instruments / devices Wear PPE (e.g, gloves, gown), according to the level of anticipated contamination, when handling patient care equipment and instruments/devices that is visibly soiled or may have been in contact with blood or body fluids". "Transmission-Based Precautions […] Contact Precautions […] Use of PPE […] Gowns Wear a gown whenever it is anticipated that clothing will come in direct contact with the patient or potentially contaminated environmental surface or equipment in close proximity to the patient. Don a gown on entry into the room or cubicle.

Assessment of evidence
Wear a ‘gown’ during aerosol generating procedures. “Isolation Gowns. Isolation gowns are used as specified by Standard and Transmission-Based Precautions to protect the HCW’s arms and exposed body areas and prevent contamination of clothing with blood, body fluids, and other potentially infectious material".

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Infection Control Aide Memoire. Standard precautions in healthcare. 2007.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Select PPE based on the assessment of risk: • clean non-sterile gloves • clean, non-sterile fluid-resistant gown • mask and eye protection or a face shield. Wear gowns to protect skin and prevent soiling of clothing during activities that are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Occupational health and safety of health workers, emergency responders and other workers in public health emergencies: A manual for protecting health workers and responders. 2018.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
"This manual provides an overview of the main occupational safety and health risks faced by emergency responder during disease outbreaks and other emergencies, such as natural disasters, chemical incidents, radiological emergencies and emergencies involving conflicts". Gowns and coveralls should be worn to protect skin and to prevent soiling of clothing during activities that are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions. Contact precautions: Wear a clean, non-sterile gown when entering the room if substantial contact with the patient, environmental surfaces or items in the patient's room is anticipated. PPE (gown, gloves, eye protection) should be worn in the laboratory when handling and processing (infectious agent) specimens and performing diagnostic testing.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Rathore MH, Jackson MA, et al. Infection prevention and control in paediatric ambulatory settings. American Academy of Pediatrics. 2017.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
This position statement provides practical information that on IPC procedures for ambulatory medical settings. In a section outlining standard precautions, it is stated: “Fluid-impermeable gowns or aprons should be worn during procedures that are likely to generate splashes of blood or other body fluids”					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Saiman L and Siegel J. Cystic Fibrosis Foundation Consensus Conference on Infection Control Participants	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Infection Control Recommendations for Patients with Cystic Fibrosis: Microbiology, Important Pathogens, and Infection Control Practices to Prevent Patient-to-Patient Transmission. Infection Control and Hospital Epidemiology. May 2003.					
Assessment of evidence					
Gowns are recommended during procedures where splashes or sprays of blood, body fluids, secretions, or excretions are likely. “Standard precautions consider all blood, body fluids, secretions including respiratory tract secretions, nonintact skin, mucous membranes, and excretions (except sweat) to potentially contain transmissible infectious agents. To prevent person-to-person transmission of infectious agents, HCWs are to observe the appropriate combination of practices and barrier precautions based on the type of exposure anticipated (i.e, hand hygiene; gloves; gown; mask, eye protection, face shield; and disinfection, containment of respiratory secretions).” Gowns should be worn when treating patients who require droplet or contact precautions. When performing cough-inducing procedures, standard precautions should be used, including hand hygiene, gloves, gowns, mask, and eye protection.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Royal College of Nursing (RCN). Essential Practice for Infection Prevention and Control Guidance for nursing staff. 2017.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

"Disposable plastic aprons

[…]

Aprons should be worn whenever there is a risk of contamination of uniforms or clothing with blood and body fluids and when a patient has a known or suspected infection.

[…]

Aprons should not be worn routinely during shifts as part of normal activity but should be reserved for when required".

"Gowns

Impervious (i.e. waterproof) gowns should be used when there is a risk of extensive contamination of blood or body fluids or when local policy dictates their use in certain settings. For example, maternity or A&E settings, or when there are high risk respiratory infections or infections caused by some multi-resistant bacteria".

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
American Association of Nurse Anesthetists (AANA). Infection Prevention and Control Guidelines for Anesthesia Care. 2015.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Non sterile gowns should be worn when there is a risk of limb contamination.

Sterile gowns should be worn for:

- Insertion of pulmonary artery catheters and central venous catheters.
- Invasive procedures (e.g., surgery).

For contact and/or droplet precautions: Wear a gown and gloves for all contact with the patient or the patient's environment (does not specify type)

For airborne precautions: "Healthcare workers should don gloves, gowns, and N95 mask upon entering an infectious patient's room". (Does not specify gown type).

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
American Academy of Ophthalmology. Information Statement. Infection Prevention in Eye Care Services and Operating Areas. August 2012.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Gowns serve a dual purpose because they protect the wearer from the patient and patient environment and they protect the patient from whatever contamination the HCW may have on their clothing.

Wear a gown to protect skin and prevent soiling or contamination of clothing from the patient, environment, or during procedures and patient-care activities when contact with blood, body fluids, secretions, or excretions, or aerosolization/spray is anticipated (e.g., cleaning instruments in a sink, incision and drainage procedures, surgical procedures, eye irrigation).

Wear a gown for direct patient contact if the patient has uncontained secretions or excretions.

Biomedical waste management - Use PPE (gown, gloves, face protection) when disposing down hopper or toilet. (provides example list of biomedical waste)

For cleaning, disinfection and/or sterilisation of instruments - Wear PPE (e.g., gloves, gown), according to the level of anticipated contamination, when handling patient-care equipment and instruments/devices that is visibly soiled or may have been in contact with blood or body fluids.

Cleaning - Wear appropriate PPE when cleaning instruments. Gloves are required as a minimum. Gown and full-face protection is recommended when cleaning in a sink due to the potential of splash.

Assessment of evidence
Cleaning surfaces - Wear disposable gloves whenever using disinfectants. Gowns may be required if gross environmental contamination is present.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Association of perioperative Registered Nurses (AORN). Recommended practices for prevention of transmissible infections in the perioperative practice setting. AORN journal. 2007; Vol 85 (2).	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Contact precautions: wearing gowns when it is anticipated that clothing will have contact with infectious patients or items in the patients' environment (e.g., transporting, transferring patient to a bed/cart, positioning). (Type of gown not specified) Does not specify gowns for droplet or airborne precautions.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Gemmell L, Birks R, Radford P, et al. Association of Anaesthetists of Great Britain and Ireland. Guidelines. Infection Control in Anaesthesia. The Journal of the Association of Anaesthetists of Great Britain and Ireland. 2008; Vol 63 p1027-1036.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Full body, fluid-repellent gowns should be worn where there is a risk of extensive splashing of blood, body fluids, secretions and excretions.

Sterile gowns should be worn when invasive procedures are undertaken.

Disposable plastic aprons are often worn on wards in situations where there is a risk of physical soiling of clothing in order to prevent transmission of infection between patients.

Maximal barrier precautions involve full hand washing, the wearing of sterile gloves and gown, a cap, mask and the use of a large sterile drape and should be used for certain invasive anaesthetic procedures.

- Insertion of central venous catheters.

Assessment of evidence
• Spinal, epidural and caudal procedures

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centres for Disease Control and Prevention (CDC). Basic infection control and prevention plan for outpatient oncology settings. 2011.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Contact precautions: Wear a gown if substantial contact with the patient or their environment is anticipated. Droplet precautions: If substantial spraying of respiratory fluids is anticipated, gloves and gown as well as goggles or face shield should be worn. Airborne precautions: If substantial spraying of respiratory fluids is anticipated, gloves and gown as well as goggles or face shield should be worn. HCP wear gowns to protect skin and clothing during procedures or activities where contact with blood or body fluids is anticipated.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Health Protection Agency. Prevention and control of infection in care homes: an information resource. 2013. Accessed 6 August 2024.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
“This resource aims to provide care home mangers, Care Quality Commission inspectors and Health Protection Units a common source of information on the prevention and control of infection in care homes”. “These [disposable plastic aprons] should be worn by care workers when there is a risk of clothing being contaminated with blood or other body fluids, or when a resident has a known infection”. “A disposable plastic apron should be worn during direct care, bedmaking or when undertaking the decontamination of equipment”. “wearing of gloves and aprons when caring for the individual, especially when handling bed pans, faeces and assisting with toileting and hygiene needs” – in reference to C. difficile infection. “Handling dirty linen All dirty linen should be handled with care and attention paid to the potential spread of infection. Personal protective equipment (PPE) such as plastic aprons and suitable gloves should be worn for handling dirty or contaminated clothing and linen […] Linen and other dirty laundry should not be held close to the chest to prevent contamination of the uniform (a plastic apron should be worn)”.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Smith C, King W, O'Brien D, et al. Clinical Perspectives; Masks, Gowns, and Caps for Interventional Spine Pain Procedures. Pain Medicine. 2018; 19: 1293-1294.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

The authors state that evidence of the benefits of wearing a surgical gown during common interventional procedures is inconclusive. However, it is highlighted that gowning should be considered as an additional unproven precaution for lengthy, advanced procedures.

According to CDC recommendations, "**gowns should be used during procedures and patient care activities when contact of clothing or exposed skin with blood or bodily fluids is anticipated."** However, this contact is not expected during common interventional procedures for spine pain. Gowning should be considered as an extra method of protection during procedures with higher infection rates. Risk assessment is expected from the treating physician on the possible infection control benefits of gowning for specific procedures.

It is stated that data is insufficient to make a recommendation on the need for routine gown use during interventional spine procedures.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Calfee DP, Salgado CD, Milstone AM, et al. Strategies to Prevent Methicillin-Resistant *Staphylococcus aureus* Transmission and Infection in Acute Care Hospitals: 2014 Update. Infection control and hospital epidemiology. 2014; 35(7): 772-796.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Society for Healthcare Epidemiology of America (SHEA) Practice Recommendation. Recommendations for gloves and gowns are bundled within this document. The use of gloves and gowns is recommended for contact with patients and the patient care environment when precautions to interrupt the spread of MRSA are in place, as this was found to significantly reduce the acquisition of MRSA on test wards when compared to control wards (p=0.046).					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Loveday HP, Wilson JA, Pratt RJ, et al. epic3: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England. Journal of Hospital Infection. 2014; 1-70.	Guidelines	**AGREE II: Recommend with modifications**	N/A	N/A	N/A

Assessment of evidence

"National evidence-based guidelines for preventing HCAI in NHS hospitals were first published in January 20011 and updated in 2007. This second update was commissioned by the Department of Health in 2012 for publication in 2013."

Purpose: "These guidelines describe clinically effective measures that are used by healthcare workers for preventing infections in hospital and other acute healthcare settings"

Target users: "[…] they are aimed at hospital managers, members of hospital infection prevention and control teams, and individual healthcare practitioners."

Recommendations:

"Disposable plastic aprons must be worn when close contact with the patient, materials or equipment pose a risk that clothing may become contaminated with pathogenic microorganisms, blood or body fluids". Class D/GPP/H&S

"Full-body fluid-repellent gowns must be worn where there is a risk of extensive splashing of blood or body fluids on to the skin or clothing of healthcare workers". Class D/GPP/H&S

Assessment of evidence
Note: Class D - Evidence level 3 or 4; or extrapolated evidence from studies rated as 2+ GPPs - Recommended best practice based on the clinical Practice experience of the Guideline Development Advisory Points Group and patient preference and experience. H&S - Health and Safety **Limitations:** • Unclear systematic literature process (no search strategy provided, differing search dates for topics, unclear extraction process and grading of papers) • Potentially outdated, guideline has not been updated as was stated. • The link between recommendations and supporting evidence is also unclear, and mostly based on expert opinion.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
National Institute for Health and Care Excellence (NICE). The National Clinical Guidelines Centre (NCGC). Infection: prevention and control of healthcare-associated infections	Guidelines	**AGREE II: Recommend with modifications**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
in primary and community care. 2012.					

Assessment of evidence

Scope: “This clinical guideline is a partial update of 'Infection control: prevention of healthcare associated infection in primary and community care' (NICE clinical guideline 2; 2003)”. The relevant information within this document is from the 2012 update.

Target audience: “all adults and children receiving healthcare for which standard infection-control precautions apply in primary care and community care”.

Recommendations:

“When delivering direct patient care:

wear a disposable plastic apron if there is a risk that clothing may be exposed to blood, body fluids, secretions or excretions or wear a long-sleeved fluid-repellent gown if there is a risk of extensive splashing of blood, body fluids, secretions or excretions onto skin or clothing”.

“When using disposable plastic aprons or gowns:

use them as single-use items, for one procedure or one episode of direct patient care and ensure they are disposed of correctly”.

“It is uncertain whether there is any difference in mean bacterial colony count on uniforms when wearing an apron compared with not wearing an apron (VERY LOW QUALITY)”.

“There is a statistically significant and clinically important reduction in MRSA contamination of care assistant uniforms when aprons were used for washing, and meal assistance in a long-term care facility compared with when no aprons were used (VERY LOW QUALITY)”.

“There is a statistically significant reduction of uncertain clinical importance in MRSA contamination of nurses uniforms when aprons were used for dressing changes and biological sampling compared with when no aprons were used (VERY LOW QUALITY)”.

Assessment of evidence
"There was a statistically significant reduction of uncertain clinical importance in VRE acquisition when gowns and gloves were worn in isolation procedures compared to when gloves alone were worn (VERY LOW QUALITY)". **Limitations:** • Unclear how many researchers contributed to the systematic literature searches and evidence synthesis. • Recommendations are based on limited, very low-quality evidence and expert opinion.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Infection prevention and control of epidemic and pandemic prone acute respiratory infections in health care. 2014.	Guidelines	**AGREE II: Recommend with modifications**	N/A	N/A	N/A

Assessment of evidence
Scope: "This document provides recommendations and other information relating to IPC measures for ARIs in health-care settings, with specific emphasis on ARIs that have the potential for rapid spread and may cause epidemics or pandemics (or both)". **Target audience:** "The document is intended for IPC professionals and members of IPC teams, health-care managers and policy-makers. The secondary audience is health-care workers, including doctors, nurses, allied health professionals, auxiliary and community health workers, and others involved in provision of health care".

Assessment of evidence
Recommendations: “Use appropriate PPE as determined by risk assessment (according to the procedure and suspected pathogen). Appropriate PPE when providing care to patients presenting with ARI syndromes may include a combination of: medical mask (surgical or procedure mask); gloves; **long-sleeved gowns**; and eye protection (goggles or face shields)”. “Use PPE, including gloves, **long-sleeved gowns**, eye protection (goggles or face shields), and facial mask (surgical or procedure mask, or particulate respirators) during aerosol-generating procedures that have been consistently associated with an increased risk of transmission of ARI pathogens”. “Standard precautions […] Gowns Wear gowns to protect skin and prevent soiling of clothing during activities that are likely to generate splashes or sprays of blood, body fluids, secretions or excretions. Select a gown that is appropriate for the activity and the amount of fluid likely to be encountered. If the gown in use is not fluid-resistant, wear a waterproof apron over the gown if splashing or spraying of potentially infectious material is anticipated. “Rational use of personal protective equipment […] Gowns If supplies of gowns for health-care workers are limited, prioritize the use of gowns for aerosol-generating procedures that have been consistently associated with increased risk of pathogen transmission and for activities that involve close contact with the patient (e.g. in paediatric settings)”. “Contact Precautions […]

Assessment of evidence
PPE Put on PPE when entering the room and remove it when leaving. PPE includes: […] Gowns: Use either a disposable gown made of synthetic fibre, or a washable cloth gown; ensure that the gown is the appropriate size to fully cover the areas to be protected". "Isolation rooms or areas […] Wearing and removing personal protective equipment Before entering the isolation room or area: […] put on PPE […]". "Personal protective equipment for handling dead bodies Wear a disposable, long-sleeved, cuffed gown; if the outside of the body is visibly contaminated with body fluids, excretions, or secretions, ensure that this gown is waterproof. If no waterproof gown is available, wear a waterproof apron in addition to the gown". "Personal protective equipment during autopsy PPE to be provided during autopsy includes: […] single-use, fluid-resistant, long-sleeved gown". **Limitations:** • No search strategy provided.

Assessment of evidence
• A specific list of ARIs and AGPs not provided. • Out-dated as per planned update, should have been updated in 2016. • Grading/appraisals are not provided per study, extent to which individual studies were used to create recommendations not clear. • Recommendations are based on limited, low-quality evidence and expert opinion.

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

Evidence added to 2023 update:

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Association of perioperative Registered Nurses (AORN). Guideline Quick View: Sterile Technique. AORN Journal. 2018; Vol. 108 (6), 705-710. DOI: 10.1002/aorn.12458	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

This guidance summary provides recommendations that are specific to Operating room settings.

Recommendations:

- "Perform surgical hand antisepsis before donning a sterile gown".
- "Use sterile technique when donning, wearing, and changing the sterile gown".

"Perform initial gowning and gloving with assistance in the following order:

- Don a surgical gown with the gown cuffs remaining at or beyond the fingertips.

Assessment of evidence
- Insert your hand into the glove held open by the scrubbed team member, with the gown cuff touching only the inside of the glove". "Implementing sterile technique when donning and wearing sterile gowns and gloves reduces the risk of wound contamination and surgical site infections that may result from direct contact of perioperative team members' skin or clothing with the sterile field." **Limitations:** • References not provided. • Guidance developed for nursing staff working in the USA and may not be fully applicable to Scottish health and care settings. • No detail provided to specify if a systematic literature review was carried out to obtain evidence.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centres for Disease Control and Prevention (CDC). Implementation of Personal Protective Equipment (PPE) Use in Nursing Homes to Prevent Spread of Multidrug-resistant Organisms (MDROs). Updated 22 July 2022.	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 4 July 2024.					

Assessment of evidence

Scope: “This document is intended to provide guidance for PPE use and room restriction in nursing homes for preventing transmission of MDROs, including as part of a public health response.”

Recommendations:

For Standard Precautions and Enhanced Barrier Precautions

- Don Gloves and Gown prior to care activity.

For Contact precaution

- Don Gloves and Gown before room entry

Limitations:

- No references provided.
- Unknown evidence base for guidance or how this has been formed.
- May not be fully applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
National Health and Medical Research Council (NHMRC). Australian Guidelines for the Prevention and Control of Infection in Healthcare. 2019. v.11.24. Updated 8 April 2024. Accessed 8 July 2024	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Aim: “By assisting healthcare workers to improve the quality of the care they deliver, these Guidelines aim to promote and facilitate the overall goal of infection prevention and control: the creation of safe healthcare environments through the implementation of evidence-based practices that minimise the risk of transmission of infectious agents”.

Scope: “The Guidelines provide a nationally accepted approach to infection prevention and control, focusing on core principles and priority areas for action. They provide a basis for healthcare workers and healthcare facilities to develop detailed protocols and processes for infection prevention and control specific to local settings. The Guidelines have been developed to specifically support improved infection prevention and control in acute health settings”.

Assessment of evidence
Recommendations: “3.2.2 Contact precautions. [conditional recommendation] […] It is suggested that when working with patients who require contact precautions, healthcare workers should: perform hand hygiene. put on gloves and gown upon entry to the patient care area”. “3.4. Management of multi-resistant organisms and outbreak situations 3.4.1 Multi-resistant organisms [Conditional recommendation] 32. It is suggested that contact precautions be considered for all patients colonised or infected with a multi-resistant organism (MRO) where there is anticipated patient and/or environmental contact, including: - performing hand hygiene and putting on gloves and gowns before entering the patient-care area” “Practical info Aprons and gowns Aprons/gowns are routinely used upon entering the room of a patient requiring contact precautions. Clean aprons or gowns should be appropriate to the task being undertaken”. Note: “Conditional Recommendation: Concludes that the desirable effects of adherence to a recommendation probably outweigh the undesirable effects. Overall, the recommendation is based on supportive evidence and a strong theoretical rationale and is recommended for implementation.”

Assessment of evidence
Limitations: • Stated in the introduction that all recommendations are based on systematic reviews, however there is insufficient evidence within the guidance to support this. • Recommendations are mostly for acute care settings and may not be applicable to other healthcare settings. • May not be Generalisable to Scottish health and care settings. • Recommendations are mostly based on low quality evidence and Guidance.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health & Social Care Guidance (DHSC). Guide to donning (putting on) and doffing (removing) PPE (non-AGP) in adult social care settings (text only version) 2024. Available from: Accessed 9 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Scope: "This guidance provides step by step information on donning (putting on) and doffing (removing) PPE for non-AGP scenario in adult social care settings. **Recommendations:** "To put on your PPE safely and correctly: - Clean your hands and wrists using alcohol-based hand rub or gel or use soap and water. - Put on apron and tie at waist". **Limitations:** • No references or details on how guidance was developed.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Stuart RL, Marshall C, Harrington G et al. ASID/ACIPC position statement – Infection control for patients with Clostridium difficile infection in healthcare facilities. Infection, Disease & Health. 2019; 24(1):32-43.	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 9 July 2024.					

Assessment of evidence

Scope: “The Australasian Society for Infectious Diseases (ASID) and the Australian Infection Control Association (AICA), now known as the Australasian College of Infection Prevention and Control (ACIPC)”.

“The statement updated in 2017 to reflect new literature available. The authors reviewed the 2011 position statement and critically appraised new literature published between 2011 and 2017 and relevant current infection control guidelines to identify where new evidence had become available or best practice had changed”.

Recommendations:

“Contact precautions.

Use personal protective equipment (PPE) (gowns/aprons and gloves) on entry to patient rooms”.

Limitations:

- Limited generalisability outside of C. difficile infection.
- May not be applicable to all healthcare settings.
- May not be generalisable to Scottish/UK healthcare settings.

Evidence from previous update(s):

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
ASID (HICSIG) position statement: infection control guidelines for patients with influenza-like illnesses, including pandemic (H1N1) influenza 2009, in Australian health care facilities. The Medical Journal of Australia. 2009; Vol 191 (8) p454-458.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Developed by Australasian Society for Infectious Diseases, Healthcare Infection Control Special Interest Group and the Australian Government Department of Health and Ageing members**.** In high aerosol-risk settings, use of particulate mask, eye protection, impervious **long-sleeved gown**, and gloves donned in that sequence and removed in reverse sequence, avoiding self-contamination					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Siegel JD, Rhinehart E, Jackson M, et al. Guideline for isolation precautions: preventing transmission of infectious agents in health care settings. 2007.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

This guideline provides recommendations for reducing the transmission of infectious agents to patients and HCWs in the United States.

Recommendations

“Transmission-Based Precautions

[…]

Contact Precautions

[…]

Use of PPE

[…]

Gowns

Don a gown on entry into the room or cubicle”.

“Isolation Gowns

Gowns are usually the first piece of PPE to be donned”.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Occupational health and safety of health workers, emergency responders and other workers in public health emergencies: A manual for protecting health workers and responders. 2018.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
This manual provides an overview of the main Occupational Safety and Health risks faced by emergency responders during disease outbreaks and other emergencies, such as natural disasters, chemical incidents, radiological emergencies and emergencies involving conflicts. “**Donning PPE** Gown: Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back. Fasten at back of neck and waist. Use duct tape to secure”.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
American Association of Nurse Anesthetists (AANA). Infection Prevention and Control Guidelines for Anesthesia Care. 2015.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Secure sterile or non-sterile gown in the back of the neck and waist. For contact and droplet precautions, a gown should be worn along with other PPE before entering the patient's room. For Airborne precautions, a gown should be worn along with other PPE upon entering the patient's room.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
American Academy of Ophthalmology. Information Statement. Infection Prevention in Eye Care Services and Operating Areas. August 2012.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Perform hand hygiene prior to donning a gown and after gown removal before leaving the patient environment.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Association of perioperative Registered Nurses (AORN). Recommended Practices for Selection and Use of Surgical Gowns and Drapes. AORN Journal. 2003; Vol 77 (1).	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Reusable materials should be inspected visually to determine their integrity before use.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centres for Disease Control and Prevention (CDC). Basic infection control and prevention plan for	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
outpatient oncology settings. 2011.					
Assessment of evidence					
Always perform hand hygiene before donning PPE If wearing a gown, don the gown first and fasten in back accordingly					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Calfee DP, Salgado CD, Milstone AM, et al. Strategies to Prevent Methicillin-Resistant *Staphylococcus aureus* Transmission and Infection in Acute Care Hospitals: 2014 Update Infection Control and Hospital Epidemiology. 2014; 35(7): 772-796.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Society for healthcare epidemiology of America (SHEA) practice recommendation. Gowns (and gloves) should be donned on entry to the patient's room. This recommendation is based on following contact precautions while treating patients MRSA infected patients.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organisation (WHO). Infection prevention and control of epidemic and pandemic prone acute respiratory infections in health care. 2014.	Guidelines	**AGREE II: Recommend with modifications**	N/A	N/A	N/A

Assessment of evidence
Scope: "This document provides recommendations and other information relating to IPC measures for ARIs in health-care settings, with specific emphasis on ARIs that have the potential for rapid spread and may cause epidemics or pandemics (or both)". **Target audience:** "The document is intended for IPC professionals and members of IPC teams, health-care managers and policy-makers. The secondary audience is health-care workers, including doctors, nurses, allied health professionals, auxiliary and community health workers, and others involved in provision of health care". **Recommendations:** "Contact Precautions

Assessment of evidence
[…] PPE Put on PPE when entering the room […].” “Isolation rooms or areas […] Wearing and removing personal protective equipment Before entering the isolation room or area: […] put on PPE in the order that ensures adequate placement of PPE items and prevents self-contamination and self-inoculation while using and taking off PPE; an example of the order in which to don PPE when all PPE items are needed is hand hygiene, gown, […]”. **Limitations:** • No search strategy provided. • A specific list of ARIs and AGPs not provided. • Out-dated as per planned update, should have been updated in 2016. • Grading/appraisals are not provided per study, extent to which individual studies used to create recommendations not clear. • Recommendations are based on limited, low-quality evidence and expert opinion.

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

Evidence added to 2023 update:

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Association of perioperative Registered Nurses (AORN). Guideline Quick View: Sterile Technique. AORN Journal. 2018; Vol. 108 (6), 705-710. DOI: 10.1002/aorn.12458	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

The guidance summary provides recommendations that are specific to Operating room settings.

Recommendations:

"Use clinical judgement when a gown sleeve is contaminated to determine whether a sterile sleeve should be worn to cover the area of contamination or if the gown should be removed, surgical hand antisepsis performed, and a new sterile gown and gloves donned."

Limitations:

- References not provided.

Assessment of evidence
• Guidance developed for nursing staff working in the USA and may not be fully applicable to Scottish health and care settings. • Gown with double gloving recommendation is only recommended for EPP in ARHAI Glove review. • Lack of detail provided to determine if a systematic literature review was carried out to obtain evidence.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Kohn WG, Collins AS, Cleveland JL, et al. Guidelines for Infection Control in Dental Health-Care Settings. Centers for Disease Control and Prevention. MMWR Recomm Rep. 2003 Dec 19;52(17):1-61.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Scope: "This report consolidates recommendations for preventing and controlling infectious diseases and managing personnel health and safety concerns related to infection control in dental settings". Guidelines were developed by the CDC staff members in collaboration with other infection control authorities. It is stated "wherever possible, recommendations are based on data from well-designed scientific studies. […] In the absence of scientific evidence for such practices, certain recommendations are based on strong theoretical rationale, suggestive evidence, or opinions of

Assessment of evidence

respected authorities based on clinical experience, descriptive studies, or committee reports. In addition, some recommendations are derived from federal regulations. No recommendations are offered for practices for which insufficient scientific evidence or lack of consensus supporting their effectiveness exists."

Target: "This report is designed to provide guidance to DHCP for preventing disease transmission in dental health-care settings, for promoting a safe working environment, and for assisting dental practices in developing and implementing infection-control programs".

Recommendations:

"IV. PPE

B. Protective Clothing

2. Change protective clothing if visibly soiled; change immediately or as soon as feasible if penetrated by blood or other potentially infectious fluids.

3. Remove barrier protection, including gloves, mask, eyewear, and gown before departing work area (e.g., dental patient care, instrument processing, or laboratory areas)".

Limitations:

- No information provided on the experts/authorities contributing to guidelines.
- Unknown how Guidance consensus was reached.
- No evidence of systematic review, or methods of obtaining scientific evidence used/cited.
- The studies contributing to the evidence base for each recommendation are not clear.
- May be outdated as was last updated in 2003.
- May not be fully applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health security Agency (UKHSA). Preventing and controlling infections. 2024. Accessed 3 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Scope: This page provides general guidance for staff in children and young people settings, including education settings on the prevention and control of infections.

Recommendations:

“For individuals with continence aids Change continence pads in a designated area.

[…] Wear appropriate personal protective equipment (PPE) such as disposable gloves and a disposable plastic apron and change after every child or young person”.

Limitations:

- No references or details on how guidance was developed.
- Not specific to health and care settings

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health & Social Care Guidance (DHSC). Infection prevention and control: quick guide for care workers. 2024. Accessed 4 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Scope: This page provides Infection prevention and control guidance for care workers in adult social care settings.

Recommendations:

"You should only wear gloves and aprons for one task. You should dispose of them if they get contaminated and when you are finished with your task."

Limitations:

- No references or details on how guidance was developed.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health & Social Care Guidance (DHSC). Infection prevention and control: resource for adult social care 2024. Accessed 4 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Scope: This resource provides general infection prevention and control (IPC) principles to be used in combination with advice and guidance on managing specific infections for those responsible for setting and maintaining standards of IPC within adult social care in England.

Recommendations:

“Use plastic disposable aprons for one procedure or one episode of care”.

“Dispose of aprons when contaminated, after the completion of the care activity and between care of different people”.

Limitations:

- No references or details on how guidance was developed.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). Implementation of Personal Protective Equipment (PPE) Use in Nursing Homes to Prevent Spread of Multidrug-resistant Organisms (MDROs). Updated 22 July 2022. Accessed 4 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Scope: “This document is intended to provide guidance for PPE use and room restriction in nursing homes for preventing transmission of MDROs, including as part of a public health response.”

Recommendations:

For Standard Precautions, Enhanced Barrier Precautions and Contact precaution:

“Change PPE before caring for another resident”.

Limitations:

- No references provided.

Assessment of evidence
• Unknown evidence base for guidance or how this has been formed • May not be fully applicable to Scottish health and care settings

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
European Centre for Disease Prevention and Control (ECDC). Infection prevention and control and preparedness for COVID-19 in healthcare settings – Sixth update. 9 February 2021. Accessed 4 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Scope: "This document aims to provide guidance to healthcare facilities and healthcare providers in the European Union/European Economic Area (EU/EEA) and the United Kingdom (UK) on preparedness and infection prevention and control (IPC) measures for the management of possible and confirmed cases of COVID-19 in healthcare settings, including long-term care facilities (LTCFs)." Target audience: "National public health agencies, hospital administrators, LTCF administrators and healthcare workers in EU/EEA countries and the United Kingdom (UK)."					

Assessment of evidence
ECDC will update this document based on the evolving situation and if new relevant information arises. **Recommendations:** "When used, gloves and gowns should always be changed after each patient contact". **Limitations:** • No details on how expert gather evidence and reach consensus for guidance development.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
European Centre for Disease Prevention and Control (ECDC). Considerations for infection prevention and control practices in relation to respiratory viral infections in healthcare settings. 2023 Accessed 4 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Scope: “This document aims to support the development of guidance for healthcare facilities and healthcare providers in the European Union/European Economic Area (EU/EEA) on infection prevention and control (IPC) measures for the management of patients with respiratory tract viral infection in healthcare settings.” Target audience: “National public health agencies, healthcare facility administrators, IPC and other professionals developing relevant IPC guidance and healthcare workers in EU/EEA countries.” **Recommendations:** “If gloves and gowns are used, these should always be changed after contact with each individual patient”. **Limitations:** • No details on how expert gather evidence and reach consensus for guidance development.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
National Health and Medical Research Council (NHMRC). Australian Guidelines for the Prevention and Control of Infection in Healthcare. 2019. v.11.24. Updated 8 April 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 8 July 2024					

Assessment of evidence

Aim: “By assisting healthcare workers to improve the quality of the care they deliver, these Guidelines aim to promote and facilitate the overall goal of infection prevention and control: the creation of safe healthcare environments through the implementation of evidence-based practices that minimise the risk of transmission of infectious agents”.

Scope: “The Guidelines provide a nationally accepted approach to infection prevention and control, focusing on core principles and priority areas for action. They provide a basis for healthcare workers and healthcare facilities to develop detailed protocols and processes for infection prevention and control specific to local settings. The Guidelines have been developed to specifically support improved infection prevention and control in acute health settings.”

Recommendations:

“3.2.2 Contact precautions

[conditional recommendation]

[…]

remove gown and gloves and perform hand hygiene before leaving the patient-care area”.

“3.3 Personal protective equipment

[Conditional recommendation]

The used apron/gown should be removed in the area where the episode of patient care takes place”.

“Practical info

Aprons and gowns

[…]

Assessment of evidence
Gowns and aprons should be changed between patients". "Removing aprons and gowns Removal of aprons and gowns before leaving the patient-care area (e.g. in the room or anteroom) prevents possible contamination of the environment outside the patient's room. Aprons and gowns should be removed in a manner that prevents contamination of clothing or skin. The outer, 'contaminated', side of the gown is turned inward and rolled into a bundle, and then discarded into a designated container for waste or linen to contain contamination". Note: "Conditional Recommendation: Concludes that the desirable effects of adherence to a recommendation probably outweigh the undesirable effects. Overall, the recommendation is based on supportive evidence and a strong theoretical rationale and is recommended for implementation." **Limitations:** • Stated in the introduction that all recommendations are based on systematic reviews, however there is insufficient evidence within the guidance to support this. • Recommendations are mostly for acute care settings and may not be applicable to other healthcare settings. • May not be generalisable to Scottish health and care settings • Recommendations are mostly based on low quality evidence and Guidance

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Stuart RL, Marshall C, Harrington G, et al. ASID/ACIPC position statement – Infection control for patients with Clostridium difficile infection in healthcare facilities. Infection, Disease & Health. 2019; 24(1):32-43. Accessed 9 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Scope: "The Australasian Society for Infectious Diseases (ASID) and the Australian Infection Control Association (AICA), now known as the Australasian College of Infection Prevention and Control (ACIPC)".

"The statement updated in 2017 to reflect new literature available. The authors reviewed the 2011 position statement and critically appraised new literature published between 2011 and 2017 and relevant current infection control guidelines to identify where new evidence had become available or best practice had changed".

Recommendations:

"All gloves and gowns/aprons should be removed, and hand hygiene performed on exiting the room".

Assessment of evidence
Limitations: • Limited generalisability outside of C. difficile infection. • May not be applicable to all healthcare settings • May not be generalisable to Scottish/UK healthcare settings

Evidence from previous update(s):

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Mehta Y, Gupta A, Todi S, et al. Guidelines for prevention of hospital acquired infections. Indian J Crit Care Med. 2014; 18:149-63.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
"Remove the soiled gown as soon as possible, with care to avoid contamination."					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Siegel JD, Rhinehart E, Jackson M, et al. Guideline for isolation precautions: preventing transmission of infectious agents in health care settings. 2007.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

This guideline provides recommendations for reducing the transmission of infectious agents to patients and HCWs in the United States.

Recommendations

“Standard precautions

[…]

Personal protective equipment

[…]

Gowns

[…]

Remove gown and perform hand hygiene before leaving the patient’s environment.

Do not reuse gowns, even for repeated contacts with the same patient”.

“Transmission-Based Precautions

[…]

Assessment of evidence
Contact Precautions […] Use of PPE […] Gowns […] Remove the gown and observe hand hygiene before leaving the patient care environment". "Isolation Gowns. Isolation gowns should be removed before leaving the patient care area to prevent possible contamination of the environment outside the patient's room".

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
American Academy of Ophthalmology. Information Statement. Infection Prevention in Eye Care Services and Operating Areas. August 2012.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Do not reuse gowns, even for repeated contacts with the same patient.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Occupational health and safety of health workers, emergency responders and other workers in public health emergencies: A manual for protecting health workers and responders. 2018.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
The soiled gown or coverall should be removed as soon as possible, and hand hygiene should be performed.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organisation (WHO). Infection prevention and control of epidemic and pandemic prone acute respiratory	Guidelines	**AGREE II: Recommend with modifications**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
infections in health care. 2014.					

Assessment of evidence

Scope: "This document provides recommendations and other information relating to IPC measures for ARIs in health-care settings, with specific emphasis on ARIs that have the potential for rapid spread and may cause epidemics or pandemics (or both)".

Target audience: "The document is intended for IPC professionals and members of IPC teams, health-care managers and policy-makers. The secondary audience is health-care workers, including doctors, nurses, allied health professionals, auxiliary and community health workers, and others involved in provision of health care".

Recommendations:

"Standard precautions

[…]

Gowns

[…]

Remove a soiled gown as soon as possible […]".

"Rational use of personal protective equipment

[…]

Gowns may also be worn during the care of more than one patient in a single cohort area only, provided that the gown does not come into direct contact with any patient".

"Contact Precautions

[…]

Assessment of evidence
PPE Put on PPE when entering the room and remove it when leaving […] If possible, wear a gown once only […]". "Entry of health-care workers into the isolation room or area Cohorting patients could decrease the need for masks or respirators and eye protection, since several patients could be attended in one visit to the room or area, without the health-care worker needing to change these items of PPE. Other PPE – including gloves and **gowns** – must be changed between patients, even when providing care in a cohort or isolation room or area". It is recommended under that Gown should be taken off when leaving an isolation room or area. **Limitations:** • No search strategy provided. • A specific list of ARIs and AGPs not provided. • Out-dated as per planned update, should have been updated in 2016. • Grading/appraisals are not provided per study, extent to which individual studies were used to create recommendations not clear. • Recommendations are based on limited, low-quality evidence and expert opinion.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Royal College of Nursing (RCN). Essential Practice for Infection Prevention and Control Guidance for nursing staff. 2017.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
"Disposable plastic aprons should be changed as soon as the intended individual task is completed".					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
American Association of Nurse Anesthetists (AANA). Infection Prevention and Control Guidelines for Anesthesia Care. 2015.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Non-sterile and sterile gowns should be discarded after each use.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Gemmell L, Birks R, Radford P, et al. Association of Anaesthetists of Great Britain and Ireland. Guidelines. Infection Control in Anaesthesia. The Journal of the Association of Anaesthetists of Great Britain and Ireland. 2008; Vol 63 p1027-1036.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Contaminated clothing should be changed and safely discarded into an appropriate receptacle at the earliest opportunity.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centres for Disease Control and Prevention (CDC). Basic infection control and prevention plan for outpatient oncology settings. 2011.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
HCP should not wear the same gown for the care of more than one patient.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Saiman L and Siegel J. Cystic Fibrosis Foundation Consensus Conference on Infection Control Participants Infection Control Recommendations for Patients with	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Cystic Fibrosis: Microbiology, Important Pathogens, and Infection Control Practices to Prevent Patient-to-Patient Transmission. Infection Control and Hospital Epidemiology. May 2003.					
Assessment of evidence					
Gowns should be removed after contact and before providing care for other patients.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
National Institute for Health and Care Excellence (NICE). The National Clinical Guidelines Centre (NCGC). Infection: prevention and control of healthcare-	Guidelines	**AGREE II: Recommend with modifications**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
associated infections in primary and community care. 2012.					
Assessment of evidence					
Scope: "This clinical guideline is a partial update of 'Infection control: prevention of healthcare associated infection in primary and community care' (NICE clinical guideline 2; 2003)". The relevant information within this document is from the 2012 update. **Target audience:** "all adults and children receiving healthcare for which standard infection-control precautions apply in primary care and community care". **Recommendations:** "When using disposable plastic aprons or gowns: use them as single-use items, for one procedure or one episode of direct patient care and ensure they are disposed of correctly". **Limitations:** • Unclear how many researchers contributed to the systematic literature searches and evidence synthesis. • Recommendations are based on limited, very low-quality evidence and expert opinion.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Health Protection Agency. Prevention and control of infection in	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
care homes: an information resource. 2013. Accessed 6 August 2024.					
Assessment of evidence					
“This resource aims to provide care home mangers, Care Quality Commission inspectors and Health Protection Units a common source of information on the prevention and control of infection in care homes”. “The apron is as a single-use item used for one procedure or episode of care and then discarded as clinical waste on completion of the task”.					

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

Evidence added to 2023 update:

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centres for Disease Control and Prevention (CDC). Implementation of Personal Protective Equipment (PPE) Use in Nursing Homes to Prevent Spread of Multidrug-resistant Organisms (MDROs). Updated 22 July 2022. Accessed 4 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Scope: “This document is intended to provide guidance for PPE use and room restriction in nursing homes for preventing transmission of MDROs, including as part of a public health response.” **Recommendations:** For Contact precaution					

Assessment of evidence
• Doff Gloves and Gown before room exit. **Limitations:** • No references provided • Unknown evidence base for guidance or how this has been formed • May not be fully applicable to Scottish health and care settings

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Personal protective equipment. Laboratory biosafety manual, fourth edition and associated monographs. 2020. Accessed 5 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Scope: "This monograph provides an overview of the types of PPE that might be required as part of core laboratory requirements. It also offers options for PPE when heightened control measures have been identified as necessary and covers the types of PPE that should be used when high-risk operations need to be performed within maximum containment measures". "The monograph focuses on the use of PPE to prevent exposure to biological agents; however, other hazards such as sharps and chemicals will also be considered". **Recommendations:** "6.4.2 Gowns To remove a gown, untie the fastening holding the gown together and pull the gown from back to front by rolling it from inside to outside". "6.4.3 Aprons To remove a disposable apron, untie or break (for example, if using a disposable plastic apron) the fastening at the neck and roll the apron down […]. This allows the potentially contaminated front of the apron to be contained as it is rolled. Then, untie or break the fastening at the back of the waist and roll the apron further without contaminating the hands. To remove a reusable apron, first wipe the front of the apron with a suitable disinfectant. Then, untie the fastening at the back of the waist and slip the neck fastening over the head. Hang up the apron or send for laundering". "6.4.4 Coveralls To remove disposable coveralls, open the front, slip the coverall over the shoulders, pull the arms from the sleeves […]. Then, roll the coverall down inside out (this step may require assistance from another person). Finally, remove the coverall and, if necessary and worn, remove the boots". **Limitations:** • No details on how expert gather evidence and reach consensus for guidance development. • May not be applicable to all healthcare settings

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
National Health and Medical Research Council (NHMRC). Australian Guidelines for the Prevention and Control of Infection in Healthcare. 2019. v.11.24. Updated 8 April 2024. Accessed 8 July 2024	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Aim: “By assisting healthcare workers to improve the quality of the care they deliver, these Guidelines aim to promote and facilitate the overall goal of infection prevention and control: the creation of safe healthcare environments through the implementation of evidence-based practices that minimise the risk of transmission of infectious agents”.

Scope: “The Guidelines provide a nationally accepted approach to infection prevention and control, focusing on core principles and priority areas for action. They provide a basis for healthcare workers and healthcare facilities to develop detailed protocols and processes for infection prevention and control specific to local settings. The Guidelines have been developed to specifically support improved infection prevention and control in acute health settings”.

Recommendations:

“3.2.2 Contact precautions

Assessment of evidence
[conditional recommendation] […] remove gown and gloves and perform hand hygiene before leaving the patient-care area". "3.3 Personal protective equipment [Conditional recommendation] The used apron/gown should be removed in the area where the episode of patient care takes place". "Removing aprons and gowns Removal of aprons and gowns before leaving the patient-care area (e.g. in the room or anteroom) prevents possible contamination of the environment outside the patient's room. Aprons and gowns should be removed in a manner that prevents contamination of clothing or skin. The outer, 'contaminated', side of the gown is turned inward and rolled into a bundle, and then discarded into a designated container for waste or linen to contain contamination". Note: "Conditional Recommendation: Concludes that the desirable effects of adherence to a recommendation probably outweigh the undesirable effects. Overall, the recommendation is based on supportive evidence and a strong theoretical rationale and is recommended for implementation". **Limitations:** • Stated in the introduction that all recommendations are based on systematic reviews, however there is insufficient evidence within the guidance to support this. • Recommendations are mostly for acute care settings and may not be applicable to other healthcare settings. • May not be generalisable to Scottish health and care settings. • Recommendations are mostly based on low quality evidence and Guidance.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Moore DL. Canadian Paediatric Society, Infectious Diseases and Immunization Committee, Ottawa, Ontario. Infection prevention and control in paediatric office settings. Paediatrics & Child Health. 2018; 23(8):e176-e190. Accessed 9 July 2024.	Guidance - Position statement	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Scope: “This document updates the Canadian Paediatric Society position statement published in 2008. It discusses published recommendations and areas of controversy, and provides suggestions and recommendations based on professional opinion”.

Target audience: “This statement is directed to physicians who care for children in general paediatric office settings. Specialty ambulatory care settings, where invasive procedures such as dialysis, parenteral therapy, endoscopy, or outpatient surgery or dentistry are routinely performed, may require additional measures”.

Assessment of evidence
Recommendations: "In the absence of data from paediatric office settings, the following recommendations are based on Guidance and extrapolations from other health care settings". "Additional precautions […] Contact precautions. […] Remove the gown before leaving the room". **Limitations:** • No details on how expert gather evidence and reach consensus for guidance development. • May not be applicable to all healthcare settings • May not be generalisable to Scottish/UK healthcare settings

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health & Social Care Guidance (DHSC). Guide to donning (putting on) and doffing (removing) PPE (non-AGP) in	Guidance	**Level 4**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
adult social care settings (text only version) 2024. Accessed 9 July 2024.					

Assessment of evidence

Scope: “This guidance provides step by step information on donning (putting on) and doffing (removing) PPE for non-AGP scenario in adult social care settings.

Recommendations:

“To take off your PPE safely and correctly:

- Remove gloves - do not touch the outside front of the gloves, they will be contaminated.
- Clean hands and wrists (and forearms if necessary) with alcohol-based hand rub or gel or use soap and water.
- Remove apron - do not touch the outside front of the apron, this will be contaminated”.

Limitations:

- No references or details on how guidance was developed.

Evidence from previous update(s):

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australasian Society for Infectious Diseases (ASID). Healthcare Infection Control Special Interest Group and the Australian Government Department of Health and Ageing members (HICSIG). Position statement: infection control guidelines for patients with influenza-like illnesses, including pandemic (H1N1) influenza 2009, in Australian health care facilities. The Medical Journal of Australia. 2009; 191(8), p454-458	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
In high aerosol-risk settings, use of particulate mask, eye protection, impervious long-sleeved gown, and gloves donned in that sequence and removed in reverse sequence, avoiding self-contamination.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Siegel JD, Rhinehart E, Jackson M, et al. Guideline for isolation precautions: preventing transmission of infectious agents in health care settings. 2007.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
This guideline provides recommendations for reducing the transmission of infectious agents to patients and HCWs in the United States. **Recommendations** “Standard precautions […] Personal protective equipment […] Gowns […] Remove gown and perform hand hygiene before leaving the patient’s environment”.

Assessment of evidence
“Transmission-Based Precautions […] Contact Precautions […] Use of PPE […] Gowns […] Remove the gown and observe hand hygiene before leaving the patient care environment. After gown removal, ensure that clothing and skin do not contact potentially contaminated environmental surfaces that could result in possible transfer of microorganism to other patients or environmental surfaces”. “Isolation Gowns. Isolation gowns should be removed before leaving the patient care area to prevent possible contamination of the environment outside the patient’s room. Isolation gowns should be removed in a manner that prevents contamination of clothing or skin; the outer, ‘‘contaminated’’ side of the gown is turned inward and rolled into a bundle, and then discarded into a designated container for waste or linen to contain contamination”.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Occupational health and safety of health workers, emergency responders and other workers in public health emergencies: A manual for protecting health workers and responders. 2018.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

- Gown front and sleeves are contaminated!
- Unfasten ties.
- Pull away from neck and shoulders, touching inside of gown only.
- Turn gown inside out.
- Fold or roll into a bundle and discard.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organisation (WHO). Infection prevention and control of epidemic and pandemic prone acute respiratory infections in health care. 2014.	Guidelines	**AGREE II: Recommend with modifications**	N/A	N/A	N/A

Assessment of evidence

Scope: "This document provides recommendations and other information relating to IPC measures for ARIs in health-care settings, with specific emphasis on ARIs that have the potential for rapid spread and may cause epidemics or pandemics (or both)".

Target audience: "The document is intended for IPC professionals and members of IPC teams, health-care managers and policy-makers. The secondary audience is health-care workers, including doctors, nurses, allied health professionals, auxiliary and community health workers, and others involved in provision of health care".

Recommendations:

"Leaving the isolation room or area

Either remove PPE in the anteroom or, if there is no anteroom, make sure that the PPE will not contaminate either the environment outside the isolation room or area, or other people.

Remove PPE in a manner that prevents self-contamination or self-inoculation with contaminated PPE or hands. General principles are:

[…]

Assessment of evidence
put reusable items in a dry (e.g. without any disinfectant solution) closed container; an example of the order in which to take off PPE when all PPE items are needed is gloves (if the gown is disposable, gloves can be peeled off together with gown upon removal), hand hygiene, gown, […]". Perform hand hygiene with an alcohol-based hand rub (preferably) or soap and water whenever ungloved hands touch contaminated PPE items." **Limitations:** • No search strategy provided. • A specific list of ARIs and AGPs not provided. • Out-dated as per planned update, should have been updated in 2016. • Grading/appraisals are not provided per study, extent to which individual studies were used to create recommendations not clear. • Recommendations are based on limited, low-quality evidence and expert opinion.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
American Association of Nurse Anesthetists (AANA). Infection Prevention and Control Guidelines for Anesthesia Care. 2015.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
Doffing of non-sterile and sterile gown: - “Unfasten ties in back of neck and waist. - Remove the gown touching only the inside of the gown. - Roll or fold gown inside out”.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
American Academy of Ophthalmology. Information Statement. Infection Prevention in Eye Care Services and Operating Areas. August 2012.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Perform hand hygiene prior to donning a gown and after gown removal before leaving the patient environment.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centres for Disease Control and Prevention (CDC). Basic infection control and prevention plan for outpatient oncology settings. 2011.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

Remove gown and perform hand hygiene before leaving the patient's environment (e.g., exam room)

Removal of gowns:

- Remove in such a way to prevent contamination of clothing or skin
- Turn contaminated outside surface toward the inside
- Roll or fold into a bundle and discard

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Calfee DP, Salgado CD, Milstone AM, et al. Strategies to prevent methicillin-resistant *Staphylococcus aureus* transmission and infection in acute care hospitals: 2014 Update. Infection control and hospital epidemiology. 2014; 35(7): 772-796.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Society for healthcare epidemiology of America (SHEA) practice recommendation. Gowns (and gloves) should be doffed before exiting the patient's room. This recommendation is based on following contact precautions while treating patients MRSA infected patients.					

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

Evidence added to 2023 update:

None

Evidence from previous update(s):

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Association of perioperative Registered Nurses (AORN). Recommended Practices for Selection and Use of Surgical Gowns and Drapes. AORN Journal. 2003; Vol 77 (1).	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Manufacturer's instructions should be followed regarding the reprocessing of reusable gowns, including the suggested number of processing, and the useful life of barrier materials should be provided and followed. Repeated processing ultimately will diminish the protective barrier ability of reusable textiles; however, items constructed of reusable textiles should continue to meet the original barrier quality level throughout the manufacturer-recommended life cycle. They also suggest tracking the number of reprocessing cycles and monitoring the quality of the reusable surgical gowns in case there is any form of deterioration in protective quality.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Loveday HP, Wilson JA, Pratt RJ, et al. epic3: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England. Journal of Hospital Infection. 2014; 1-70.	Guidelines	**AGREE II: Recommend with modifications**	N/A	N/A	N/A

Assessment of evidence

"National evidence-based guidelines for preventing HCAI in NHS hospitals were first published in January 20011 and updated in 2007. This second update was commissioned by the Department of Health in 2012 for publication in 2013."

Purpose: "These guidelines describe clinically effective measures that are used by healthcare workers for preventing infections in hospital and other acute healthcare settings"

Target users: "[…] they are aimed at hospital managers, members of hospital infection prevention and control teams, and individual healthcare practitioners."

Recommendations:

"[…]. When used, non-disposable protective clothing should be sent for laundering". Class D/GPP/H&S

Note:

Class D - Evidence level 3 or 4; or extrapolated evidence from studies rated as 2+

Assessment of evidence
GPPs - Recommended best practice based on the clinical Practice experience of the Guideline Development Advisory Points Group and patient preference and experience. H&S - Health and Safety **Limitations:** • Unclear systematic literature process (no search strategy provided, differing search dates for topics, unclear extraction process and grading of papers) • Potentially outdated, guideline has not been updated as was stated. • The link between recommendations and supporting evidence is also unclear, and mostly based on expert opinion.

Question 8. How should aprons/gowns be disposed of?

Evidence added to 2023 update:

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Chambers CE, Eisenhauer MD, McNicol LB, et al. Infection control guidelines for the cardiac catheterization laboratory: society guidelines revisited. Catheterization and cardiovascular interventions: official journal of the Society for Cardiac Angiography & Interventions. 2006; 67(1):78-86. .	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
Scope: “These Society for Cardiovascular Angiography and Interventions (SCAI) guidelines are presented as recommendations to assist cardiac catheterization laboratory directors and managers in establishing laboratory policy”.					

Assessment of evidence
"The society's updated guidelines provide useful recommendations to assist cardiac catheterization personnel in updating or establishing infection control policies for their own institution". **Recommendations:** "Blood-contaminated drapes, gowns, gloves, and sponges should be discarded in special containers and labelled as healthcare waste". **Limitations:** • Lack of detail to determine if a systematic literature review was carried out to obtain evidence. • Guidance developed in USA and may not be fully applicable to Scottish health and care settings. • No information provided on how evidence was graded and how Guidance consensus was reached. • No mention of process or schedules for update.

Evidence from previous update(s):

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Siegel JD, Rhinehart E, Jackson M, et al. Guideline for isolation precautions: preventing transmission of infectious agents in health care settings. 2007.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence
This guideline provides recommendations for reducing the transmission of infectious agents to patients and HCWs in the United States. **Recommendations** Isolation Gowns should be “discarded into a designated container for waste or linen to contain contamination”.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Occupational health and safety of health workers, emergency responders and other workers in public health emergencies: A manual for protecting health workers and responders. 2018.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
If disposable (apron), discard in an appropriate waste bag according to the health-care facility guidelines. If disposable, (gown) discard in an appropriate waste bag according to the health-care facility guidelines.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organisation (WHO). Infection prevention and control of epidemic and pandemic prone acute respiratory infections in health care. 2014.	Guidelines	**AGREE II: Recommend with modifications**	N/A	N/A	N/A

Assessment of evidence

Scope: "This document provides recommendations and other information relating to IPC measures for ARIs in health-care settings, with specific emphasis on ARIs that have the potential for rapid spread and may cause epidemics or pandemics (or both)".

Target audience: "The document is intended for IPC professionals and members of IPC teams, health-care managers and policy-makers. The secondary audience is health-care workers, including doctors, nurses, allied health professionals, auxiliary and community health workers, and others involved in provision of health care".

Recommendations:

"Remove a soiled gown as soon as possible, place it in a waste or laundry receptacle (as appropriate), and perform hand hygiene".

Limitations:

- No search strategy provided.
- A specific list of ARIs and AGPs not provided.
- Out-dated as per planned update, should have been updated in 2016.

Assessment of evidence
• Grading/appraisals are not provided per study, extent to which individual studies were used to create recommendations not clear. • Recommendations are based on limited, low-quality evidence and expert opinion.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Royal College of Nursing (RCN). Essential Practice for Infection Prevention and Control Guidance for nursing staff. 2017.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
"Disposable plastic aprons […] Aprons are classified as single use items and should be disposed of immediately after use in accordance with local waste policies".					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
American Association of Nurse Anesthetists (AANA). Infection prevention and control guidelines for Anesthesia care. 2015.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
For non-sterile or sterile gown “Dispose of gown in proper waste receptacle”.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Loveday HP, Wilson JA, Pratt RJ, et al. epic3: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England.	Guidelines	**AGREE II: Recommend with modifications**	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Journal of Hospital Infection. 2014; 1-70.					

Assessment of evidence

"National evidence-based guidelines for preventing HCAI in NHS hospitals were first published in January 20011 and updated in 2007. This second update was commissioned by the Department of Health in 2012 for publication in 2013."

Purpose: "These guidelines describe clinically effective measures that are used by healthcare workers for preventing infections in hospital and other acute healthcare settings"

Target users: "[…] they are aimed at hospital managers, members of hospital infection prevention and control teams, and individual healthcare practitioners."

Recommendations:

"Plastic aprons/Fluid-repellent gowns should be worn as single-use items for one procedure or episode of patient care, and disposed of into the appropriate waste stream in accordance with local policies for waste management. When used, non-disposable protective clothing should be sent for laundering". Class D/GPP/H&S

Note:

Class D - Evidence level 3 or 4; or extrapolated evidence from studies rated as 2+

GPPs **-** Recommended best practice based on the clinical Practice experience of the Guideline Development Advisory Points Group and patient preference and experience.

H&S **-** Health and Safety

Limitations:

- Unclear systematic literature process (no search strategy provided, differing search dates for topics, unclear extraction process and grading of papers)
- Potentially outdated, guideline has not been updated as was stated.

Assessment of evidence
• The link between recommendations and supporting evidence is also unclear, and mostly based on expert opinion.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Health Protection Agency. Prevention and control of infection in care homes: an information resource. 2013. Accessed 6 August 2024.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
"This resource aims to provide care home mangers, Care Quality Commission inspectors and Health Protection Units a common source of information on the prevention and control of infection in care homes". "The apron is as a single-use item used for one procedure or episode of care and then discarded as clinical waste on completion of the task".					

Question 9. How should aprons/gowns be stored?

Evidence added to 2023 update:

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health and Safety Executive (HSE). Guidance on Regulations. Personal protective equipment at work. The Personal Protective Equipment at Work Regulations 1992 (as amended). 2022. Accessed 5 July 2024.	Guidance	**Level 4**	N/A	N/A	N/A

Assessment of evidence

"Where an employer or relevant self-employed person is required, by virtue of regulation 4, to ensure personal protective equipment is provided, they shall also ensure that appropriate accommodation is provided for that personal protective equipment when it is not being used.

[…] Storage is required to:

(a) prevent damage from chemicals, sunlight, high humidity, heat and accidental knocks;

(b) prevent contamination from dirt and harmful substances;

Assessment of evidence
(c) reduce the possibility of losing the PPE; (d) enable the sufficient drying of PPE to ensure its effectiveness is maintained; for example, retaining its insulating capabilities if used in damp, hot or cold environments". "Regulation (EU) 2016/425 (as incorporated into UK law) states that PPE sold on the market must be supplied with relevant information on: (i) storage, use, maintenance, servicing, cleaning and disinfecting".

Evidence from previous update(s):

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. UK Statutory Instrument No. 2966 Health and Safety. Personal Protective Equipment at Work Regulations 1992.	Legislation	**Mandatory**	N/A	N/A	N/A
Assessment of evidence					
Note: Below information taken from both the 1992 regulations and 2022 amendment. Reference to 2022 amendment required in the review and added to evidence table. 2022 amendments to 1992 regulation in **bold**. Maintenance and replacement of PPE: Regulation 7:					

Assessment of evidence
"(1) Every employer shall ensure that any personal protective equipment provided to his **workers** is maintained (including replaced or cleaned as appropriate) in an efficient state, inefficient working order and in good repair. (2) Every self-employed person shall ensure that any personal protective equipment provided to him is maintained (including replaced or cleaned as appropriate) in an efficient state, in efficient working order and in good repair". Accommodation for PPE: Regulation 8: "Where an employer or self-employed person is required, by virtue of regulation 4, to ensure personal protective equipment is provided, he shall also ensure that appropriate accommodation is provided for that personal protective equipment when it is not being used".

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. UK Statutory Instrument No. 2677 Health and Safety. The Control of Substances Hazardous to Health Regulations 2002.	Legislation	**Mandatory**	N/A	N/A	N/A

Assessment of evidence
This legislation provides detailed information on protection of employees regarding substances that are hazardous to health. These include "micro-organisms such as bacteria, viruses, fungi, and the agents that cause transmissible spongiform encephalopathies (TSEs)" Employers should ensure that PPE "is maintained in an efficient state, in efficient working order, in good repair and in a clean condition" "Every employer shall ensure that personal protective equipment, including protective clothing, is:

Assessment of evidence
(a) properly stored in a well-defined place; (b) checked at suitable intervals; and (c) when discovered to be defective, repaired or replaced before further use.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Health Protection Agency. Prevention and control of infection in care homes: an information resource. 2013. Accessed 6 August 2024.	Guidance	**Level 4**	N/A	N/A	N/A
Assessment of evidence					
“This resource aims to provide care home mangers, Care Quality Commission inspectors and Health Protection Units a common source of information on the prevention and control of infection in care homes”. “Aprons should be stored so that they do not accumulate dust that may act as a reservoir for micro-organisms”.					