NHS National Services Scotland

Personal Protective Equipment (PPE): Eye/Face Protection Literature Review

Evidence Tables

Version 2.0

21 February 2025

ARHAI Scotland

Antimicrobial Resistance and Healthcare Associated Infection

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	August 2020	Updated using 2-person systematic methodology with findings divided into two parts – SICP and TBP recommendations.
2.0	February 2025	Evidence added to reflect 3-year update of Literature Review (V2.0).

Contents

Introduction

All studies which are critically appraised as part of the literature review are assigned a grade of evidence based on the SIGN50 methodology grading system (SIGN, 2004), which allows scientific studies to be assessed for quality using a number of reviewing forms (available from the SIGN website).

The main conclusions from the studies are summarised along with a brief description of the study quality in an Evidence Table. Studies, which have sufficient quality and specifically answer a defined research question are grouped together to enable formation of a "considered judgment" based on this information. This "considered judgment" is then used as the basis for formulation of recommendations.

This system allows formulation of recommendations supported by good quality observational studies in the case when RCTs are not available for practical or ethical reasons, as is generally found in infection control literature.

Levels of evidence

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

Grade	Description
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
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: What is eye and face protection?

Evidence added to Literature Review V2.0

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Association of Surgical Technologies (AST). AST Guidelines for Best Practices in Use of Eye Protection During Surgical Procedures. 2008. Revised April 14, 2017. Accessed 27 July 2023	Guidance	Level 4	N/A	N/A	N/A
Assessment of evidence					
This guidance document provided a definition of eye protection in the context of health and care settings and therefore contributes to this research question.					

Assessment of evidence

These guidelines were produced and authored by the AST Education and Professional Standards Committee and are said to be AST approved.

Purpose: “to provide information OR supervisors, risk management, and surgical team members can use in the development and implementation of policies and procedures for eye protection during surgical procedures in the surgery department.”

“Eye protection must be consistently used by CSTs in conjunction with other personal protective equipment (PPE) (e.g., gloves, gown, mask or respirator) as a barrier to prevent potentially infectious material from entering the eye as mandated by the American National Standards Institute (ANSI), Centers for Disease Control and Prevention (CDC), and OSHA…”

Taken from glossary section:

“Eye protection: Any of several types of devices worn to protect the eyes from blood splashes and sprays, chemicals, liquids, and OPIM.”

Limitations:

- May not be applicable to Scottish health and care settings.
- No mention of plan for update.
- Unknown methods of producing guidelines.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
National Health and Medical Research Council (NHMRC). Australian Guidelines for the Prevention and Control of	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Infection in Healthcare. 2019. v.11.23. Updated 28 February 2024. Accessed 26 March 2024					

Assessment of evidence

This guidance document provided a definition of eye and face protection in the context of health and care settings and therefore contributes to this research question.

Funding: Guidance was co-funded by the National Health and Medical Research Council and Australian Commission on Safety and Quality in Health Care.

Aim (page 19): “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.”

Stated in the introduction that all recommendations are based on systematic reviews, however there is insufficient evidence within the guidance to support this.

“Face and eye protection reduces the risk of exposure of healthcare workers to splashes or sprays of blood and body substances and is an important part of standard precautions.”

“Protective eyewear is part of standard precautions, and serves to protect the healthcare worker from body fluid exposure to the eyes from droplets generated by patient when coughing and sneezing.”

“Rationale –

Assessment of evidence
Whilst there is little high quality evidence to support the use of face and protective eyewear, their use is supported by work health and safety principles and expert advice." Note: a conditional recommendation is considered a weak recommendation. Definition for weak recommendation is found in the glossary (page 264), as follows: "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."

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Social Care (DHSC). Infection prevention and control: resource for adult social care. 2022. Updated 01 March 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This guidance document provided a definition of eye protection in the context of health and care settings and therefore contributes to this research question. Scope: "contains general infection prevention and control (IPC) principles to be used in combination with advice and guidance on managing specific infections."

Assessment of evidence
Target audience: “for those responsible for setting and maintaining standards of IPC within adult social care in England.” “[…] eye protection reduce[s] the risks of pathogens entering the body through mucus membranes.” **Limitations:** • No references provided.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
European Centre for Disease Prevention and Control (ECDC). Guidance for wearing and removing personal protective equipment in healthcare settings for the care of patients with suspected or confirmed COVID-19. 2020. Accessed 14 August 2023	Technical Report	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provided a definition of eye and face protection in the context of health and care settings and therefore contributes to this research question.

Scope: “This document provides support to healthcare workers managing suspected or confirmed cases of novel coronavirus 2019 (COVID-19). The general objectives of the document are:

- to present the minimal set of personal protective equipment (PPE) required for managing suspected or confirmed COVID-19 cases;
- to make healthcare workers aware of the critical aspects of the donning and doffing of PPE; and
- to strengthen occupational safety in healthcare workers for patients suspected of, or confirmed with, COVID-19.

Target audience: “Healthcare workers and infection prevention and control personnel in EU/EEA countries and in the United Kingdom.”

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

“Eye protection

Goggles, or face shields, should be used to prevent virus exposure of the eye mucosa.”

Limitations:

- No references provided for this statement.
- Unclear how evidence based was identified.
- Contributing ECDC experts are listed however unknown of their area of expertise to ensure full representation.
- Specific to COVID-19 patients, also formed early in pandemic (2020).

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health New Zealand. COVID-19: Infection prevention and control recommendations for health and disability care workers 15 August 2023. Updated 12 March 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provided a definition of eye protection in the context of health and care settings and therefore contributes to this research question.

Aim: “provides the minimum recommendations for mask use for all employees, volunteers and contractors of healthcare facilities, and patients/clients and visitors of healthcare settings. […] to assist primary and community health and disability care workers in selecting additional PPE items required, following a risk assessment for acute respiratory infections, including COVID-19.”

Target audience: primary and community health and disability care staff.

Last updated 15 August 2023: guidance documents update pending due to “The last remaining mandatory COVID-19 requirements have been removed.”

“Eye protection

Assessment of evidence
Eye protection is worn to prevent exposure of the mucous membranes of the eye (conjunctiva) when there is likely exposure to blood body fluid splashes, respiratory droplets or from touching eyes with contaminated fingers." **Limitations:** • No evidence cited and unknown methods for producing guidance. • No mention of process or schedules for update. • May not be applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Public Health Agency Canada. Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings. 2013 (revised 2016). Accessed 11 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provided a definition of eye and face protection in the context of health and care settings and therefore contributes to this research question.

Funding: Guidance was funded by Public Health Agency Canada.

Aim: “to identify and promote infection prevention and control (IPC) practices and precautions for preventing the transmission of microorganisms in healthcare settings, with the exception of bone marrow transplant settings.”

Target audience: “to assist infection prevention and control professionals and all other healthcare providers responsible for developing policies and procedures related to routine practices and additional precautions in all healthcare settings whether in acute or long-term care, ambulatory care, home care or prehospital care settings.”

Appendix III provides the criteria for rating evidence on which recommendations are based:

Strong AI. Direct evidence from meta-analysis or multiple strong design studies of high quality with consistent results.

Strong AII. Consistent results with either direct evidence from multiple strong studies of medium quality, or one strong design with support from multiple moderate designs of high quality, or one strong design of medium quality with support from multiple strong designs of high quality.

Moderate BI. Consistent results with either direct evidence from multiple moderate design studies of high quality, or from multiple strong designs of high quality.

Moderate BII. Direct evidence from a combination of strong/moderate design studies of high/medium quality with a clear trend but some inconsistent results, or consistent results from multiple strong design studies of medium quality/moderate designs of high/medium quality, or one strong design study with support from weak designs of high/medium quality.

Weak CI. Direct evidence from multiple weak design studies of high/medium quality with consistency of results, or extrapolation from any combination of strong/moderate studies of high/medium quality with inconsistency of results.

Weak CII. Studies of low quality or contradictory results regardless of design, case series/case reports, or expert opinion.

“Additional precautions—Personal protective equipment—Facial protection

[…]

Assessment of evidence

The eye is an important portal of entry for some pathogens. Pathogens may be introduced into the eye directly via respiratory droplets generated during coughing or suctioning, or by self-inoculation if the eyes are touched with contaminated fingers."

Limitations:

- No mention of plan or process for update.
- Unknown methods for producing guideline or consensus recommendations.
- May not be applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Standard precautions in health care 2007 Accessed 2 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provided a definition of eye and face protection in the context of health and care settings and therefore contributes to this research question.

The aide-memoire presents a set of measures within standard precautions, designed to minimize the risk of transmitting bloodborne and other pathogens, originating from both known and unknown sources.

Assessment of evidence
"Facial protection (eyes, nose, and mouth) Wear (1) a surgical or procedure mask and eye protection (eye visor, goggles) or (2) a face shield to protect mucous membranes of the eyes, nose, and mouth during activities that are likely to generate splashes or sprays of blood, body fluids, secretions, and excretions."

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). Guidelines for Infection Control in Dental Health-Care Settings. 2003. Accessed 2 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This guidance document provided a definition of eye and face protection in the context of health and care settings and therefore contributes to this research question. Aim: "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

Assessment of evidence

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.

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.

Recommendation –

"IV PPE

A. Masks, Protective Eyewear, and Face Shields

1. Wear a surgical mask and eye protection with solid side shields or a face shield to protect mucous membranes of the eyes, nose, and mouth during procedures likely to generate splashing or spattering of blood or other body fluids (IB, IC)"

Limitations:

- No information provided on the experts/authorities contributing to guidelines.
- Unknown how expert opinion consensus was reached.
- No evidence of systematic review, or methods of obtaining scientific evidence used/cited.

Assessment of evidence
• Not clear per each recommendation the studies contributing to the evidence base.

Evidence from previous updates

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.	Guidance	AGREE Recommend with modifications	N/A	N/A	N/A

Assessment of evidence
This guideline provided a definition of eye and face protection in the context of health and care settings and therefore contributes to this research question. “National evidence-based guidelines for preventing HCAI in NHS hospitals were first published in January 2011 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”

Assessment of evidence

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

"Face masks are also used, often in conjunction with eye protection, to protect the mucous membranes of the wearer from exposure to blood and/or body fluids when splashing may occur"

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.

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. Accessed 29 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provided a definition of eye and face protection in the context of health and care settings and therefore contributes to this research question.

“This is an RCN practice guidance. Practice guidance are evidence-based consensus documents, used to guide decisions about appropriate care of an individual, family or population in a specific context.”

Target audience: “This guidance is intended as a reference document for use by RCN members, and highlights essential elements of good infection prevention and control practice.”

“Visors or goggles can be utilised to protect the eye membranes.”

Limitations:

- No references provided in text.
- Review date of November 2020 stated, no indication this was carried out.

Question 2: What type(s) of eye/face protection are recommended for health and care settings?

Evidence added to Literature Review V2.0

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
The Association for Professionals in Infection Control and Epidemiology (APIC). APIC Implementation Guide: Infection Preventionist's Guide to the OR. 2015. Accessed 27 July 2023	Guidance	Level 4	N/A	N/A	N/A
Assessment of evidence					
Purpose of guide is to prepare and support infection preventionists (IPs) who engage with the entire Surgery Suite, Sterile Processing department (SPD), critical support services, and supply chain with eliminating preventable surgical site infections and other healthcare associated infections. Engagement involves perioperative nurses and those technicians, surgeons, and anaesthesia professionals who provide and oversee perioperative care. Input from broad array of experts from practice and research settings were involved in creating this guideline. List of authors provided on page 6.					

Assessment of evidence
Guideline provides references throughout, however no information on formulation of guidelines is provided. Implementation strategies with tools and recourses are provided for each section. APIC provides examples of eye protection which include devices such as goggles, glasses with solid side shields, or chin-length face shields. **Limitations:** • No input from UK experts, therefore, may not be fully applicable to Scottish health and care settings. • Some references provided. • Unknown how evidence base was sought and how guidelines were formulated.

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.11.23. Updated 28 February 2024.	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 26 March 2024					

Assessment of evidence

This guidance document provided examples of types of eye/face protection (stating prescription eyewear is not considered a type of eye/face protection) and the design features of these.

Funding: Guidance was co-funded by the National Health and Medical Research Council and Australian Commission on Safety and Quality in Health Care.

Aim (page 19): “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.”

Stated in the introduction that all recommendations are based on systematic reviews, however there is insufficient evidence within the guidance to support this.

“Eye protection

Goggles with a manufacturer’s anti-fog coating […].

Newer styles of goggles fit adequately over prescription glasses with minimal gaps […]

Other types of protective eyewear include safety glasses with side-shield protection, which are widely used in dentistry and other specialties that use operating microscopes.

[…] Personal eyeglasses and contact lenses are not considered adequate eye protection.”

“Face shields

Single-use or reusable face shields may be used in addition to surgical masks, as an alternative to protective eyewear […],

If healthcare workers wish to use prescription protective eyewear, the eyewear needs to meet the appropriate standard for impact as described in AS/NZS 1337.6.2012 – Prescription eye protectors against low and medium impact.”

Assessment of evidence

“Prescription eyewear is considered to provide appropriate eye protection for blood or body fluid splash or droplet exposure if:

- the eyewear is close fitting, particularly at the corners of the eye and across the brow, and there is minimal gaps between the frame and the face
- provides full coverage of the ocular region • includes side protection that is indirectly vented
- can be cleaned and disinfected between use, in accordance with the facility’s equipment cleaning protocols.

Additional protective eyewear does not need to be worn with prescription protective eyewear that have these features. If prescription eyewear does not have these features, additional protective eyewear needs to be worn.”

Additional facial protection may need to be considered, such as a mask or faceshield, if a large volume of blood or body fluid exposure is likely”

“Rationale –

Whilst there is little high quality evidence to support the use of face and protective eyewear, their use is supported by work health and safety principles and expert advice.”

Note: a conditional recommendation is considered a weak recommendation. Definition for weak recommendation is found in the glossary (page 264), as follows: “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.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Government. Infection Prevention and Control Expert Group – Guidance on the use of personal protective equipment (PPE) for health workers in the context of COVID-19. 2022. Accessed 3 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This guidance document provided examples of types of eye/face protection (stating prescription eyewear is not considered a type of eye/face protection) and the design features of these. This guidance is endorsed by the Australian Health Protection Principal Committee and developed with advice from the National COVID-19 Clinical Evidence Taskforce Infection Prevention and Control Panel (IPC Panel). Consensus recommendations are based on the combined expertise and experience of the IPC panel and ICEG members. Scope: Document provides guidance on the use of PPE for health care workers during the COVID-19 pandemic, who working in a health and care setting. “This may include in hospitals, non-inpatient settings, managed quarantine facilities, residential care facilities, COVID-19 testing clinics, in-home care and other environments where clinical care is provided”. Aim: Document aims to “supplement detailed guidance available at a state, territory and institutional level”

Assessment of evidence

"Options for eye protection include closely fitted wrap-around goggles, safety glasses, and face shields.

"Personal prescription glasses are not considered protective eyewear. Eye protection for wearers of prescription glasses include goggles which are designed to be worn over prescription glasses, a face shield, or prescription protective eyewear, as per AS/NZS Standard 1337.6:2007."

"Goggles or Safety Glasses

Normal prescription glasses, contact lenses or safety glasses that are not wrap-around do not provide adequate protection and are not suitable for use as eye protection."

"Face shields

All face shields should provide a clear plastic barrier that covers the face, which extends below the chin and to the ears […]"

Limitations:

- Limited referencing throughout document.
- Unknown how evidence contributing to recommendations was obtained.
- Lack of detail regarding reaching a consensus.
- May not be applicable to Scottish health and care settings, as is specific to Australia.
- Specific to pandemic setting.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC).	Poster	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Transmission-Based Precautions 2016. Accessed 4 August 2023					
Assessment of evidence					
This 'Droplet Precautions' sign provided displays information for healthcare workers when entering an area under droplet precautions. Sign states "everyone must clean their hands, including entering and when leaving the room. Make sure their eyes, nose and mouth are fully covered before room entry. Remove face protection before room exit". Sign also displays two infographics indicating face shield (over face mask) or goggles with face mask can be used.					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). Guidelines for Infection Control in Dental Health-Care Settings. 2003. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document recommends types of eye/face protection worn in dental health and care settings and their design features. Due to unclear processes for developing this guidance, it is considered SIGN50 Level 4.

Aim: “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.

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.

“Masks, Protective Eyewear, Face Shields

[…] protective eyewear with solid side shields or a face shield should be worn by DHCP during procedures and patient-care activities likely to generate splashes or sprays of blood or body fluids.”

Assessment of evidence

Recommendation –

“IV PPE

A. Masks, Protective Eyewear, and Face Shields

1. Wear a surgical mask and eye protection with solid side shields or a face shield […]”

Limitations:

- No information provided on the experts/authorities contributing to guidelines.
- Unknown how expert opinion consensus was reached.
- No evidence of systematic review, or methods of obtaining scientific evidence used/cited.
- Not clear per each recommendation the studies contributing to the evidence base.
- Unclear description of type eye protective “with solid side shields”.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Coronavirus Disease 2019 (COVID-19) Pandemic. 2020. Updated 18 March 2024. Accessed 26 March 2024					

Assessment of evidence

This guidance document provided examples of types of eye/face protection and design features of these.

Aim: “Guidance provides a framework for facilities to implement select infection prevention and control practices (e.g., universal source control) based on their individual circumstances (e.g., levels of respiratory virus transmission in the community).”

Audience: “Guidance is appliable to all U.S settings where healthcare is delivered”.

“Eye protection (i.e., goggles or a face shield that covers the front and sides of the face) […]”

Limitations:

- No references provided.
- Unknown evidence base for guidance or how this has been formed.
- Specific to pandemic setting.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Prevention and Control (CDC). Collection and Submission of Postmortem Specimens from Deceased Persons with Confirmed or Suspected COVID-19 2022 Accessed 9 August 2023.	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provided examples of types of eye/face protection and the design features of these.

Scope: “This document provides specific interim recommendations for the collection and submission of postmortem specimens from deceased persons with confirmed or suspected COVID-19.”

Target user: “The guidance can be used by medical examiners, coroners, pathologists, other workers involved in providing postmortem care, and state, tribal, local, and territorial health departments.”

“PPE Recommendations for Autopsies

- Eye protection such as goggles or face shield that covers the front and sides of the face […]
    - Protective eyewear (e.g., safety glasses and the face shield) without gaps between glasses and the face […]”

Assessment of evidence
Limitations: • No references provided. • Unknown evidence base for guidance or how this has been formed.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). The National Institute for Occupational Safety and Health (NIOSH): Strategies for Conserving the Supply of Eye Protection. 2023. Accessed 10 August 2023	Guidance	Level 4	N/A	N/A	N/A
Assessment of evidence					
This guidance document provides an example respiratory protection with built in eye protection. “Conventional Capacity Strategies […] Transition eye protection supplies from disposable (i.e., single use) to reusable devices (i.e., reusable face shields or goggles)					

Assessment of evidence
When both respiratory and eye protections are needed, consider preferential use of powered air purifying respirators (PAPRs) or full facepiece elastomeric respirators which have built-in eye protection." **Limitations:** • No references provided.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Social Care (DHSC). Infection prevention and control: resource for adult social care. 2022. Updated 01 March 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This guidance document provided examples of types of eye/face protection (stating regular spectacles are not considered a type of eye/face protection). Scope: "contains general infection prevention and control (IPC) principles to be used in combination with advice and guidance on managing specific infections." Target audience: "for those responsible for setting and maintaining standards of IPC within adult social care in England."

Assessment of evidence
"Eye protection […] eye protection such as goggles or visors […] Regular spectacles do not provide sufficient protection. Visors may offer greater comfort for those who wear spectacles." **Limitations:** • No references provided.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
European Centre for Disease Prevention and Control (ECDC). Guidance for wearing and removing personal protective equipment in healthcare settings for the care of patients with suspected or confirmed COVID-19. 2020. Accessed 14 August 2023	Technical Report	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provided examples of types of eye/face protection.

Scope: “This document provides support to healthcare workers managing suspected or confirmed cases of novel coronavirus 2019 (COVID-19). The general objectives of the document are:

- to present the minimal set of personal protective equipment (PPE) required for managing suspected or confirmed COVID-19 cases;
- to make healthcare workers aware of the critical aspects of the donning and doffing of PPE; and
- to strengthen occupational safety in healthcare workers for patients suspected of, or confirmed with, COVID-19.

Target audience: “Healthcare workers and infection prevention and control personnel in EU/EEA countries and in the United Kingdom.”

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

Table 1 details minimal composition of a set of PPE for the management of suspected or confirmed cases of COVID-19, it states eye protection should include “goggles (or face shield)”

Document also gives instruction of goggles with textile straps and goggles with temples (appear to be safety glasses in figures).

Limitations:

- No references provided for this statement.
- Unclear how evidence based was identified.
- Contributing ECDC experts are listed however unknown of their area of expertise to ensure full representation.
- Specific to COVID-19 patients, also formed early in pandemic (2020).

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Public Health Agency Canada. Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings. 2013 (revised 2017). Accessed 11 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provided examples of types of eye/face protection (stating prescription eyewear is not considered a type of eye/face protection). Due to the unknown methods for producing this guidance recommendations, this is considered SIGN50 Level 4.

Funding: Guidance was funded by Public Health Agency Canada.

Aim: “to identify and promote infection prevention and control (IPC) practices and precautions for preventing the transmission of microorganisms in healthcare settings, with the exception of bone marrow transplant settings.”

Target audience: “to assist infection prevention and control professionals and all other healthcare providers responsible for developing policies and procedures related to routine practices and additional precautions in all healthcare settings whether in acute or long-term care, ambulatory care, home care or prehospital care settings.”

Appendix III provides the criteria for rating evidence on which recommendations are based:

Strong AI. Direct evidence from meta-analysis or multiple strong design studies of high quality with consistent results.

Assessment of evidence
Strong AII. Consistent results with either direct evidence from multiple strong studies of medium quality, or one strong design with support from multiple moderate designs of high quality, or one strong design of medium quality with support from multiple strong designs of high quality. Moderate BI. Consistent results with either direct evidence from multiple moderate design studies of high quality, or from multiple strong designs of high quality. Moderate BII. Direct evidence from a combination of strong/moderate design studies of high/medium quality with a clear trend but some inconsistent results, or consistent results from multiple strong design studies of medium quality/moderate designs of high/medium quality, or one strong design study with support from weak designs of high/medium quality. Weak CI. Direct evidence from multiple weak design studies of high/medium quality with consistency of results, or extrapolation from any combination of strong/moderate studies of high/medium quality with inconsistency of results. Weak CII. Studies of low quality or contradictory results regardless of design, case series/case reports, or expert opinion. “Facial protection includes masks and eye protection, or face shields or masks with visor attachment. Eye protection may include masks with built-in eye protection, safety glasses or face shields.” “Recommendations for routine practices in all healthcare settings: 7. Use of personal protective equipment c. Facial protection […] vi. Eye protection should be worn over prescription glasses, as prescription glasses are not adequate eye protection. [CII]” Appendix IX: Advantages and disadvantages of barrier equipment includes a table on types of eye protection, their use and advantages/disadvantages. The types of eyewear stated include safety glasses, goggles, face shield, and visor attached to masks. “Appendix X: Glossary of terms Eye Protection − Eye protection may include masks with built-in eye protection, safety glasses or face shields.

Assessment of evidence
[…] Facial protection − Facial protection includes masks and eye protection, or face shields, or masks with visor attachment.” **Limitations:** • No mention of plan or process for update. • Unknown methods for producing guideline or consensus recommendations. • May not be applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health New Zealand. COVID-19: Infection prevention and control recommendations for health and disability care workers. 15 August 2023. Updated 12 March 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provided examples of types of eye/face protection (stating prescription eyewear is not considered a type of eye/face protection) and the design features of these.

Aim: “provides the minimum recommendations for mask use for all employees, volunteers and contractors of healthcare facilities, and patients/clients and visitors of healthcare settings. […] to assist primary and community health and disability care workers in selecting additional PPE items required, following a risk assessment for acute respiratory infections, including COVID-19.”

Target audience: primary and community health and disability care staff.

Last updated 15 August 2023: guidance documents update pending due to “The last remaining mandatory COVID-19 requirements have been removed.”

“Eye protection includes goggles, safety glasses (that have side visors and fit closely to your forehead) or a face shield that covers your eyes, nose and mouth.

[…]

Prescription glasses do not provide adequate eye protection due to gaps around the frames. Eye protection for wearers of prescription glasses include goggles which are designed to be worn over prescription glasses, safety goggles with prescription lenses or a face shield.”

Limitations:

- No evidence cited and unknown methods for producing guidance.
- No mention of process or schedules for update.
- May not be applicable to Scottish health and care settings.

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

Assessment of evidence

This guidance document provided examples of types of eye/face protection and the design features of these.

“This guidance provides practical advice on how you can comply with the requirements of the Personal Protective Equipment at Work Regulations 1992 as amended by the Personal Protective Equipment at Work (Amendment) Regulations 2022”

“Part 2

85 Part 2 provides guidance to employers to help them comply with their duties to select suitable PPE, ensure its proper use, and maintain it. It describes the PPE used for different parts of the body and covers PPE used to prevent drowning and falls from height.

Eye and face protection

Types of protection

91 The main types of eye and face protection are:

Assessment of evidence
(a) Safety spectacles – May be separate lenses in a metal or plastic frame (similar in appearance to prescription glasses) or have a single lens/frame moulding (sometimes called eye-shields). Most designs have side shields. Spectacles can incorporate corrective lenses, while eye-shields may fit over prescription glasses; (b) Goggles – These are made with a flexible plastic frame and one or two lenses; the goggles are secured around the head with a flexible elastic headband. They give the eyes protection from all angles as the complete rim is in contact with the face. Some goggles are ventilated and may be unsuitable for protection against gases and fine dusts; (c) Faceshields – These have one large lens with a frame and adjustable head harness or are mounted on a helmet. Most can be worn with prescription glasses. […]”

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 Accessed 14 August 2023	Guidance	AGREE: Recommend with modifications	N/A	N/A	N/A

Assessment of evidence

This guideline provides two recommendations on the types of appropriate PPE, including types of eye/face protection (stating conventional eye glasses are not eye protection). This guidance is deemed AGREE: recommend with modifications. Whilst this guideline is based on a systematic literature review, some aspects of this method are not provided, such as the search strategy. The link between recommendations and supporting evidence is also unclear.

This document contains recommendations, best practices, and principles focusing on the non-pharmacological aspects of infection prevention and control (IPC) for acute respiratory infections (ARI) in healthcare settings.

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.”

Recommendation (page 3): “Appropriate PPE when providing care to patients presenting with ARI syndromes may include a combination of: […] eye protection (goggles or face shields)

“Facial protection, i.e. a medical mask and eye protection (eye visor, goggles) or a face shield” – this is stated within the footnote of table 2.1 detailing “infection prevention and control precautions for health-care workers and caregivers providing care for patients with acute respiratory infection and tuberculosis”.

“Recommendations for use of personal protective equipment :

Rational use of personal protective equipment

Eye protection

[…]

Do not use conventional eye glasses as eye protection, because they are not designed to protect against splashes to the eye mucosa.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health and Safety Executive (HSE). Using personal protective equipment (PPE) to control risks at work. 2020. Accessed 14 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provided examples of types of eye/face protection.

“Using the right type of PPE

When your risk assessment shows you should provide PPE, you need to make sure you choose the right type to protect different parts of the body. This page explains how you can do that.

Eyes

Hazards to the eyes include chemical or metal splash, dust, projectiles, gas and vapour or radiation.

PPE options include safety spectacles, goggles, face screens, face shields and visors.”

Limitations:

- Lack of references.
- No date created/last reviewed provided.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Infection prevention and control guidance for long-term care facilities in the context of COVID-19 – Interim Guidance. 2021 Accessed 1 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provided examples of types of eye/face protection.

This document offers interim guidance to Long Term Care Facilities (LTCF) managers and IPC focal points to prevent the entry and transmission of SARS CoV-2 within and beyond the facility and to ensure safe visiting conditions for residents through strict implementation of infection prevention and control (IPC) procedures. The guidance was built on published WHO recommendations for IPC in COVID-19 contexts, encompassing IPC for healthcare settings, mask use, and healthcare worker infection prevention, alongside ongoing reviews of scientific evidence on COVID-19 in LTCF settings and the efficacy of IPC measures in such settings. However, specific references to the systematic reviews are not provided in the document.

Below are the recommendations concerning the use of eye and face protection as identified in the document:

“[…] use of the following PPE: […] eye protection (goggles or face shield).”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Standard precautions in health care. 2007. Accessed 2 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provided examples of types of eye/face protection.

The aide-memoire presents a set of measures within standard precautions, designed to minimize the risk of transmitting bloodborne and other pathogens, originating from both known and unknown sources.

“Facial protection (eyes, nose, and mouth)

Wear (1) a surgical or procedure mask and eye protection (eye visor, goggles) or (2) a face shield […].”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and the Health protection Agency. Pandemic (H1N1) 2009 Influenza. A	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
summary of guidance for infection control in healthcare settings. 2009 Accessed 4 August 2023					

Assessment of evidence

This guidance document provided examples of types of eye/face protection.

This document represented an updated version of Pandemic flu: A summary of guidance for infection control in health care settings issued in September 2007. It was tailored to the pandemic influenza virus of that time, pandemic (H1N1) 2009, making it current and relevant. Although it was primarily intended for the NHS, the infection control principles were applicable to other healthcare settings as well. The guidance was to be utilized for all patients suspected or confirmed to have pandemic (H1N1) 2009 influenza.

Table 1 provides PPE required for care of patients with pandemic influenza. The footnote of this table states: "[…] Surgical masks with integrated visors are an option for eye protection."

"Putting on PPE

[…] Eye protection, i.e goggles or face shield"

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Social Care and UK Health Security Agency. Infection prevention and control (IPC) in adult social care: acute respiratory infection (ARI). 2024. Updated 25 March 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document states prescription spectacles are not considered a type of eye/face protection.

This guidance provides information on IPC measures for acute respiratory infections, including COVID-19. “It applies to adult social care providers, managers of adult social care services and adult social care staff in England.”

This guidance document appears to replace existing guidance documents ‘COVID-19 supplement to the infection prevention and control resource for adult social care: PPE’ and ‘COVID-19 PPE guide for adult social care services and settings’ by the Department of Health and Social Care.

“Prescription spectacles do not provide adequate eye protection; therefore, those wearing spectacles should use a visor for eye protection.”

Assessment of evidence
Limitations: • No references provided.

Evidence from previous updates

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
British Standards Institution (BSI). BS 7028:1999 Eye protection for industrial and other uses – Guidance on selection, use and maintenance.	Standard	Level 4	N/A	N/A	N/A

Assessment of evidence
This standard provided examples of types of eye/face protection and the design features of these. Scope: “This British Standard gives guidance and background information on occupational eye- and face-protectors.” “5.1.3 Classification by style The many available styles of occupational eye-protectors can be conveniently classified into three principal categories as follows: • spectacles; • goggles; and

Assessment of evidence

- faceshields.

Spectacles protect the eyes and offer limited protection to the orbital cavities. Goggles protect the eyes and orbital cavities and faceshields provide both eye and face protection."

Table 5 provides a general description of goggles, spectacles and face shields which has been summarised below.

Spectacles:

- Twin type ocular
  - "Twin oculars held within conventional spectacle-type frame.
  - Usually held in position by side-arms.
  - Usually incorporates sideshields to provide lateral protection to orbital cavities. Some designs available with corrective oculars.
  - May be fitted with filtering oculars for limited.
- Single ocular (eyeshield)
  - Single-piece ocular, usually with check and brow projections for additional protection.
  - Usually incorporate deep integrally moulded side-arms to provide lateral protection.
  - Some styles may be worn over normal corrective spectacles.
  - Oculars may incorporate filtering effect for limited protection against UV, IR and sunglare radiation.

Goggles:

- Box type
  - Single ocular held in malleable frame. Usually held in position by headband.
  - Provides complete enclosure to orbital cavities.
  - May incorporate direct or indirect ventilation.

Assessment of evidence

- If suitable frames are used together with welding. Oculars then protection against welding radiation is possible.
- Larger styles may be worn over corrective spectacles.
- Mesh oculars may be available.

- Cup type
  - Twin oculars held in opaque cup frames.
  - Filtering effect oculars usually fitted for protection against welding radiation.
  - May incorporate direct or indirect ventilation.
  - Cannot be worn over protective spectacles.
  - Cover lenses may be fitted to protect oculars from weld spatter.
  - Mesh oculars may be available.
- Face shields
  - Single piece sheet or moulded visor attached to a brow guard with adjustable headband.
  - Visor may also be attached via a carrier to a safety helmet.
  - Visors available with filtering effect for limited protection against optical radiation.
  - Provides protection to all or part of the face.
  - May be worn over corrective spectacles.
  - Mesh type visors available

“6.2.3.5.2 Corrective eye-protectors

Persons requiring vision correction can wear face-shields and certain types of deep framed box goggles over their normal corrective spectacles. In addition, if a spectacle type eye-protector affords appropriate protection special corrective eye-protectors are available to cover all categories, including low energy impact, applicable to standard non-corrective safety spectacles.”

Assessment of evidence
Limitations: • No referencing throughout, bibliography provided with three legislative sources.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Coia JE, Ritchie L, and Adisesh A, et al. Guidance on the use of respiratory and facial protection equipment. Journal of Hospital Infection. 2013; 85:170-182. Doi: 10.1016/j.jhin.2013.06.020.	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This guidance document provided examples of types of eye/face protection (stating prescription eyewear is not considered a type of eye/face protection). Best practice guidance based on a non-systematic literature review published separately (Bunyan D, Ritchie L, Jenkins D, Coia JE. Respiratory and facial protection: a critical review of recent literature. J Hosp Infect 2013;85:165e169). “The Scientific Development Committee of the Healthcare Infection Society established a short-life working group in May 2011 to develop appropriate guidance. The working group included representation from the Healthcare Infection Society, Public Health England, Health

Assessment of evidence
and Safety Executive (HSE), Association of National Health Occupational Physicians, Health Protection Scotland, Infection Prevention Society, Intensive Care Society, Clinical Virology Network and British Infection Association." Aim: "This article provides guidance (best practice guidelines) to support HCWs in hospital or community settings to select and wear the appropriate respiratory and facial protection to minimize the risk of acquisition of infection in the workplace." "Some surgical masks have integral eye protection." "Eye protection […] The most commonly available items are safety spectacles, full-face visors or an integral transparent panel on the top of a surgical face mask." "Don't […] Assume corrective spectacles will protect the eyes."

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Association of Surgical Technologies (AST). AST Guidelines for Best Practices in Use of Eye Protection During Surgical Procedures. 2008. Revised April 14 2017.	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 27 July 2023					

Assessment of evidence

This guidance document provides guidelines on types of eye/face protection worn during surgical procedures (stating prescription eyewear is not considered a type of eye/face protection) and their design features. Due to unclear processes for developing guidance, this document was graded SIGN50 Level 4.

These guidelines were produced and authored by the AST Education and Professional Standards Committee, and are said to be AST approved.

Purpose: “to provide information OR supervisors, risk management, and surgical team members can use in the development and implementation of policies and procedures for eye protection during surgical procedures in the surgery department.”

“Guideline I

OSHA requires that eye protection be ANSI certified per the ANSI/ ISEA Z87.1. ANSI Z87.1 should be stamped on the lens or frame of the eye protection for confirmation.

1) Prescription eyeglasses and contact lenses are not considered eye protection and therefore, do not provide proper infection control protection.

a) Prescription eyeglasses with side protection do not adequately protect against splashes or sprays.[…]”

Within this guideline, face shields that are open at the bottom, safety glasses, and disposable face shields attached to a surgical mask (referred to as eyeshield, splashguard, or visor) offer ‘secondary protection’.

“Guideline II

Goggles that are indirectly vented with a manufacturer’s anti-fog coating are the recommended protective eyewear […].

B. There are various styles of goggles that adequately fit over prescription glasses that don’t interfere with the fit of the prescription glasses. Additionally, wearers of prescription glasses can obtain prescription inserts for goggles.”

Assessment of evidence

Taken from glossary:

“Goggles: Eye protection that completely encloses the eyes that consists of lenses, indirect vents, and an elastic band to hold the device in place.”

Limitations:

- May not be applicable to Scottish health and care settings.
- No mention of plan for update.
- Unknown methods of producing guidelines.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Siegel JD, Rhinehart E, Jackson M, et al. 2007 guideline for isolation precautions: preventing transmission of infectious agents in health care settings. 2007. Accessed 23 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provided examples of types of eye/face protection (stating prescription eyewear is not considered a type of eye/face protection) and the design features of these.

Scope: “The objectives of this guideline are to

(1) provide infection control recommendations for all components of the health care delivery system, including hospitals, long-term care facilities, ambulatory care, home care, and hospice;

(2) reaffirm Standard Precautions as the foundation for preventing transmission during patient care in all health care settings;

(3) reaffirm the importance of implementing Transmission-Based Precautions based on the clinical presentation or syndrome and likely pathogens until the infectious etiology has been determined (Table 2); and

(4) provide epidemiologically sound and, whenever possible, evidence-based recommendations.”

Target audience: “This guideline is designed for use by individuals who are charged with administering infection control programs in hospitals and other health care settings. The information also will be useful for other HCWs, health care administrators, and anyone needing information about infection control measures to prevent transmission of infectious agents.”

“II.E.3. Face Protection: Masks, Goggles, and Face Shields.

II.E.3.b. Goggles and Face Shields.

[…]

Personal eyeglasses and contact lenses are not considered adequate eye protection. […] Many styles of goggles fit adequately over prescription glasses with minimal gaps.”

Limitations:

- Lack of detail provided to determine if a systematic literature review was carried out to obtain evidence.
- May be outdated as was last updated in 2007.
- May not be fully applicable to Scottish health and care settings.

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. Accessed 29 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provided examples of types of eye/face protection.

“This is an RCN practice guidance. Practice guidance are evidence-based consensus documents, used to guide decisions about appropriate care of an individual, family or population in a specific context.”

Target audience: “This guidance is intended as a reference document for use by RCN members, and highlights essential elements of good infection prevention and control practice.”

“Visors or goggles

Visors or goggles can be utilised to protect the eye membranes.”

Limitations:

- No references provided in text.
- Review date of November 2020 stated, no indication this was carried out.

Question 3: Are there any legislative requirements or standards (BS/EN/ISO) relating to the use of eye/face protection for infection prevention and 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. Accessed 20 June 2023	Legislation	Mandatory	N/A	N/A	N/A

Assessment of evidence

This legislation provides regulations on provision, compatibility, assessment, maintenance, accommodation and use of PPE.

Note: Below information taken from both the 1992 regulations and 2022 amendment.

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

Assessment of evidence

“They extend employers’ and employees’ duties regarding personal protective equipment (PPE)”

Provision of personal protective equipment

“4.-(1) Every employer shall ensure that suitable personal protective equipment is provided to their 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;

(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

5.-(1) Every employer shall ensure that where the presence of more than one risk to health or safety makes it necessary for their workers 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 them 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

Assessment of evidence

6.-(1) Before choosing any personal protective equipment which by virtue of regulation 4 they are required to ensure is provided, 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.

(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 whereas 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 personal protective equipment

7.-(1) Every employer shall ensure that any personal protective equipment provided to their workers is maintained (including replaced or cleaned as appropriate) in an efficient state, in efficient working order and in good repair."

"Accommodation for personal protective equipment

8.-Where an employer or 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."

"Use of personal protective equipment

Assessment of evidence
10.-[…] (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 11. Every worker who has been provided with personal protective equipment by virtue of regulation 4(1) shall forthwith report to their employer any loss of or obvious defect in that personal protective equipment."

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. Statutory Instrument 2018 No. 390 Consumer Protection Health and Safety The Personal Protective Equipment (Enforcement) Regulations. 2018. Came into force 21 April 2018.	Statutory Instrument	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." Incorporates EU Regulation 2016/425.

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

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. Statutory guidance: Regulation 2016/425 and the Personal Protective Equipment (Enforcement) Regulations 2018: Great Britain. Updated 9 May 2023. Accessed 8 August 2023	Statutory Guidance	Mandatory	N/A	N/A	N/A
Assessment of evidence					
Applicable to UK from 21st April 2018.					

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.” CE marking mentioned in this instrument. This legislation does not directly answer other research questions. As stated in the entry above, this legislation is incorporated by The Personal Protective Equipment (Enforcement) Regulations 2018.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
International Organization for Standardization (ISO). PD ISO/TS 20141:2022 Personal safety – Personal protective equipment – Guidelines on compatibility testing of PPE. Accessed 23 March 2023	International Standard	Level 4	N/A	N/A	N/A

Assessment of evidence

UK implementation of ISO/TS 20141:2022

Overview: “This document describes compatibility for ensembles of personal protective equipment (PPE) to be used by personnel where operating situations and processes require more than one piece of PPE. Where there is more than one risk to health and safety, it is necessary to wear or use more than one item of PPE at the same time. Such equipment should be compatible and continue to be effective to minimise the risks.

This document includes examples of interactions between items of PPE, between PPE and the operating environment and the effects of PPE on the correct functioning of integrated sensors and electronic devices.

This document provides suggestions of test procedures to assess the effects of any interactions and identify unacceptable restrictions to safe operations.

NOTE The principles of this document are also applicable to assessment of interactions with other items in an ensemble that are necessary to the work and that are not PPE, for example cap lamps, instruments, tools.

This document is also intended to be a general guideline for writers of performance requirements standards and test methods for PPE. This document can also be used by PPE manufacturers, distributors, solutions providers, purchasers, wearers and employers as guidance in PPE design and selection.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
British Standards Institution (BSI). BS EN ISO 18526-1:2020 Eye and face protection. Test methods -	Standard	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Geometrical optical properties. March 2020.					

Assessment of evidence

Reference test methods for determining the physical and mechanical properties of eye and face protectors.

This standard specifies the reference test methods for determining the spherical, cylindrical, and prismatic refractive power properties of unmounted and mounted Plano lenses (non-corrective lenses) for eye and face protectors.

Plano lenses are designed to protect against eye injuries caused by flying dust, dirt, metal, wood chips, and other particles. Any errors in the refractive power properties of unmounted and mounted Plano lenses can cause harm to the user. ISO 185261 provides a test to assess the spherical, cylindrical, and prismatic refractive power properties.

Limitations:

- Not specific to health and care settings

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
British Standards Institution (BSI). BS EN ISO 16321-1:2022 Eye and face protection for occupational use -	Standard	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Part 1. General requirements. May 2022					

Assessment of evidence

“This document was prepared by ISO/TC 94, Personal safety — Personal protective equipment, Subcommittee SC 6, Eye and face protection, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 85, Eye protective equipment, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).”

This document specifies general requirements for eye and face protectors. These protectors are intended to provide protection for the eyes and faces of persons against one or more common occupational hazards such as impacts from flying particles and fragments, optical radiation, dusts, splashing liquids, molten metals, heat, flame, hot solids, harmful gases, vapours and aerosols.

Document provides information on:

- general requirements
- geometrical optical requirements
- physical optical requirements
- physical and mechanical requirements
- marking
- information to be supplied by the manufacturer
- allocation of requirements, rest samples and applications

Additional requirements for eye and face protectors used during welding and related techniques and for mesh protectors are given in ISO 16321-2 and ISO 16321-3, respectively.

Assessment of evidence

Limitations:

- Developed by committees/sub-committees whose membership is unknown.
- Not specific to health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
British Standards Institution (BSI). BS EN ISO 18526-2:2020 Eye and face protection. Test methods - Physical optical properties. 2020.	Standard	Level 4	N/A	N/A	N/A

Assessment of evidence

“ISO 185262 specifies the reference test methods for determining the physical optical properties of personal eye and face protectors.”

“Physical optical properties tests let you determine the characteristics of protective lenses. Physical optical properties tests assess the quality of workmanship, parameters related to refraction, transmission and reflection of optical radiation and the field of vision. The test described in ISO 18526-2 help you to assess these physical optical properties.

ISO 18526-2 provides you with tests that include methods for measuring transmittance, spectral reflectance, luminous reflectance, scattered light, polarization, photochromic lenses, and automatic welding filters. This helps you to evaluate the properties of your eye and face protectors.”

Assessment of evidence

Full standard cannot be accessed in full.

Limitations:

- Not specific to health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. Statutory Instrument. 1999 No. 3242. Health and Safety The Management of Health and Safety at Work Regulations 1999. Accessed 20 November 2023	Legislation	Mandatory	N/A	N/A	N/A

Assessment of evidence

This statutory instrument does not provide any specific details on eye/face protection. This legislation outlines employer duty to manage health and safety for every work activity. Employer and employee duties are described.

“Risk assessment

3.—(1) Every employer shall make a suitable and sufficient assessment of—

(a) the risks to the health and safety of his employees to which they are exposed whilst they are at work; and

Assessment of evidence
(b) the risks to the health and safety of persons not in his employment arising out of or in connection with the conduct by him of his undertaking, for the purpose of identifying the measures he needs to take to comply with the requirements and prohibitions imposed upon him by or under the relevant statutory provisions and by Part II of the Fire Precautions (Workplace) Regulations 1997."

Evidence from previous updates

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. Health and Safety at Work act. Act 1974 Chapter 37. Accessed 29 June 2023	Legislation	Mandatory	N/A	N/A	N/A

Assessment of evidence
The Health and Safety at Work Act is generic legislation for the UK, broadly covering the use of PPE and risk. It 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."

Assessment of evidence

Regulation 2 - General duties of employers to their employees:

"(1) 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."

(2) Without prejudice to the generality of an employer's duty under the preceding subsection, the matters to which that duty extends include in particular—

(a) the provision and maintenance of plant and systems of work that are, so far as is reasonably practicable, safe and without risks to health;

(b) arrangements for ensuring, so far as is reasonably practicable, safety and absence of risks to health in connection with the use, handling, storage and transport of articles and substances;

(c) the provision of such information, instruction, training and supervision as is necessary to ensure, so far as is reasonably practicable, the health and safety at work of his employees;

(d) so far as is reasonably practicable as regards any place of work under the employer's control, the maintenance of it in a condition that is safe and without risks to health and the provision and maintenance of means of access to and egress from it that are safe and without such risks;"

(e) the provision and maintenance of a working environment for his employees that is, so far as is reasonably practicable, safe, without risks to health, and adequate as regards facilities and arrangements for their welfare at work.

(3) Except in such cases as may be prescribed, it shall be the duty of every employer to prepare and as often as may be appropriate revise a written statement of his general policy with respect to the health and safety at work of his employees and the organisation and arrangements for the time being in force for carrying out that policy, and to bring the statement and any revision of it to the notice of all of his employees.

(4) Regulations made by the Secretary of State may provide for the appointment in prescribed cases by recognised trade unions (within the meaning of the regulations) of safety representatives from amongst the employees, and those representatives shall represent the employees in consultations with the employers under subsection (6) below and shall have such other functions as may be prescribed.

Assessment of evidence

(6) It shall be the duty of every employer to consult any such representatives with a view to the making and maintenance of arrangements which will enable him and his employees to co-operate effectively in promoting and developing measures to ensure the health and safety at work of the employees, and in checking the effectiveness of such measures.

(7) In such cases as may be prescribed it shall be the duty of every employer, if requested to do so by the safety representatives mentioned in [F5subsection (4)] above, to establish, in accordance with regulations made by the Secretary of State, a safety committee having the function of keeping under review the measures taken to ensure the health and safety at work of his employees and such other functions as may be prescribed."

Regulation 3 - General duties of employers and self-employed to persons other than their employees:
"(1) It shall be the duty of every employer to conduct his undertaking in such a way as to ensure, so far as is reasonably practicable, that persons not in his employment who may be affected thereby are not thereby exposed to risks to their health or safety.

(2) It shall be the duty of every self-employed person [who conducts an undertaking of a prescribed description] to conduct [the undertaking] in such a way as to ensure, so far as is reasonably practicable, that he and other persons (not being his employees) who may be affected thereby are not thereby exposed to risks to their health or safety.

(2A) A description of undertaking included in regulations under subsection (2) may be framed by reference to—

(a) the type of activities carried out by the undertaking, where those activities are carried out or any other feature of the undertaking;

(b) whether persons who may be affected by the conduct of the undertaking, other than the self-employed person (or his employees), may thereby be exposed to risks to their health or safety.]

(3) In such cases as may be prescribed, it shall be the duty of every employer and every self-employed person, in the prescribed circumstances and in the prescribed manner, to give to persons (not being his employees) who may be affected by the way in which he conducts his undertaking the prescribed information about such aspects of the way in which he conducts his undertaking as might affect their health or safety"

Regulation 4 - General duties of persons concerned with premises to persons other than their employees:

"(1) This section has effect for imposing on persons duties in relation to those who—

(a) are not their employees; but

Assessment of evidence

(b) use non-domestic premises made available to them as a place of work or as a place where they may use plant or substances provided for their use there, and applies to premises so made available and other non-domestic premises used in connection with them.

(2) It shall be the duty of each person who has, to any extent, control of premises to which this section applies or of the means of access thereto or egress therefrom or of any plant or substance in such premises to take such measures as it is reasonable for a person in his position to take to ensure, so far as is reasonably practicable, that the premises, all means of access thereto or egress therefrom available for use by persons using the premises, and any plant or substance in the premises or, as the case may be, provided for use there, is or are safe and without risks to health.

(3) Where a person has, by virtue of any contract or tenancy, an obligation of any extent in relation to—

(a) the maintenance or repair of any premises to which this section applies or any means of access thereto or egress therefrom; or

(b) the safety of or the absence of risks to health arising from plant or substances in any such premises; that person shall be treated, for the purposes of subsection (2) above, as being a person who has control of the matters to which his obligation extends.

(4) Any reference in this section to a person having control of any premises or matter is a reference to a person having control of the premises or matter in connection with the carrying on by him of a trade, business or other undertaking (whether for profit or not)."

Regulation 7 - General duties of employees at work.

"It shall be the duty of every employee while at work—

(a) to take reasonable care for the health and safety of himself and of other persons who may be affected by his acts or omissions at work; and

(b) as regards any duty or requirement imposed on his employer or any other person by or under any of the relevant statutory provisions, to co-operate with him so far as is necessary to enable that duty or requirement to be performed or complied with."

Regulation 8 - Duty not to interfere with or misuse things provided pursuant to certain provisions:

"No person shall intentionally or recklessly interfere with or misuse anything provided in the interests of health, safety or welfare in pursuance of any of the relevant statutory provisions"

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. The Control of Substances Hazardous to Health (Amendment) Regulations (COSHH) 2004 No. 3386. Accessed 24 March 2023	Legislation	Mandatory	N/A	N/A	N/A

Assessment of evidence

These regulations describe requirements to protect employees from substances hazardous to health in the workplace: “In these Regulations, a reference to an employee being exposed to a substance hazardous to health is a reference to the exposure of that employee to a substance hazardous to health arising out of or in connection with work at the workplace.” These regulations came into force on 21st November 2002.

Regulation 6 – Assessment of the risk to health by work involving substances hazardous to health:

“(1) An employer shall not carry out work which is liable to expose any employees to any substance hazardous to health unless he has—

(a) made a suitable and sufficient assessment of the risk created by that work to the health of those employees and of the steps that need to be taken to meet the requirements of these Regulations; and

(b) implemented the steps referred to in sub-paragraph (a).

(2) The risk assessment shall include consideration of—

(a) the hazardous properties of the substance;

(b) information on health effects provided by the supplier, including information contained inany relevant safety data sheet;

Assessment of evidence

(c) the level, type and duration of exposure;

(d) the circumstances of the work, including the amount of the substance involved;

(e) activities, such as maintenance, where there is the potential for a high level of exposure;

(f) any relevant [F37workplace exposure limit] or similar occupational exposure limit;

(g) the effect of preventive and control measures which have been or will be taken in accordance with regulation 7;

(h) the results of relevant health surveillance;

(i) the results of monitoring of exposure in accordance with regulation 10;"

Regulation 7 – Prevention or control of exposure to substances hazardous to health:

"(1) Every employer shall ensure that the exposure of his employees to substances hazardous to health is either prevented or, where this is not reasonably practicable, adequately controlled.

[…]

(3) Where it is not reasonably practicable to prevent exposure to a substance hazardous to health, the employer shall comply with his duty of control under paragraph (1) by applying protection measures appropriate to the activity and consistent with the risk assessment, including, in order of priority –

(a) the design and use of appropriate work processes, systems and engineering controls and the provision and use of suitable work equipment and materials;

(b) the control of exposure at source, including adequate ventilation systems and appropriate organisational measures; and

(c) where adequate control of exposure cannot be achieved by other means, the provision of suitable personal protective equipment in addition to the measures required by sub-paragraphs (a) and (b).

[…]

(6) Without prejudice to the generality of paragraph (1), where it is not reasonably practicable to prevent exposure to a biological agent, the employer shall apply the following measures in addition to those required by paragraph (3)—

Assessment of evidence

[…]

(b) specifying appropriate decontamination and disinfection procedures;

(c) instituting means for the safe collection, storage and disposal of contaminated waste, including the use of secure and identifiable containers, after suitable treatment where appropriate.

(9) Personal protective equipment provided by an employer in accordance with this regulation shall be suitable for the purpose and shall –

(a) comply with any provision in the Personal Protective Equipment Regulations 2002 which is applicable to that item of personal protective equipment; or

(b) in the case of respiratory protective equipment, where no provision referred to in sub-paragraph (a) applies, be of a type approved or shall conform to a standard approved, in either case, by the Executive."

Regulation 8 - Use of control measures:

"(1) Every employer who provides any control measure, other thing or facility in accordance with these Regulations shall take all reasonable steps to ensure that it is properly used or applied as the case may be.

(2) Every employee shall make full and proper use of any control measure, other thing or facility provided in accordance with these Regulations and, where relevant, shall—

(a) take all reasonable steps to ensure it is returned after use to any accommodation provided for it; and

(b) if he discovers a defect therein, report it forthwith to his employer. Maintenance, examination and testing of control measures"

Regulation 9 - Maintenance, examination and testing of control measures:

"(1) Every employer who provides any control measure to meet the requirements of regulation 7 shall ensure that—

(a) in the case of plant and equipment, including engineering controls and personal protective equipment, it is maintained in an efficient state, in efficient working order, in good repair and in a clean condition; and

(b) in the case of the provision of systems of work and supervision and of any other measure, it is reviewed at suitable intervals and revised if necessary.]

(5) 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. (6) Personal protective equipment which may be contaminated by a substance hazardous to health shall be removed on leaving the working area and kept apart from uncontaminated clothing and equipment. (7) The employer shall ensure that the equipment referred to in paragraph (6) is subsequently decontaminated and cleaned or, if necessary, destroyed.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
British Standards Institution (BSI). BS 7028:1999 Eye protection for industrial and other uses – Guidance on selection, use and maintenance. November 1999.	International Standard	Level 4	N/A	N/A	N/A
Assessment of evidence					
Scope: “This British Standard gives guidance and background information on occupational eye- and face-protectors.”					

Assessment of evidence

Guidance on selection, use and maintenance. This standard outlines the Selection, Maintenance of Face shields, Filters (eye protectors), in relation to Industrial, Hazards, Chemical hazards, Radiation hazards, Electromagnetic radiation, and also covers Goggles (safety), Safety spectacles, Welding, Lasers, and the Marking, Inspection, Cleaning, Storage, Repair, Education in terms of eye protection.

Within table 6 of this standard, face shields only are said to be suitable for liquid droplets and goggles only are said to be suitable for liquid droplet.

Definitions:

“Liquid splashes: if the potential hazard is a splash of liquid, a liquid splash field of use may be specified. However, the analysis should also consider the hazardous nature of the liquid and the likely speed and volume of the released liquid.

Liquid droplets: if the liquid hazard is in the form of an aerosol or mist, a liquid droplet field of use will need to be specified. Again the hazardous nature of the liquid will need to be considered.”

Limitations:

- No referencing throughout, bibliography provided with three legislative sources.
- Not specific to health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
British Standards Institution (BSI). BS EN 13921:2007 Personal protective equipment. Ergonomic principles.	Standard	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
September 2007.					

Assessment of evidence

This standard provides guidance on the generic ergonomic characteristics related to personal protective equipment (PPE) – it does not however cover the requirements which relate to specific hazards that PPE may be designed.

Full standard cannot be accessed in full.

Limitations:

- Not specific to health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
British Standards Institution (BSI). BS EN ISO 18526-3:2020. Eye and face protection — Test methods — Part 3: Physical and mechanical properties. January 2020.	Standard	Level 4	N/A	N/A	N/A

Assessment of evidence

Reference test methods for determining the physical and mechanical properties of eye and face protectors.

Relevant tests include:

- area of coverage of face shields
- protection against droplets
- protection against large dust particles
- protection against gases and fine dust particles
- protection against 'stream of liquids'
- assessing area of protection from frontal and lateral directions
- assessing the retention from headbands of eye 'protectors'.

Limitations:

- Not specific to health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
British Standards Institution (BSI). BS EN ISO 168:2002 Personal eye-protection —	Standard	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Non-optical test methods. January 2002					

Assessment of evidence

"Standard specifies non-optical test methods for eye-protectors, the requirements for which are contained in other European Standards.

Alternative test methods may be used if shown to be equivalent"

Relevant tests include:

- For area of coverage of face shields
- Protection against droplets and liquid splashes
  - test for protection against droplets (for goggles type-eye protectors)
  - test for protection against liquid splashes (for face shields)
- Protection against large dust particles
- Protection against gases and fine dust particles

"The UK participation in its preparation was entrusted by Technical Committee PH/2, Eye protection, to Subcommittee PH/2/2, Industrial eye protectors".

Limitations:

- Developed by committees/sub-committees whose membership is unknown.
- Not specific to health and care settings.

Question 4: When should eye/face protection be worn by health and care staff?

Evidence added to Literature Review V2.0

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Chao I, Lee S, Brenker J, et al. The effect of clinical face shields on aerosolized particle exposure. J 3D Print Med. 2022;10.2217/3dp-2022-0016. doi:10.2217/3dp-2022-0016	Experimental study (simulation)	Level 3	To determine if face shields have an effect on the exposure of HCWs to aerosolized particles (0.9% saline) within a theatre environment and if there is any difference in particle concentrations behind open-vented versus enclosed shields.	Particle counts with use of face shields (open-vented and enclosed shield) compared with no face shield (baseline) at two positions (50cm from manikin and 100cm from manikin).	Particle count per size (0.3, 0.5, 1.0 and 2.5µm)

Assessment of evidence
The experimental simulation study, carried out in Australia, demonstrates the mechanistic efficacy of face shields at reducing aerosol exposure at distances of 50cm and 100cm. It suggests face shields (both enclosed and vented) significantly reduce exposure to aerosols sized 0.3 to 5 µm at both 50cm and 100cm from source. And that there is no significant difference between the two types of face shields tested. However, this study only tested two manufacturers each of vented face shields and enclosed face shields. Findings may also not be relied upon due to the studies in-vitro nature, unlikely to represent real-life scenarios. It is also specific to procedures carried out in operating rooms with a high number of air changes per hour (20) and positive pressure laminar flow ventilation.

Assessment of evidence

Limitations:

- Lack of applicability to real life-scenarios with the use of manikin's and artificial sterile saline solution.
- Findings specific to procedures carried out in operating rooms with positive pressure laminar flow ventilation.
- Results not reported per manufacturer of face shield.
- No dimensions provided for face shields.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
The Association for Professionals in Infection Control and Epidemiology (APIC). APIC Implementation Guide: Infection Preventionist's Guide to the OR. 2015. Accessed 27 July 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document describes when eye/face protection should be worn in the context of operating room (OR) attire.

Purpose of guide is to prepare and support infection preventionists (IPs) who engage with the entire Surgery Suite, Sterile Processing department (SPD), critical support services, and supply chain with eliminating preventable surgical site infections and other healthcare associated infections. Engagement involves perioperative nurses and those technicians, surgeons, and anaesthesia professionals who provide and oversee perioperative care.

Input from broad array of experts from practice and research settings were involved in creating this guideline. List of authors provided on page 6.

Guideline provides references throughout, however no information on formulation of guidelines is provided. Implementation strategies with tools and recourses are provided for each section.

“OR Attire:

Surgical masks in combination with eye-protection devices such as goggles, glasses with solid side shields, or chin-length face shields must be worn whenever splashes, spray, spatter, or droplets of blood, body fluids, or other potentially infectious materials may be generated, and eye, nose, or mouth contamination can be reasonably anticipated.”

“The Sterile Processing department (SPD) is defined as a service within the hospital in which medical/surgical supplies and equipment, both sterile and nonsterile, are cleaned, prepared, processed, stored, and issued for patient care.”

Figure 5 in the document provides a table showing required attire and PPE for activities carried out by the sterile processing department (Decontamination, preparation and packaging, sterilizing processing, sterile storage). This shows eye protection and masks or face shields are recommended for the decontamination stage only. Where eye protection included goggles/eyeglasses with side shields or chin-length face shields.

Limitations:

- No input from UK experts, therefore, may not be fully applicable to Scottish health and care settings.
- Some references provided.
- Unknown how evidence base was sought and how guidelines were formulated.

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.11.23. Updated 28 February 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document describes when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure.

Funding: Guidance was co-funded by the National Health and Medical Research Council and Australian Commission on Safety and Quality in Health Care.

Aim (page 19): “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.”

Stated in the introduction that all recommendations are based on systematic reviews, however there is insufficient evidence within the guidance to support this.

“3.3 Personal protective equipment

Assessment of evidence

30. It is suggested that face and eye protection should be worn during procedures that generate splashes or sprays of blood and body substances into the face and eyes." [conditional recommendation]

"Use of personal protective equipment

- Appropriate masks, eye protection or face-shields are worn by a healthcare worker in situations where the patient's body substances may splash onto his or her face."

"3.1.4 Reprocessing of reusable medical devices

Manual Cleaning is done manually for fragile or difficult-to-clean reusable medical devices and in settings without automatic units. […] Healthcare workers should wear appropriate PPE for the task—plastic apron, utility gloves and face protection (protective eyewear and mask or face shield)."

"Practical Info

Face and eye protection

[…] Procedures that generate splashes or sprays of blood and body substances, require either a face shield or a mask worn with protective eyewear.

Face and eye protection is worn as part of transmission-based precautions"

Table 16 outlines use of face and eye protection as part of standard precautions. The table states for routine care, examples provided are general examination (medical, physiotherapy, nursing) and routine observations, face and eye protection are not required. For procedures that generate splashes or sprays, such as dental procedures, nasopharyngeal aspirations, emptying wound or catheter bag, protective eyewear/full-length face shield and a surgical mask is required. For procedures involving the respiratory tract (including the mouth), such as intubation and nasopharyngeal suction, protective eyewear and a surgical mask is required.

"Eye protection

Goggles with a manufacturer's anti-fog coating provide reliable, practical eye protection from splashes and sprays from multiple angles. […] While effective as eye protection, goggles and safety glasses do not provide splash or spray protection to other parts of the face."

"Face shields

Assessment of evidence

Single-use or reusable face shields may be used in addition to surgical masks, as an alternative to protective eyewear […]

[…] a face shield can provide protection to other parts of the face as well as the eyes. Face shields extending from chin to crown provide better face and eye protection from splashes and sprays; face shields that wrap around the sides may reduce splashes around the edge of the shield."

"6.2 Checklist of standard precautions for procedures"

Table A2.3. 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 eye protection should be worn for the following procedures: general medical examination (if splash risk likely); wound examination/dressing (for wound irrigation if splash likely); vaginal delivery; intravenous cannula insertion (if splash risk likely); intravascular access device insertion; surgical aseptic technique procedure (such as lumbar puncture); insertion of urinary catheter (if exposure risk likely); urinary catheter care (when emptying drainage bag); and suctioning endotracheal tube and tracheostomy.

Table A2.4. provides a general overview of PPE requirements per precaution type and again states a local risk assessment should always be undertaken. The table states protective eyewear should as per standard precautions - "Mask and protective eyewear to be worn when there is potential for blood or body substances exposure to mucosa (for example, attending to a patient who is coughing and sneezing".

"6.4 Type and duration of precautions for specific infections and conditions" section provides a table of a summary of diseases and precautions which "may be required". Face/eye protection is suggested for Severe Acute Respiratory Syndrome (SARS) and Viral Haemorrhagic Fever (VHF).

"Certainty of evidence -

There is little high quality evidence to support the use of masks and protective eyewear in healthcare facilities. The use of masks is supported by a strong theoretical rationale and occupational health and safety principles."

"Rationale –

Whilst there is little high quality evidence to support the use of face and protective eyewear, their use is supported by work health and safety principles and expert advice."

Assessment of evidence
Note: a conditional recommendation is considered a weak recommendation. Definition for weak recommendation is found in the glossary (page 264), as follows: “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.”

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. Accessed 1 August 2023	Expert Opinion Guidance	AGREE: Recommend with modifications	N/A	N/A	N/A

Assessment of evidence
This guideline provides recommendations on when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure. Guidance is provided regarding selection of PPE based on risk assessment and wearing eye protection during AGPs within annex B of this document. It is stated within the document these provide background information for the recommendations. This document contains recommendations, best practices, and principles focusing on the non-pharmacological aspects of infection prevention and control (IPC) for acute respiratory infections (ARI) in healthcare settings.

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.”

This guidance is deemed AGREE: recommend with modifications. Whilst this guideline is based on a systematic literature review, some aspects of this method are not provided, such as the search strategy. The link between recommendations and supporting evidence is also unclear.

Recommendations in guidelines provided:

“Use PPE, including […] eye protection (goggles or face shields) […] during aerosol-generating procedures that have been consistently associated with an increased risk of transmission of ARI pathogens.” Quality of evidence is stated as very low to low, and strength of recommendation as “conditional”.

“Novel acute respiratory infections with potential for a high public health impact

[…]

Due to the lack of information on modes of spread, Airborne and Contact Precautions, as well as eye protection, should be added to the routine Standard Precautions whenever possible, to reduce the risk of transmission of a newly emerging agent […]. These precautions should be implemented until further studies reveal the mode of transmission.”

Figure 2.1 provides a decision-tree for IPC measures for patients with known or suspected acute respiratory infection. It states when a patient enter triage with symptoms of acute febrile respiratory illness, HCWs should use eye protection (goggles/face shield) if splashes onto eyes are anticipated. It also states if the patient additionally has clinical and epidemiological clues for ARI of potential concern, eye protection should be used by HCWs.

Table 2.1 provides IPC precautions for HCWs and caregivers of patients with acute respiratory infection and tuberculosis. The precaution eye protection is stated to be required for:

- New influenza virus with no sustained human-to human transmission (e.g. avian influenza)
- SARS

Assessment of evidence

- Novel ARI

A risk assessment is suggested for:

- No pathogen identified, no risk factor for TB or ARI of potential concern (e.g. influenza-like illness without risk factor for ARI of potential concern)
- Bacterial ARI, including plague
- TB
- Other ARI viruses (e.g. parainfluenza RSV, adenovirus)
- Influenza virus with sustained human-human transmission (e.g. seasonal influenza, pandemic influenza)

Those requiring risk assessment - “Facial protection, i.e. a medical mask and eye protection (eye visor, goggles) or a face shield, should be used in accordance with Standard Precautions by health-care workers if activities are likely to generate splashes or sprays of blood, body fluids, secretions and excretions onto mucosa of eyes, nose or mouth; or if in close contact with a patient with respiratory symptoms (e.g. coughing/sneezing) and sprays of secretions may reach the mucosa of eyes, nose or mouth.”

Annex B - “Selection of personal protective equipment based on risk assessment

Facial protection

Wear facial protection, including a medical mask and eye protection (face shield or goggles), to protect the conjunctivae and the mucous membranes of the nose, eyes and mouth during activities that are likely to generate splashes or sprays of blood, body fluids, secretions or excretions. When providing care in close contact with a patient with respiratory symptom.”

Annex B - “Personal protective equipment

[…] When performing aerosol-generating procedures associated with pathogen transmission, use […] eye protection (e.g. goggles).”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Infection prevention and control in the context of coronavirus disease (COVID-19): a living guideline. Version 5.0 Updated 10 August 2023. Accessed 4 October 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document describes when eye/face protection should be worn in the context of the COVID-19 pandemic.

This "**living guideline** consolidates technical guidance developed and published during the COVID-19 pandemic into evidence-informed recommendations for infection prevention and control (IPC)."

Target audience: "policy- and decision-makers; public health professionals; IPC professionals and focal points for occupational health and safety of health workers at the national, subnational and facility levels; health care facility administrators and managers; and other health and care workers."

"Conditional recommendation for, Very low certainty evidence

A respirator or a medical mask should be worn by health workers along with other PPE – a gown, gloves and eye protection – before entering a room where there is a patient with suspected or confirmed COVID-19."

Assessment of evidence
"Strong recommendation for, Very low certainty evidence A respirator should always be worn along with other PPE* by healthcare workers performing aerosol-generating procedures (AGP) and by health workers on duty in settings where AGP are regularly performed on patients with suspected or confirmed COVID-19, such as intensive care units, semi-intensive care units or emergency departments. *PPE includes gown, gloves, eye protection". **Limitations:** • Discussion of evidence focus on respirators and medical masks, no evidence reported in relation to eye protection.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Infection prevention and control guidance for long-term care facilities in the context of COVID-19 – Interim Guidance. 2021. Accessed 1 August 2023	Guidance	Level 4	N/A	N/A	N/A
Assessment of evidence					
This guidance document provides interim guidance regarding when to wear eye/face protection in the context of the COVD-19 pandemic.					

Assessment of evidence
This document offers interim guidance to Long Term Care Facilities (LTCF) managers and IPC focal points to prevent the entry and transmission of SARS CoV-2 within and beyond the facility and to ensure safe visiting conditions for residents through strict implementation of infection prevention and control (IPC) procedures. The guidance was built on published WHO recommendations for IPC in COVID-19 contexts, encompassing IPC for healthcare settings, mask use, and healthcare worker infection prevention, alongside ongoing reviews of scientific evidence on COVID-19 in LTCF settings and the efficacy of IPC measures in such settings. However, specific references to the systematic reviews are not provided in the document. Below are the recommendations concerning the use of eye and face protection as identified in the document. “When providing routine care for a resident with suspected or confirmed SARS-CoV-2 infection, contact and droplet precautions should be practised. These include use of […] eye protection (goggles or face shield).” “During dead body [of a person suspected or confirmed with COVID-19] management procedures HWs should: use appropriate PPE based on the level of interaction with the body and risk assessment (e.g. use of eye protection and medical masks in addition to gloves and fluid-resistant gowns or aprons if there is a risk of body fluid splashes while handling the body).”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Standard precautions in health care. 2007. Accessed 2 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
The aide-memoire presents a set of measures within standard precautions, designed to minimize the risk of transmitting bloodborne and other pathogens, originating from both known and unknown sources. “Facial protection (eyes, nose, and mouth) Wear (1) a surgical or procedure mask and eye protection (eye visor, goggles) or (2) a face shield to protect mucous membranes of the eyes, nose, and mouth during activities that are likely to generate splashes or sprays of blood, body fluids, secretions, and excretions.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Government. Infection Prevention and Control Expert Group – Guidance on the use of personal protective equipment (PPE) for health workers in the context of COVID-19. 2022. Accessed 3 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document describes factors to consider when selecting a type of eye/face protection and capabilities of types of eye/face protection for certain tasks or anticipated exposure. Guidance regarding extended use of eye/face protection is also provided.

This guidance is endorsed by the Australian Health Protection Principal Committee and developed with advice from the National COVID-19 Clinical Evidence Taskforce Infection Prevention and Control Panel (IPC Panel). Consensus recommendations are based on the combined expertise and experience of the IPC panel and ICEG members.

Scope: Document provides guidance on the use of PPE for health care workers during the COVID-19 pandemic, who working in a health and care setting. “This may include in hospitals, non-inpatient settings, managed quarantine facilities, residential care facilities, COVID-19 testing clinics, in-home care and other environments where clinical care is provided”.

Aim: Document aims to “supplement detailed guidance available at a state, territory and institutional level”

“Protective eyewear

Ideally, protective eyewear should be issued for individual use only and should only be shared if thoroughly cleaned/disinfected between wearers. […] The type of eye protection most suitable for an individual health worker will depend on the brand/style of the eye protection, the setting in which the individual is working, the tasks they are required to complete, and individual preferences.

[…]

When selecting the type of protective eyewear, consider:

• durability and appropriateness of the PPE for the task

• type of anticipated exposure

• fit.”

“Goggles of Safety Glasses

[…] safety glasses that are not wrap-around do not provide adequate protection and are not suitable for use as eye protection.”

Table detailing advantages/disadvantages states – “They provide good eye protection by enclosing the eyes”.

Assessment of evidence

"Face shields

- Face shields may be used as an alternative to goggles or safety glasses. They are NOT a replacement for wearing a surgical mask or PFR.
- All face shields should provide a clear plastic barrier that covers the face, which extends below the chin and to the ears […]
- Face shields are particularly useful in situations where there may be splashes or sprays of blood or body fluids."

Table outlining advantages/disadvantages states –

"Gaps on the sides and underneath the face shield may allow virus-contaminated droplets to reach the eyes (or the nose and mouth if not worn with a well-fitting mask at the same time) [and] They provide additional blood or body fluid splash/spray/droplet protection to the face and mask/respirator (prolonging the life of the mask/respirator)".

"Extended use of PPE

Protective eyewear does not need to be removed between each patient. These items can remain in place for extended periods. Care should be taken not to touch protective eyewear whilst in use […]"

Limitations:

- Limited referencing throughout document.
- Unknown how evidence contributing to recommendations was obtained.
- Lack of detail regarding reaching a consensus.
- May not be applicable to Scottish health and care settings, as is specific to Australia.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health security Agency (UKHSA). Principles for control of non-HCID mpox in the UK: 4 nations consensus statement. 2023. Accessed 3 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This document outlines the principles governing the control of non-HCID mpox within the UK. Its purpose is to facilitate a proportionate response and achieve strategic outcomes. However, it is important to note that these principles were not a substitute for local dynamic risk assessments, which remain essential. This statement was agreed by the UK public health agencies: UK Health Security Agency (UKHSA), Public Health Scotland, Public Health Wales and Public Health Agency Northern Ireland.

The following recommendations regarding the use of eye protection were advised.

1. When dealing with potential or likely mpox cases, the minimum required PPE includes gloves and a fluid repellent surgical facemask (FRSM). However, if the case shows symptoms of a lower respiratory tract infection, such as a cough or changes on their chest x-ray, the FRSM should be replaced with an FFP3 respirator and eye protection.
2. When there is a possibility of splash or droplet exposure to the face and eyes, particularly during activities like taking diagnostic samples (e.g., throat swabs), eye protection is essential.
3. Healthcare workers attending to confirmed or highly probable cases that demand continuous clinical management (e.g., inpatient care or repeated assessment of clinically unwell or deteriorating individuals) should use the following minimum recommended PPE: fit-tested FFP3 respirator, eye protection, long-sleeved, fluid-repellent, disposable gown, and gloves

Assessment of evidence
4. “When classifying contacts the use of the above PPE will be considered”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health Security Agency (UKHSA). Guide to donning and doffing PPE: Droplet Precautions for health and social care settings. 2023. Accessed 4 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This guidance poster is an update to the 2020 poster and provides instructions on donning and doffing PPE as part of droplet precautions in health and social care settings. “Donning or putting on PPE […] put on your eye protection if there is a risk of splashing”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and the Health Protection Agency. Pandemic (H1N1) 2009 Influenza. A summary of guidance for infection control in healthcare settings. 2009. Accessed 4 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document describes when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure.

This document represented an updated version of Pandemic flu: A summary of guidance for infection control in health care settings issued in September 2007. It was tailored to the pandemic influenza virus of that time, pandemic (H1N1) 2009, making it current and relevant. Although it was primarily intended for the NHS, the infection control principles were applicable to other healthcare settings as well. The guidance was to be utilized for all patients suspected or confirmed to have pandemic (H1N1) 2009 influenza.

Regarding eye protection, the following recommendations were made.

“4.3 Aerosol-generating procedures

[…]

Assessment of evidence

From the available literature and incorporating UK expert opinion, the following procedures are considered likely to generate aerosols capable of transmitting influenza when undertaken on patients with influenza, i.e are considered to be potentially infectious aerosol-generating procedures:

- intubation, extubation and related procedures, eg manual ventilation and open suctioning
- cardiopulmonary resuscitation
- bronchoscopy
- surgery and post-mortem procedures in which high-speed devices are used (see section 7.1)
- dental procedures (see section 7.2)
- non-invasive ventilation (NIV), eg Bilevel Positive Airway Pressure ventilation (BiPAP) and Continuous Positive Airway Pressure ventilation (CPAP)
- high-frequency oscillating ventilation (HFOV)
- induction of sputum.

[…] eye protection […] should be worn by those undertaking these procedures and by those in the same room.

Table 1 provides PPE required for care of patients with pandemic influenza. It suggests eye protection be worn when in close patient contact (within one meter) and during aerosol-generating procedures. The footnote of this table states: “Eye protection is required to be worn as part of standard infection control precautions when there is a risk of blood, body fluids, excretions or secretions splashing into the eyes.”

“4.4.2 Eye protection

As part of standard precautions, eye protection should be used when there is a risk of contamination of the eyes from splashing, e.g by secretions (including respiratory secretions), blood, body fluids or excretions.

Assessment of evidence
[…] Disposable, single-use eye protection is recommended. Eye protection should always be worn by all those present in the room during potentially infectious aerosol-generating procedures." "7.1 Mortuaries […] standard precautions for autopsy work ([…] visor eye protection) should be used."

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). Guidelines for Infection Control in Dental Health-Care Settings. 2003. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This guidance provides recommendations on when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure. Due to unclear processes for developing this guidance, it is considered SIGN50 Level 4. Aim: "This report consolidates recommendations for preventing and controlling infectious diseases and managing personnel health and safety concerns related to infection control in dental settings."

Assessment of evidence

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.

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.

“Masks, Protective Eyewear, Face Shields

[…] protective eyewear with solid side shields or a face shield should be worn by DHCP during procedures and patient-care activities likely to generate splashes or sprays of blood or body fluids.”

Recommendation –

“IV PPE

A. Masks, Protective Eyewear, and Face Shields

Assessment of evidence
1. Wear a surgical mask and eye protection with solid side shields or a face shield to protect mucous membranes of the eyes, nose, and mouth during procedures likely to generate splashing or spattering of blood or other body fluids (IB, IC)" "Receiving, Cleaning, and Decontamination Because splashing is likely to occur, a mask, protective eyewear or face shield, and gown or jacket should be worn." Recommendation – "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 expert opinion consensus was reached. • No evidence of systematic review, or methods of obtaining scientific evidence used/cited. • Not clear per each recommendation the studies contributing to the evidence base.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). Interim Infection Prevention and Control	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Recommendations for Healthcare Personnel During the Coronavirus Disease 2019 (COVID-19) Pandemic. 2020. Updated 18 March 2024. Accessed 26 March 2024					

Assessment of evidence

This guidance document describes when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure. Guidance on the use of eye/face protection as source control is also provided.

Aim: “Guidance provides a framework for facilities to implement select infection prevention and control practices (e.g., universal source control) based on their individual circumstances (e.g., levels of respiratory virus transmission in the community).”

Audience: “Guidance is appliable to all U.S settings where healthcare is delivered”.

“Implement Universal Use of Personal Protective Equipment for HCP

As SARS-CoV-2 transmission in the community increases […] consider implementing broader use of respirators and eye protection by HCP during patient care encounters as described below.

[…] Eye protection (i.e., goggles or a face shield that covers the front and sides of the face) worn during all patient care encounters.”

“Personal Protective Equipment

Assessment of evidence
HCP who enter the room of a patient with suspected or confirmed SARS-CoV-2 infection should adhere to Standard Precautions and use a NIOSH Approved particulate respirator with N95 filters or higher , gown, gloves, and eye protection (i.e., goggles or a face shield that covers the front and sides of the face)." "Definitions Source control: […] face shields alone are not recommended for source control." **Limitations:** • No references provided. • Unknown evidence base for guidance or how this has been formed.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). The National Institute for Occupational Safety and Health (NIOSH): Strategies for Conserving the Supply of Eye Protection. 2023.	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 10 August 2023.					

Assessment of evidence

This guidance document describes when eye protection should be worn for certain tasks or anticipated exposure as part of conventional and contingency capacity strategies.

“Conventional Capacity Strategies

“Use eye protection according to product labelling and local, state, and federal requirements

In healthcare settings, eye protection is used by healthcare personnel (HCP) to protect their eyes from exposure to splashes, sprays, splatter, and respiratory secretions.”

“Contingency Capacity Strategies

Implement extended use of eye protection
Extended use of eye protection is the practice of wearing the same eye protection for repeated close contact encounters with several different patients, without removing eye protection between patient encounters. Extended use of eye protection can be applied to single use and reusable devices. […].”

Limitations:

- No references provided.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Social Care (DHSC).	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Infection prevention and control: resource for adult social care. 2022. Updated 01 March 2024. Accessed 26 March 2024					

Assessment of evidence

This guidance document describes when eye/face protection should be worn for certain tasks or anticipated exposure.

Scope: “contains general infection prevention and control (IPC) principles to be used in combination with advice and guidance on managing specific infections.”

Target audience: “for those responsible for setting and maintaining standards of IPC within adult social care in England.”

“Consider wearing eye protection such as goggles or visors where there is a risk of blood or body fluids splashing into the worker’s eyes”

“PPE recommendation summary

Table 3: the recommended PPE that should be used as standard precautions

[This table shows eye protection is required when splashing is risk assessed as likely and providing care or carrying out a domestic task likely to involve contact with blood or body fluids. Examples given are giving personal care, handling soiled laundry, and emptying a catheter or commode.

This table also shows eye protection is required when undertaking an AGP on a person who is not suspected or confirmed to have COVID-19 or another infection spread via the airborne or droplet route].”

Limitations:

- No references provided.

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 11 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This guidance document describes when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure, when caring for patients with respiratory tract viral infection. 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.” “Personal protective equipment (PPE)

Assessment of evidence
Healthcare workers caring for patients with a respiratory viral infection should apply standard precautions, including appropriate hand hygiene. Wearing a medical face mask is recommended, as a minimum, for contact with patients where there is no close proximity to the patient. For prolonged contact in close proximity to the patient, including the performance of high-risk procedures, a well-fitted respirator (see 'Definitions') and eye protection (e.g. goggles) are recommended. [...] For RV 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:** • Unknown how evidence base/recommendations were identified/formed. • Some referencing, not provided for all points.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
European Centre for Disease Prevention and Control (ECDC). Considerations related to the safe handling of bodies of deceased persons with suspected or confirmed COVID-19. 2020.	Technical Report	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 14 August 2023					

Assessment of evidence

This guidance document describes when eye protection should be worn for certain tasks or anticipated exposure when handling bodies of deceased persons with suspected or confirmed COVID-19.

Scope: “This document aims to support public health preparedness planning and response activities on the safe handling of bodies of deceased persons with suspected or confirmed COVID-19: at the site of death, during transport, storage and preparation before burial/cremation, and during burial/cremation.”

Target audience: Public health authorities in EU/EEA Member States and the United Kingdom.”

“During standard handling, the risk associated with transmission of droplets or aerosol from the airways of the deceased is considered low. Conversely, aerosol-generating procedures or procedures that can lead to splashes during post-mortem examinations carry a higher risk and require appropriate PPE (e.g. eye protection and facial filter piece (FFP) respirators, categories 2 or 3 (FFP2, FFP3).”

Limitations:

- No references provided for this statement.
- Unclear how evidence based was identified and guidance was formulated.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
European Centre for Disease Prevention and Control (ECDC). Monkeypox infection prevention and	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
control guidance for primary and acute care settings. 2022. Accessed 14 August 2023					

Assessment of evidence

This guidance document describes when eye/face protection should be worn to prevent MPX transmission in primary care settings, acute care settings, during patient transport and when carrying out environmental cleaning and waste management.

Scope: “This document provides guidance on infection prevention and control (IPC) measures for primary and acute healthcare settings in the European Union/European Economic Area (EU/EEA) to prevent healthcare-associated transmission of monkeypox (MPX).”

Target audience: “Healthcare workers (HCWs) in general practitioner (GP) offices and primary care clinics as well as HCWs in acute care hospitals and hospital administrators in the EU/EEA.”

“Primary care settings

During the patient’s visit

[…] A single use gown or apron, a high-efficiency respirator (FFP2 or equivalent) and eye protection can be used, […] If samples are taken in a primary care office, the use of eye protection and a single-use gown is strongly recommended, in addition to respiratory protection and gloves.”

“Acute care settings

Patient transportation

[…] Ambulance staff can wear their uniforms, a respirator (FFP2 or equivalent), eye protection, and single-use gloves.

Patient management

Assessment of evidence
The following measures can be applied to both suspect and confirmed MPX patients in an acute care facility: […] HCWs caring for MPX patients (either confirmed or suspected) should wear […] eye protection". "Environmental cleaning and waste management Personnel in charge of cleaning and disinfection of environments exposed to MPX should wear […] eye splash protection (goggles or visor)". **Limitations:** • May be outdated, no statement provided for if new evidence will be considered. • ECDC contributors provided, no information regarding their area of expertise to ensure full representation. • References not provided for above statements.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Lynch JB, Davitkov P, Anderson DJ, et al. Infectious Diseases Society of America Guidelines on Infection Prevention for Health Care Personnel Caring for Patients with	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Suspected or Known COVID-19. Clin Infect Dis. 2020. doi:10.1093/cid/ciaa1063 Accessed 14 August 2023					

Assessment of evidence

The IDSA formulated evidence-based rapid guidelines with the aim of assisting healthcare professionals (HCP) in making informed decisions regarding infection prevention while tending to patients with suspected or confirmed COVID-19. These recommendations encompassed situations in conventional settings (where personal protective equipment - PPE - is adequately available) as well as contingency settings (in instances of PPE shortages). However, for the purpose of this review, only the recommendations pertinent to conventional settings were deemed relevant.

- "The guideline panel recommended that when an AGP is being performed on a patient with suspected or known COVID-19, all involved HCP should wear an N95 or higher-level respirator, in addition to a gown, gloves and eye protection." (Strong recommendation but based on very low certainty of evidence)

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Public Health Agency Canada. Routine Practices and Additional Precautions for	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Preventing the Transmission of Infection in Healthcare Settings. 2013 (revised 2017). Accessed 11 August 2023.					

Assessment of evidence

This guidance document describes when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure. Recommendations are provided on wearing eye/face protection during routine practices, as part of additional precautions, during extended use of eye/face, and when caring for patients with rubella or mumps. Due to the unknown methods for producing this guidance recommendations, this is considered SIGN50 Level 4.

Funding: Guidance was funded by Public Health Agency Canada.

Aim: “to identify and promote infection prevention and control (IPC) practices and precautions for preventing the transmission of microorganisms in healthcare settings, with the exception of bone marrow transplant settings.”

Target audience: “to assist infection prevention and control professionals and all other healthcare providers responsible for developing policies and procedures related to routine practices and additional precautions in all healthcare settings whether in acute or long-term care, ambulatory care, home care or prehospital care settings.”

Appendix III provides the criteria for rating evidence on which recommendations are based:

Strong AI. Direct evidence from meta-analysis or multiple strong design studies of high quality with consistent results.

Strong AII. Consistent results with either direct evidence from multiple strong studies of medium quality, or one strong design with support from multiple moderate designs of high quality, or one strong design of medium quality with support from multiple strong designs of high quality.

Assessment of evidence
Moderate BI. Consistent results with either direct evidence from multiple moderate design studies of high quality, or from multiple strong designs of high quality. Moderate BII. Direct evidence from a combination of strong/moderate design studies of high/medium quality with a clear trend but some inconsistent results, or consistent results from multiple strong design studies of medium quality/moderate designs of high/medium quality, or one strong design study with support from weak designs of high/medium quality. Weak CI. Direct evidence from multiple weak design studies of high/medium quality with consistency of results, or extrapolation from any combination of strong/moderate studies of high/medium quality with inconsistency of results. Weak CII. Studies of low quality or contradictory results regardless of design, case series/case reports, or expert opinion. “Additional precautions — Personal protective equipment— Facial protection […] Facial protection should be worn when within two metres of a coughing/sneezing patient with a suspected or confirmed transmissible respiratory infection.” “Recommendations for routine practices in all healthcare settings: 7. Use of personal protective equipment c. Facial protection […] Appropriate use of facial protection […] In cohort settings, facial protection may be worn for the care of successive patients.” “8. Sharps safety and prevention of exposure to bloodborne pathogens […] e. Eyes, nose and mouth should be protected using facial protection when splashes with blood and/or body fluids are anticipated. [CII]” “Subsection ii: Droplet precautions in all care settings and modifications for specific healthcare settings Personal protective equipment

Assessment of evidence

[…] d. In addition to the use of personal protective equipment as per routine practices:

i. Facial protection (i.e., masks and eye protection, or face shields, or masks with visor attachment) should be worn:

- for care of patients with symptoms of acute respiratory viral infection,
- when within two metres of patient who is coughing at the time of interaction, or
- if performing procedures that may result in coughing

ii. For care of patients with rubella or mumps, facial protection is not needed if the healthcare worker is immune. Non-immune personnel (rubella, mumps) should not enter the room unless it is essential, at which time facial protection should be worn. [CI]

e. In a cohort where patients have the same microorganisms, facial protection may be used for successive patients (gloves should be changed and hand hygiene performed between patients). [CII]"

Appendix IX: Advantages and disadvantages of barrier equipment includes a table on types of eye protection, their use and advantages/disadvantages. The use of eyewear states safety goggles, goggles, and face shield as "protection for exposure to infectious droplets or blood/body fluids". Whilst visor attached to mask can be used for protection for "minimal exposure to infectious droplets or blood and/or body fluids".

"The need for facial protection during routine patient care is determined by the [point of care risk assessment] (PCRA) of the patient interaction and the task to be performed. Interactions involving activities likely to generate coughing, splashes or sprays of blood, body fluids, secretions or excretions, and procedures that potentially expose the mucous membranes of the eyes, nose or mouth warrant facial protection."

"Recommendations for routine practices in all healthcare settings:

7. Use of personal protective equipment

c. Facial protection

[…]

Assessment of evidence
ii. Facial protection (i.e., masks and eye protection, or face shields or masks with visor attachment) should be worn as determined by the point-of-care risk assessment to protect the mucous membranes of the eyes, nose and mouth during procedures and patient care activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions, including respiratory secretions [BII].” **Limitations:** • No mention of plan or process for update. • Unknown methods for producing guideline or consensus recommendations. • May not be applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health New Zealand. Infection prevention and control. 7 August 2023. Accessed 14 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This guidance document describes when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure. Aim: Website providing information about work underway “to transform New Zealand’s health care system”. Target audience: general public “Standard Precautions:

Assessment of evidence
[…] Personal protective equipment (PPE) - Select PPE before any health care activity based on an assessment of the likely risk of exposure to body substances or contaminated surfaces. […] wear a face shield/mask/goggle if droplets or splashes are likely to be generated near your face (eg, when taking a nasopharyngeal swab).” “Droplet Precautions: […] Wear eye protection (goggles or face shield) to reduce exposure to respiratory droplets by touching your eyes or patient coughing or sneezing.” **Limitations:** • No references, links to other resources (such as WHO Aide-memoire 2007 and hand hygiene). • No mention of plan or process for update. • May not be applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health New Zealand. COVID-19: Infection prevention and control recommendations for health and disability care workers. 15 August 2023. Updated 12 March 2024.	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 26 March 2024					

Assessment of evidence

This guidance document describes considerations when selecting eye protection and extended use of eye protection.

Aim: “provides the minimum recommendations for mask use for all employees, volunteers and contractors of healthcare facilities, and patients/clients and visitors of healthcare settings. […] to assist primary and community health and disability care workers in selecting additional PPE items required, following a risk assessment for acute respiratory infections, including COVID-19.”

Target audience: primary and community health and disability care staff.

Last updated 15 August 2023: guidance documents update pending due to “The last remaining mandatory COVID-19 requirements have been removed.”

“When selecting protective eyewear consider the task and fit. […]”

“Sessional (or continuous) use of PPE is the ability to wear specific PPE items without needing to remove and replace each and every time you have undertaken and completed a task or activity. […]

PPE items that can be worn sessionally: Medical masks, P2/N95 particulate respirators, Eye protection*, Long sleeve fluid-resistant gowns (unless soiled).

Eye protection is regarded as PPE within this document.

Limitations:

- No evidence cited and unknown methods for producing guidance.
- No mention of process or schedules for update.
- May not be applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health and Safety Executive (HSE). Handling the deceased with suspected or confirmed COVID-19. [No date] Accessed on 16 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document describes when eye/face protection should be worn for certain tasks or anticipated exposure when handling bodies of deceased persons with suspected or confirmed COVID-19.

This guidance has been co-created with UKHSA and it's stated it should be read in conjunction with "Managing infection risks when handling the deceased" publication by HSE. "The guidance is not specific to COVID-19 but the SICPs and TBPs described are sufficient for managing the risk, with additional precautions taken for aerosol generating procedures (AGPs)."

Scope: "This guidance has been developed to ensure that people who come into contact with the deceased through work, or who work in services providing care for the deceased, are protected from COVID-19 infection."

Target audience: "This may include people such as funeral directors, mortuary operators, medical practitioners and those involved in transporting the deceased."

Table 1 is in relation to transmission-based precautions for suspected or confirmed COVID-19. It states "eye or face protection (may be single or reusable face or eye protection, full face visor or goggles)" should be worn during the following procedures: non-autopsy procedures, including admission, booking-in, preparation for viewing and release of deceased; autopsy procedures and other invasive procedures.

Assessment of evidence

Links have been made by HSE to RCPath and AAPT guidance on 'PPE requirements for care of the deceased during the COVID-19 pandemic.'

Table 2 provides PPE requirements for care of the deceased in non-clinical settings such as death verification, moving the deceased, washing the deceased, preparing for/ and transporting. This states "eye or face protection (full face visor or goggles) is recommended only if there is an anticipated/likely risk of contamination with splashes or droplets of blood or body fluids."

Limitations:

- No referencing. Provides links to other sources throughout web page.
- No date of creation/last update provided.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health and Safety Executive (HSE). Managing infection risks when handling the deceased. 2018. Accessed 18 October 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document describes when eye protection should be worn for certain tasks or anticipated exposure when handling bodies of deceased persons with suspected or confirmed COVID-19.

Scope: "This publication provides guidance on managing the risks of infection from work activities which involve handling the deceased."

Assessment of evidence

Target audience: This guidance is aimed at those working in a mortuary/post-mortem room, funeral services and exhumations. “This guidance may also be useful for people who come into contact with the deceased through their work activities, such as ambulance workers, the police, general practitioners, porters and domestic cleaners.”

“Examples of droplet transmission-based precautions

[…] Wear appropriate PPE that provides a physical barrier to droplets (eg surgical mask with eye protection, face visor)”

“Transmission-based precautions may include wearing the following additional PPE during post-mortems for deceased with a higher infection risk:

a form of eye protection or plain unventilated visor to provide a physical barrier to droplets”

Limitations:

- No references provided.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health and safety executive (HSE). Safe working practices. 2018. Accessed 16 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document describes when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure.

Assessment of evidence
"The following steps will minimise the risk of exposure to blood products and any associated BBV, but not all will be necessary in all situations. […] Protect the eyes and mouth by means of a visor or goggles/safety spectacles and a mask when splashing is a possibility (this will also protect against bone fragments in orthopaedic surgery and post-mortem examination)." **Limitations:** • No referencing. • No date of creation/ last update provided.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Prevention and Control (CDC). Collection and Submission of Postmortem Specimens from Deceased Persons with Confirmed or Suspected COVID-19. 2022.	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 9 August 2023					

Assessment of evidence

Scope: “This document provides specific interim recommendations for the collection and submission of postmortem specimens from deceased persons with confirmed or suspected COVID-19.”

Target user: “The guidance can be used by medical examiners, coroners, pathologists, other workers involved in providing postmortem care, and state, tribal, local, and territorial health departments.”

“PPE Recommendations for NP Swab Collection

If **only** a NP swab is being collected […]

At minimum, the following PPE should be worn:

[…]

Plastic face shield; or a face mask and goggles to protect the face, eyes, nose, and mouth from splashes of potentially infectious bodily fluids.”

“After an autopsy of a decedent with confirmed or suspected COVID-19, the following recommendations apply for cleaning of the autopsy room (and anteroom if applicable):

[…] Use eye protection.”

Limitations:

- No references provided.
- Unknown evidence base for guidance or how this has been formed.

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

Assessment of evidence

“This guidance provides practical advice on how you can comply with the requirements of the Personal Protective Equipment at Work Regulations 1992 as amended by the Personal Protective Equipment at Work (Amendment) Regulations 2022”

“Part 2

85 Part 2 provides guidance to employers to help them comply with their duties to select suitable PPE, ensure its proper use, and maintain it. It describes the PPE used for different parts of the body and covers PPE used to prevent drowning and falls from height.

Eye and face protection

Types of protection

91 The main types of eye and face protection are:

(b) Goggles – […] They give the eyes protection from all angles as the complete rim is in contact with the face. Some goggles are ventilated and may be unsuitable for protection against gases and fine dusts;

(c) Faceshields – […] They protect the face but do not fully enclose the eyes.”

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. 2020. Accessed 29 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document describes when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure when caring for patients/residents with suspected or confirmed COVID-19.

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.

“Patient transport

Assessment of evidence

[…]

Appropriate PPE for healthcare workers accompanying/monitoring a patient during transport includes a respirator and eye protection (visor or goggles).”

“Personal protective equipment (PPE)

[…]

Healthcare workers collecting diagnostic respiratory samples in enclosed spaces should wear a respirator and eye protection. […]

Healthcare workers in contact with a possible or confirmed COVID-19 case should wear a well-fitted respirator and eye protection (i.e. visor or goggles).”

“Aerosol-generating procedures

[…]

All those present should wear a well fitted respirator as well as visor or goggles”.

“Environmental cleaning, ventilation and waste management

[…]

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

“Management of residents with symptoms of COVID-19

[…]

Healthcare workers and LTCF staff coming into contact with residents who have symptoms compatible with COVID-19 should wear a medical face mask or an FFP2 respirator if available, as well as eye protection (i.e. visor or goggles).”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Social Care and UK Health Security Agency. Infection prevention and control (IPC) in adult social care: acute respiratory infection (ARI). 2024. Updated 25 March Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance provides information on IPC measures for acute respiratory infections, including COVID-19. “It applies to adult social care providers, managers of adult social care services and adult social care staff in England.”

This guidance document appears to replace existing guidance documents ‘COVID-19 supplement to the infection prevention and control resource for adult social care: PPE’ and ‘COVID-19 PPE guide for adult social care services and settings’ by the Department of Health and Social Care.

“Eye protection should be worn:

- when within one metre of a person with ARI infection, including when cleaning their room
- if carrying out an AGP on an individual. If a non-fluid resistant FFP3 is worn, use a full-face visor covering the eyes, nose and mouth”

Assessment of evidence
Limitations: • No references provided.

Evidence from previous updates

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
British Standards Institution (BSI). BS 7028:1999 Eye protection for industrial and other uses – Guidance on selection, use and maintenance.	Standard	Level 4	N/A	N/A	N/A

Assessment of evidence
Scope: “This British Standard gives guidance and background information on occupational eye- and face-protectors.” Table 6 provides classification of occupational eye-protectors for particular fields of use. It states the applicable style of eye-protector for liquid splashes is face shields only, and the applicable style for liquid droplets is goggles only. Symbol 3, position of symbol on frame only for both. Definitions: “Liquid splashes: if the potential hazard is a splash of liquid, a liquid splash field of use may be specified. However, the analysis should also consider the hazardous nature of the liquid and the likely speed and volume of the released liquid.

Assessment of evidence

Liquid droplets: if the liquid hazard is in the form of an aerosol or mist, a liquid droplet field of use will need to be specified. Again the hazardous nature of the liquid will need to be considered."

"5.1.3 Classification by style

[…] Spectacles protect the eyes and offer limited protection to the orbital cavities. Goggles protect the eyes and orbital cavities and faceshields provide both eye and face protection."

"6.2.3.2 Occupational eye-protectors other than welding and laser […]

Liquid splash hazards require face protection and therefore spectacles and goggles are not acceptable. Liquid droplet hazards necessitate complete enclosure of the orbital cavities and therefore only goggles are suitable."

Limitations:

- No referencing throughout, bibliography provided with three legislative sources.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Coia JE, Ritchie L, and Adisesh A, et al. Guidance on the use of respiratory and facial protection equipment. Journal of Hospital Infection. 2013; 85;170-182. Doi: 10.1016/j.jhin.2013.06.020.	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

Best practice guidance based on a non-systematic literature review published separately (Bunyan D, Ritchie L, Jenkins D, Coia JE. Respiratory and facial protection: a critical review of recent literature. J Hosp Infect 2013;85:165e169).

“The Scientific Development Committee of the Healthcare Infection Society established a short-life working group in May 2011 to develop appropriate guidance. The working group included representation from the Healthcare Infection Society, Public Health England, Health and Safety Executive (HSE), Association of National Health Occupational Physicians, Health Protection Scotland, Infection Prevention Society, Intensive Care Society, Clinical Virology Network and British Infection Association.”

Aim: “This article provides guidance (best practice guidelines) to support HCWs in hospital or community settings to select and wear the appropriate respiratory and facial protection to minimize the risk of acquisition of infection in the workplace.”

Particles grouped into:

- Splashes: large particles >100 uM in diameter
- Droplets: Larger than aerosols (approx. 5 – 100 uM in diameter)
- Aerosols: Lightweight particles (<5 uM)

“Key points

[…]

The requirement for eye protection will largely be determined by the risk of splashing/spraying of blood and/or body fluids to the eyes/face.”

Eye protection should be worn by everyone in the room when aerosol generating procedures are being conducted.

“Eye protection should be used when there is a risk of contamination of the eyes from splashing [e.g. by secretions (including respiratory secretions), blood, body fluids or excretions]. Eye protection should always be worn by all those present in the room during potentially infectious AGPs.”

Eye protection is recommended when close to a source of aerosol dispersion.

“As aerosols are frequently generated along with droplets and splashes, barrier protection of eyes is also usually required if close to a dispersion source.”

Assessment of evidence
“If an AGP is being undertaken, an FFP3 mask with eye protection is recommended.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
The National Institute for Health and Care Excellence (NICE) Healthcare-associated infections: prevention and control in primary and community care. Clinical guideline CG139. 2012. Updated 2017. Accessed 20 December 2022	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This guidance document provides recommendations on when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure. Context: “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 2003 version of this

Assessment of evidence

document (was not updated). Population covered in guideline: “all adults and children receiving healthcare for which standard infection-control precautions apply in primary care and community care”

Target audience: “all healthcare workers employed in primary and community care settings, including ambulance services”

“Face masks and eye protection must be worn where there is a risk of blood, body fluids, secretions or excretions splashing into the face and eyes. [2003]”

“Expert opinion recommends that face and eye protection reduce the risk of occupational exposure of healthcare practitioners to splashes of blood, body fluids, secretion or excretions.”

*The authors state as follows: “The methodology of writing NICE guidelines has changed substantially since the previous guideline, therefore the updated sections are in a very different style and clearly present evidence tables, evidence statements and linking evidence to recommendation sections, detailed in the methodology chapter, which are not present in the sections that have not been reviewed in this update. The presentation of evidence remains the same as in the original 2003 guideline for recommendations not updated.” As recommendations relating to eye and face protection have not been updated since 2003 and are based on limited research and expert opinion they are graded as level 4.

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	Guideline	AGREE: Recommend with modifications	N/A	N/A	N/A

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

Assessment of evidence

This guideline provides recommendations on when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure.

“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.”

This guideline is deemed AGREE: recommend with modifications. Whilst this guideline is based on a systematic literature review, some aspects of this method are not provided, such as the search strategy. The link between recommendations and supporting evidence is also unclear.

“When are a face mask, respiratory protection and eye protection necessary?

[…] Face masks are also used, often in conjunction with eye protection, to protect the mucous membranes of the wearer from exposure to blood and/or body fluids when splashing may occur.

[…] protective eyewear offered protection against physical splashing of infected substances into the eyes (although not on all occasions), but that compliance was poor. Expert opinion recommends that face and eye protection reduce the risk of occupational exposure of healthcare workers to splashes of blood or body fluids”

Assessment of evidence
"SP29 Fluid-repellent surgical face masks and eye protection must be worn where there is a risk of blood or body fluids splashing into the face and eyes. Class D/GPP H&S" **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.

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. 2007. Accessed 22 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document describes when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure.

“The following recommended practices were developed by the AORN Recommended Practices Committee and have been approved by the AORN Board of Directors”

Target: “These recommended practices are intended as guidelines adaptable to various practice settings. These practice settings include traditional operating rooms, ambulatory surgery centers, physicians’ offices, cardiac catheterization suites, endoscopy suites, radiology departments, and all other areas where operative and other invasive procedures may be performed.”

“RECOMMENDED PRACTICE III Protective barriers must be used to reduce the risk of skin and mucous membrane exposure to potentially infectious materials.

[…]

9. Health care workers must wear protective eye wear when a splatter is anticipated.

10. Health care workers must wear a face shield if a splash is anticipated.”

“RECOMMENDED PRACTICE V

Contact precautions should be used when providing care for patients who are known or suspected to be infected or colonized with microorganisms that are transmitted by direct or indirect contact with patients or items and surfaces in patients’ environments (eg, herpes simplex, impetigo, infectious diarrhea, smallpox, methicillin-resistant Staphylococcus aureus [MRSA], and vancomycin-resistant enterococci [VRE]).

[…]

- face protection (eg, goggles, face shield) when it is anticipated that splash or sneezing exposure to microorganisms is possible”.

Limitation:

- Limited references going back to pre-2000.
- Unknown how evidence base was obtained and recommendations formed.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings – Recommendations of the Healthcare Infection Control Practices Advisory Committee. 2017. Updated November 2022 Accessed 22 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document describes when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure.

No changes have been made to the content below taken from the 2017 version and the current version last reviewed in November 2022.

Assessment of evidence

"The Healthcare Infection Control Practices Advisory Committee (HICPAC) is a federal advisory committee chartered in 1991 to provide advice and guidance to the Centers for Disease Control and Prevention (CDC) and the Secretary of the Department of Health and Human Services (HHS)"

"These widely agreed upon practices are elements of care that are not expected to change based on additional research, […] Therefore, these accepted practices are categorized as strong recommendations, even when high-quality randomized controlled trials are not available to support them."

"Core practice table is provided which states –

1. Ensure proper selection and use of personal protective equipment (PPE) based on the nature of the patient interaction and potential for exposure to blood, body fluids and/or infectious material:

[…]

c. Use protective eyewear and a mask, or a face shield, to protect the mucous membranes of the eyes, nose and mouth during procedures and activities that could generate splashes or sprays of blood, body fluids, secretions and excretions. Select masks, goggles, face shields, and combinations of each according to the need anticipated by the task performed."

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

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
2007. Accessed 23 August 2023					

Assessment of evidence

This guidance document provides recommendations on when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure.

Scope: “The objectives of this guideline are to

(1) provide infection control recommendations for all components of the health care delivery system, including hospitals, long-term care facilities, ambulatory care, home care, and hospice;

(2) reaffirm Standard Precautions as the foundation for preventing transmission during patient care in all health care settings;

(3) reaffirm the importance of implementing Transmission-Based Precautions based on the clinical presentation or syndrome and likely pathogens until the infectious etiology has been determined (Table 2); and

(4) provide epidemiologically sound and, whenever possible, evidence-based recommendations.”

Target audience: “This guideline is designed for use by individuals who are charged with administering infection control programs in hospitals and other health care settings. The information also will be useful for other HCWs, health care administrators, and anyone needing information about infection control measures to prevent transmission of infectious agents.”

Table 4 provides recommendations for application of standard precautions fort he are of all patients in all healthcare settings, it outlines “mask, eye protection (goggles), face shield* [are to be worn] during procedures and patient care activities likely to generate splashes or sprays of blood, body fluids, secretions, especially suctioning, endotracheal intubation” “*During aerosol-generating procedures on patients with suspected or proven infections transmitted by respiratory aerosols (e.g, severe acute respiratory syndrome), wear a fit tested N95 or higher respirator in addition to gloves, gown, and face/eye protection.”

“Procedures that generate splashes or sprays of blood, body fluids, secretions, or excretions (e.g, endotracheal suctioning, bronchoscopy, invasive vascular procedures) require either a face shield (disposable or reusable) or a mask and goggles.”

“II.E.3.b. Goggles and Face Shields

Assessment of evidence

[…] The eye protection chosen for specific work situations (e.g, goggles or face shield) depends on the circumstances of exposure

[…] Indirectly vented goggles with a manufacturer's antifog coating may provide the most reliable practical eye protection from splashes, sprays, and respiratory droplets from multiple angles"

"Although effective as eye protection, goggles do not provide splash or spray protection to other parts of the face."

"Disposable or nondisposable face shields may be used as an alternative to goggles. Compared with goggles, a face shield can provide protection to other facial areas besides the eyes. Face shields extending from the chin to crown provide better face and eye protection from splashes and sprays; face shields that wrap around the sides may reduce splashes around the edge of the shield."

"IV.B.4 Mouth, nose, and eye protection

IV.B.4.a Use PPE to protect the mucous membranes of the eyes, nose, and mouth during procedures and patient care activities that are likely to generate splashes or sprays of blood, body fluids, secretions, and excretions. Select masks, goggles, face shields, and combinations of these according to the need anticipated by the task to be performed. Category IB/IC"

"V.C.3.b. No recommendation for routinely wearing eye protection (eg, goggle or face shield) in addition to a mask, for close contact with patients who require Droplet Precautions. Unresolved issue"

Limitations:

- Lack of detail provided to determine if a systematic literature review was carried out to obtain evidence.
- May be outdated as was last updated in 2007.
- May not be fully applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Mansour III AA, Even JL, Phillips S, et al. Eye Protection in Orthopaedic Surgery. An in Vitro Study of Various Forms of Eye Protection and Their Effectiveness. The Journal of Bone & Joint Surgery. 2009; 91(5):1050-1054.	Experimental Study (simulation)	Level 3	Mannequin heads wearing: modern prescription glasses; standard surgical telescopic loupes; hard plastic contoured glasses; disposable plastic glasses; and combination facemask and eye shield. Mannequin heads, wearing different eye protection, set up to be a specific distance from and angle to a source of surgical site splashing/spraying. Use of a battery operated oscillating saw to perform multiple transverse osteotomies through the diaphyseal	Mannequin head with no eye protection. Effectiveness of each eye protection device compared with another.	Each piece of eyewear tested 30 times (10 times in a central position and 20 in an oblique position). Paper targets placed over the estimated conjunctival regions of the mannequins. Percentage of tests that resulted in any contamination.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
			region of a cadaver leg.		

Assessment of evidence

Results:

No device provided 100% protection from splash contamination to the simulated conjunctival target.

All types of glasses showed a significant difference in contamination to the control (no glasses) ($p<0.05$ in all cases), except from prescription glasses ($p=0.73$).

- Hard plastic contoured glasses – 80% reduction (95% CI 44%-89%), $p<0.0001$ when compared with control.
- Standard loupes – 40% reduction (95% CI 8%-59%), $p=0.0137$ when compared with control.
- Disposable plastic glasses – 96% reduction (95% CI 62%-98%), $p<0.0001$ when compared with control.
- Combination facemask/eye shield – 64% reduction (95% CI 29%-78%), $p=0.0009$ when compared with control.

Comparisons-

All eye protective devices were significantly more effective than the modern prescription glasses ($p<0.05$).

Disposable plastic glasses and hard plastic contoured glasses were significantly more effective than standard loupes ($p<0.05$).

Disposable plastic glasses significantly more effective than combination facemask and eye shield ($p=0.02$).

The disposable plastic glasses were most effective at reducing conjunctival contamination.

This simulation study carried out in the USA involved a mannequin wearing different eye protection devices, placed at a distance simulating a surgeons position when performing a femoral osteomy procedure, which was carried out using a cadaver thigh. The study investigated the effectiveness of four types of eye protection (modern prescription glasses, standard surgical telescopic loupes, hard plastic contoured glasses, disposable plastic glasses, and combination facemask and eye shield) and a control (no eye protection) in reducing conjunctival contamination on the mannequin.

Assessment of evidence

It identified all types of protective eyewear to be significantly effective, with the exception of prescription glasses, in reducing conjunctival contamination on the mannequin when compared with the control ($p<0.05$), with disposable plastic glasses the most effective (96% reduction (95% CI 62%-98%).

Contamination of macroscopic droplets were identified on all eye protective devices, indicating osteomy procedures may require the use of eye protective devices.

The study is limited by its in vitro nature, which may not generalise to real life scenarios. It is also limited in applicability due to a lack of information regarding eye protection manufacturers and being carried out in the USA, which may differ to Scottish health and care settings.

Limitations:

- The in vitro conditions of this study limit its application for example, saline solution with red dye may not mimic in vivo bodily fluids, fit of eyewear may not mirror fit on a human subject etc.
- The makes/models of the eye protection used in this study are not provided.
- This is an indirect measure of HCW infection risk.
- Study does not indicate how long each piece of eyewear was exposed to spraying for.
- Subjective visualisation method to determine a positive ‘hit’ (contamination event) and for macroscopic droplets.

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

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
and Control Guidance for nursing staff. 2017. Accessed 29 August 2023					

Assessment of evidence

This guidance document describes when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks. anticipated exposure, local policy and availability.

“This is an RCN practice guidance. Practice guidance are evidence-based consensus documents, used to guide decisions about appropriate care of an individual, family or population in a specific context.”

Target audience: “This guidance is intended as a reference document for use by RCN members, and highlights essential elements of good infection prevention and control practice.”

“Facial mucocutaneous protection

Masks, visors and eye protection should be worn when a procedure is likely to result in blood and body fluids or substances splashing into the eyes, face or mouth – for example, childbirth, trauma, or operating theatre environments.”

“Visors or goggles

The choice of visors or goggles will depend on task/ procedure to be undertaken, a risk assessment of likely exposure, local policy and availability.”

Limitations:

- No references provided in text.
- Review date of November 2020 stated, no indication this was carried out.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
U.S. Department of Labor. Occupational Safety and Health Administration (OSHA). Guidance on Preparing Workplaces for an Influenza Pandemic. 2007 Accessed 29 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document describes when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure.

“Personal Protective equipment (PPE)

[…]

Eye protection generally is not recommended to prevent influenza infection although there are limited examples where strains of influenza have caused eye infection (conjunctivitis).

[…]

It should be noted that barrier protection, such as a surgical mask or face shield, will protect against droplet transmission of an infectious disease but will not protect against airborne transmission, to the extent that the disease may be spread in that manner.”

Assessment of evidence

"Those who work closely with (either in contact with or within 6 feet) people known or suspected to be infected with pandemic influenza virus should wear:

[…]

Eye protection if splashes are anticipated."

Limitations:

- Specific to USA.
- Unknown how guidance was formed.
- No references provided.
- General guidance, not specific to health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Lindsley WG, Noti JD, Blachere FM, et al. Efficacy of Face Shields Against Cough Aerosol Droplets from a Cough Simulator. Journal of Occupational and Environmental	Experimental Study (simulation)	Level 3	Use of face shield on breathing simulator to limit inhalation of particles (and influenza virus) from simulated cough aerosols.	No use of face shield on breathing simulator to limit inhalation of particles (and influenza virus) from simulated cough aerosols	1) Inhaled volume of aerosol and median particle diameter at 46cm for both large cough and small cough, in 1.4 second time period post cough. 2) Volume of aerosol inhaled (calculated from volume

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Hygiene. 2014; 11: 509-518.					concentration (µL/m3) and breathing rate over time (L/min)) from 1 min to 30 min after each cough when breathing simulators were 46cm or 183cm apart and/or when a face shield was worn or not. (from 1 min was used as concentration exceeded maximum parameters of measuring equipment before this time) Influenza experiment: 3) Number of influenza virus copies (RT-PCR) on the respirator (treated as equivalent to numbers of virus copies inhaled) 4) Number of influenza virus copies (RT-PCR) on the face shield.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
					5) Amount of virus (in %) deposited on different mask layers (RT-PCR) (i.e: inner (middle and inner) or outer) 6) Viable influenza virus (plaque forming units) were assessed for the 46cm distance, large particle cough

Assessment of evidence

This experimental simulation study, carried out in the USA within a controlled environment, investigated the effectiveness of face shields at reducing the amount of aerosolised CDMEM and CDMEM with influenza virus inhaled by a breathing simulator. The study identified during 1-30 minutes after a simulated cough, wearing a face shield significantly reduced the volume of cough aerosol inhaled by the breathing simulator ($p<0.01$). This was also the case of the amount of inhaled virus ($p<0.001$). The study is heavily limited however, mainly by its lack of generalisability to real-life scenarios with the use of in-vitro methods and controlled environments. The study also did not consider other positions/angles in which someone could be exposed.

Methods:

Study used a cough simulator and a breathing simulator. Three experiments for each set up - variables of distance between simulators (46cm and 183cm), 'size of cough', presence of face shield and time of sample collection.

Breathing simulator – digital breathing machine, medium sized head, 32L/min. (For the influenza virus experiments an N95 respirator was sealed to the mouth and acted as a virus collector whereby virus on it would represent that which would have been inhaled).

Assessment of evidence

Cough simulator – produced two types of cough total volume of each type of cough was approx. 68µL. Large cough: median particle diameter of 8.5µm (SD 2.9µm). Small cough: median particle diameter of 3.4µm (SD 2.3µm).

Two optical particle counters were placed just to the left and right of the breathing simulator mouth, behind the faces shield (where applicable).

Results:

During 1 to 30 minutes after a cough, wearing a face shield appeared to significantly reduce the amount of cough aerosol inhaled by the breathing simulator ($p<0.01$).

Wearing a face shield significantly reduced the amount of inhaled virus ($p<0.001$).

The use of a face shield reduced the amount of viable virus on the respirator by 70% (however, was not statistically significant).

Limitations:

- It is noted by the authors that the volume of cough aerosols produced during this study are considerably larger than that reported for human coughing. Additionally, it is mentioned that there is great variation in cough aerosols produced from person to person and so viral transmission via this route is somewhat difficult to predict.
- These experiments were run in sealed chambers with controlled environments, which does not represent regular healthcare facilities.
- Experiments were performed with cough and breathing simulators directly across from each other, this fails to take into account the other angles at which a HCW could be from a patient and means further investigation into the protection conferred by face shields is required.
- For the influenza virus experiments an N95 respirator was sealed to the mouth and acted as a virus collector whereby virus on it would represent that which would have been inhaled – an N95 by its nature and design would not have captured all the ‘inhalable’ aerosol particles.

Assessment of evidence
• We cannot know if the significant reductions shown represent a reduction in risk of infection. • Significantly less virus was deposited on the face shield and respirator when a face shield was worn when compared to when only a respirator was worn (p=0.001) – it is unclear why this would be. • Small sample sizes. • Sampling process may have destroyed some virus, detection of virus is inhibited by sampling limitations.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Association of Surgical Technologies (AST). AST Guidelines for Best Practices in Use of Eye Protection During Surgical Procedures. 2008. Revised April 14, 2017. Accessed 27 July 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provides guidelines on when eye/face protection should be worn and selection of specific types of eye/face protection for certain tasks or anticipated exposure. Due to unclear processes for developing guidance, this document was graded SIGN50 Level 4.

These guidelines were produced and authored by the AST Education and Professional Standards Committee, and are said to be AST approved.

Purpose: “to provide information OR supervisors, risk management, and surgical team members can use in the development and implementation of policies and procedures for eye protection during surgical procedures in the surgery department.”

“Guideline I

Eye protection must be consistently used by [Certified Surgical Technologists] CSTs in conjunction with other personal protective equipment (PPE) (e.g., gloves, gown, mask or respirator) as a barrier to prevent potentially infectious material from entering the eye as mandated by the American National Standards Institute (ANSI), Centers for Disease Control and Prevention (CDC), and OSHA during all surgical procedures including endoscopic procedures, or in any situation where a splash or spraying injury to the eyes could occur.

ANSI/ISEA Z87.1 American National Standard for Occupational and Educational Personal Eye and Face Protection Devices, eye protection is required when there is a reasonable probability of eye or face injury that could be minimized or prevented by use of eye protection.”

[...]

2) Face shields that are open at the bottom and safety glasses do not provide proper infection control protection. Face shields provide secondary protection and primary eye protection, such as goggles, should also be worn.

3) NIOSH also recommends that disposable face shields that are made of light weight films attached to a surgical mask, referred to as surgical mask with eyeshield, splashguard, or visor, should not be relied upon to provide optimal protection.”

“Guideline II

Goggles that are indirectly vented with a manufacturer’s anti-fog coating are the recommended protective eyewear that provide optimal protection from splashes, sprays, respiratory droplets, and debris (e.g., bone).[…]

Assessment of evidence

1. Goggles must be indirectly vented; directly-vented goggles may allow the entrance of potentially infectious material by splashes or sprays."

Limitations:

- May not be applicable to Scottish health and care settings.
- No mention of plan for update.
- Unknown methods of producing guidelines.

Question 5: When should eye/face protection be worn by a patient/visitor?

Evidence added to Literature Review V2.0

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). Guidelines for Infection Control in Dental Health-Care Settings. 2003. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance regarding when patients should wear eye protection within a dental setting. No recommendation was provided for this and due to unclear processes for developing this guidance, it is considered SIGN50 Level 4.

Aim: “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

Assessment of evidence

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.

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.

"Masks, Protective Eyewear, Face Shields

[…] Protective eyewear for patients shields their eyes from spatter or debris generated during dental procedures."

No recommendation provided for this.

Limitations:

- No information provided on the experts/authorities contributing to guidelines.
- Unknown how expert opinion consensus was reached.
- No evidence of systematic review, or methods of obtaining scientific evidence used/cited.
- Not clear per each recommendation the studies contributing to the evidence base.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Public Health Agency Canada. Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings. 2013 (revised 2017). Accessed 11 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance regarding when visitors should wear eye/face protection within health and care settings. Due to the unknown methods for producing this guidance recommendations, this is considered SIGN50 Level 4.

Funding: Guidance was funded by Public Health Agency Canada.

Aim: “to identify and promote infection prevention and control (IPC) practices and precautions for preventing the transmission of microorganisms in healthcare settings, with the exception of bone marrow transplant settings.”

Target audience: “to assist infection prevention and control professionals and all other healthcare providers responsible for developing policies and procedures related to routine practices and additional precautions in all healthcare settings whether in acute or long-term care, ambulatory care, home care or prehospital care settings.”

Appendix III provides the criteria for rating evidence on which recommendations are based:

Strong AI. Direct evidence from meta-analysis or multiple strong design studies of high quality with consistent results.

Assessment of evidence
Strong AII. Consistent results with either direct evidence from multiple strong studies of medium quality, or one strong design with support from multiple moderate designs of high quality, or one strong design of medium quality with support from multiple strong designs of high quality. Moderate BI. Consistent results with either direct evidence from multiple moderate design studies of high quality, or from multiple strong designs of high quality. Moderate BII. Direct evidence from a combination of strong/moderate design studies of high/medium quality with a clear trend but some inconsistent results, or consistent results from multiple strong design studies of medium quality/moderate designs of high/medium quality, or one strong design study with support from weak designs of high/medium quality. Weak CI. Direct evidence from multiple weak design studies of high/medium quality with consistency of results, or extrapolation from any combination of strong/moderate studies of high/medium quality with inconsistency of results. Weak CII. Studies of low quality or contradictory results regardless of design, case series/case reports, or expert opinion. “Additional precautions — Management of visitors […] Generally, visitors should have access to the same PPE as staff when providing direct patient care. Evidence to support the use of PPE by visitors is lacking. The following should be considered when requesting that visitors wear PPE: Personal protective equipment may not be necessary if they have likely been exposed to the infection preadmission. Personal protective equipment may be appropriate for visitors who visit multiple patients in the facility. If used by visitors, the PPE should be changed before visiting a different patient.” “Recommendations for additional precautions in all healthcare settings and modifications for precautions in specific healthcare settings 9. Management of visitors a. […] In the case of acute viral respiratory infection, household members need not wear facial protection (as they may have already been exposed). On a case-by-case basis, other visitors should be instructed in the appropriate use of a mask and other precautions. [CII] b. Exceptions to the need for facial protection include the following:

Assessment of evidence
For patients with suspected or confirmed Haemophilus influenzae type B infection, visitors should wear facial protection only if they will have extensive close contact with children <5 years of age. For patients with rubella or mumps, facial protection is not needed if the visitor is immune. Non-immune visitors should only enter the room when it is absolutely necessary; if they enter the room, they should wear facial protection. [CII]" "Personal protective equipment (PPE) − One element in the hierarchy of controls (505;506). Personal protective equipment consists of gowns, gloves, masks, facial protection (i.e., masks and eye protection, face shields or masks with visor attachment) or respirators that can be used by HCWs to provide a barrier that will prevent potential exposure to infectious microorganisms." **Limitations:** • No mention of plan or process for update. • Unknown methods for producing guideline or consensus recommendations. • May not be applicable to Scottish health and care settings.

Evidence from previous updates

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
British Standards Institution (BSI). BS 7028:1999 Eye protection for industrial and other uses – Guidance on selection, use and maintenance.	Standard	Level 4	N/A	N/A	N/A

Assessment of evidence

This standard provides general guidance regarding when visitors to a workplace should wear eye-protectors.

Scope: “This British Standard gives guidance and background information on occupational eye- and face-protectors.”

“8.2.8 Visitors requirements

Arrangements should be made for providing visitors to any hazardous site areas with suitable eye-protectors. These should be segregated and separately identified from general issue, and be selected according to the risks encountered by the visitors. If spectacles or goggles are appropriate style of eye-protector these should be of the type that can be worn over normal prescription spectacles.”

Limitations:

- No referencing throughout, bibliography provided with three legislative sources.

Question 6: Where and how should eye/face protection be donned?

Evidence added to Literature Review V2.0

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.11.23. Updated 28 February 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provides an order of sequence when donning PPE, which includes eye/face protection. Guidance is also provided regarding the required fit of eye/face protection. It is stated in the introduction that all recommendations are based on systematic reviews, however there is insufficient evidence within the guidance to support this.

Funding: Guidance was co-funded by the National Health and Medical Research Council and Australian Commission on Safety and Quality in Health Care.

Assessment of evidence

Aim (page 19): “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.”

“Table 14. Putting on and removing PPE” table shows putting on protective eyewear or face shield to be step four of the five-step sequence. Order of sequence:

1. “Perform hand hygiene - Wash hands or use an alcohol based hand rub.
2. Put on gown - Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back. Fasten at the back of neck and waist.
3. Put on mask - Secure ties or elastic bands at middle of head and neck.
4. Put on protective eyewear or face shield - Place over face and eyes and adjust to fit.
5. Put on gloves - Extend to cover wrist of isolation gown.”

“[..] for surgical procedures and dentistry, the sequence for putting on PPE differs. In these situations, masks and protective eyewear are applied first prior to hand preparation. Gown and gloves are then put on.”

“Eye protection

[…] (to be efficacious, goggles must fit snugly, particularly from the corners of the eye across the brow).”

“Certainty of evidence -

There is little high quality evidence to support the use of masks and protective eyewear in healthcare facilities. The use of masks is supported by a strong theoretical rationale and occupational health and safety principles.”

“Rationale –

Whilst there is little high quality evidence to support the use of face and protective eyewear, their use is supported by work health and safety principles and expert advice.”

Note: a conditional recommendation is considered a weak recommendation. Definition for weak recommendation is found in the glossary (page 264), as follows: “Concludes that the desirable effects of adherence to a recommendation probably outweigh the undesirable

Assessment of evidence
effects. Overall, the recommendation is based on supportive evidence and a strong theoretical rationale and is recommended for implementation.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). How to put on and how to remove personal protective equipment (PPE) 2015. Accessed 2 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This infographic serves as a reference guide, offering step-by-step instructions on the proper procedure for donning personal protective equipment including coveralls or gowns before visiting a treatment centre or isolation unit.

- “Remove personal items
- Put on scrub suit and rubber boots
- Move to the clean area at the entrance of the isolation unit
- By visual inspection, ensure that all sizes of the PPE set are correct and the quality is appropriate.
- Undertake the procedure of putting on PPE under the guidance and supervision of a trained observer (colleague).
- Perform hand hygiene

Assessment of evidence
• Put on gloves (examination, nitrile gloves). • Put on coverall (or gown) • Put on face mask • Put on face shield OR goggles • Put on head and neck covering • Put on disposable waterproof apron • Put on second pair of gloves over the cuff”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Government. Infection Prevention and Control Expert Group – Guidance on the use of personal protective equipment (PPE) for health workers in the context of COVID-19. 2022.	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 3 August 2023					

Assessment of evidence

This guidance document provides an order of sequence when donning PPE, which includes eye/face protection. Guidance is also provided regarding the required fit of eye/face protection to be considered effective.

This guidance is endorsed by the Australian Health Protection Principal Committee and developed with advice from the National COVID-19 Clinical Evidence Taskforce Infection Prevention and Control Panel (IPC Panel). Consensus recommendations are based on the combined expertise and experience of the IPC panel and ICEG members.

Scope: Document provides guidance on the use of PPE for health care workers during the COVID-19 pandemic, who working in a health and care setting. “This may include in hospitals, non-inpatient settings, managed quarantine facilities, residential care facilities, COVID-19 testing clinics, in-home care and other environments where clinical care is provided”.

Aim: Document aims to “supplement detailed guidance available at a state, territory and institutional level”

“Goggles or Safety Glasses

To be effective, closely fitted wrap around goggles and safety glasses must fit snugly.”

“Face Shields

[…] there should be no gap between the wearer’s forehead and the shield’s headpiece.”

“Donning PPE

PPE should be donned in the following order before entering the patient/client/resident zone:

- Perform hand hygiene
- Put on gown/apron: long-sleeved, preferably fluid-resistant; a plastic apron is adequate when direct physical contact is minimal and/or the risk of blood or body fluid splash is low (e.g., observations, medication delivery)
- Put on surgical mask or PFR (whichever is applicable)

Assessment of evidence

- Put on eye protection (see protective eyewear, below)
- Put on disposable non-sterile gloves (the cuff of the glove should extend over the sleeve of the gown)."

Limitations:

- Limited referencing throughout document.
- Unknown how evidence contributing to recommendations was obtained.
- Lack of detail regarding reaching a consensus.
- May not be applicable to Scottish health and care settings, as is specific to Australia.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Commission on Safety and Quality in Healthcare. For all staff Airborne precautions in addition to standard precautions. 2022. Accessed 3 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
Poster displays steps for healthcare workers to don PPE before entering room/care zone during airborne precautions in addition to standard precautions. Four step process: “1. Perform hand hygiene 2. Put on a particulate filter respirator (e.g. P2/N95) and perform a fit check 3. Put on protective eyewear 4. Perform hand hygiene”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Commission on Safety and Quality in Healthcare. For all staff Combined airborne & contact precautions in addition to standard precautions. 2023. Accessed 4 August 2023	Poster	Level 4	N/A	N/A	N/A

Assessment of evidence
Poster provides steps for health care workers to don PPE before entering room/care zone during combined airborne and contact precautions. Five step process: “1. Perform hand hygiene 2. Put on gown 3. Put on particulate respirator (e.g. P2/N95) and perform fit check 4. Put on protective eyewear 5. Wear gloves in accordance with standard precautions”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Commission on Safety and Quality in Healthcare. For all staff Combined contact & droplet precautions in addition to standard precautions. 2023. Accessed 4 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
Poster provides steps for health care workers to don PPE before entering room/care zone during combined contact & droplet precautions in addition to standard precautions. Five step process: “1. Perform hand hygiene 2. Put on gown 3. Put on surgical mask 4. Put on protective eyewear 5. Wear gloves, in accordance with standard precautions”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Commission on Safety and Quality in Healthcare. For all staff Droplet precautions in addition to standard precautions. 2022. Accessed 4 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
Poster provides steps for health care workers to don PPE before entering room/care zone during droplet precautions in addition to standard precautions. Four step process: “1. Perform hand hygiene 2. Put on surgical mask 3. Put on protective eyewear 4. Perform hand hygiene”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Commission on Safety and Quality in Healthcare. Precautions for aged care homes caring for residents with or suspected of having respiratory viruses. 2023. Accessed 4 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
Poster provides steps for health care workers to don PPE before entering room/care zone during precautions for aged care homes caring for residents with or suspected of having respiratory viruses. Five step process: “1. Perform hand hygiene 2. Put on gown 3. Put on a particulate respirator (e.g P2/N95) and perform fir check (…) 4. Put on protective eyewear 5. Wear gloves, in accordance with standard precautions”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health Security Agency (UKHSA). Guide to donning and doffing PPE: Droplet Precautions for health and social care settings. 2023. Accessed 4 August 2023	Expert Opinion Guidance (UK)	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance poster provides instructions on donning and doffing PPE as part of droplet precautions in health and social care settings. The following recommendations are made:

“Donning or putting on PPE

1. Put on your plastic apron, making sure it is tied securely at the back.
2. Put on your surgical face mask, if tied, make sure securely tied at crown and nape of neck. Once it covers the nose, make sure it is extended to cover your mouth and chin.
3. Put on your eye protection if there is a risk of splashing.
4. Put on non-sterile nitrile gloves.
5. You are now ready to enter the patient area.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health Security Agency (UKHSA). Putting on (donning) personal protective equipment including coveralls for aerosol generating procedures (AGPs): Airborne Precautions. 2020.	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 4 August 2023					
Assessment of evidence					
This COVID-19 guidance advises the process by which eye protection should be donned following AGPs whilst the healthcare worker is wearing coveralls. This picture aid infographic provides the sequence for donning PPE including coveralls for AGPs. "The order for putting on is coverall, respirator, eye protection and gloves. This is undertaken outside the patient's room." Sequence: 1. Don coveralls 2. Respirator 3. Eye protection "place over eyes and adjust headband to fit" 4. Gloves					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and the Health protection Agency. Pandemic (H1N1) 2009 Influenza. A summary of guidance for	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
infection control in healthcare settings. 2009. Accessed 4 August 2023					

Assessment of evidence

This guidance document provides an order of sequence when donning PPE. It document represents an updated version of Pandemic flu: A summary of guidance for infection control in health care settings issued in September 2007. It was tailored to the pandemic influenza virus of that time, pandemic (H1N1) 2009, making it current and relevant. Although it was primarily intended for the NHS, the infection control principles were applicable to other healthcare settings as well. The guidance was to be utilized for all patients suspected or confirmed to have pandemic (H1N1) 2009 influenza.

Regarding donning eye protection, the following recommendations were made.

1. When full PPE is necessary, such as during potentially infectious aerosol-generating procedures, all staff in the room or entering within one hour of the procedure should adhere to the following order for putting on PPE:

a. Gown (or apron if not an aerosol-generating procedure).

b. FFP3 respirator (or surgical mask if not an aerosol-generating procedure).

c. Eye protection, i.e., goggles or face shield (for aerosol-generating procedures and as appropriate after risk assessment).

d. Disposable gloves.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Social Care (DHSC). PPE guide for non-aerosol generating procedures. 2022. Accessed 10 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

Text only version of a poster/infographic.

“Putting on PPE

[…] To put on your PPE safely and correctly:

1. Clean your hands and wrists using alcohol-based hand rub or gel, or use soap and water
2. Put on apron and tie at waist
3. Put on face mask
4. Fit mask around nose – cover mouth and chin
5. Put on eye protection
6. Put on gloves”

Limitations:

- No references provided

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Public Health Agency Canada. Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings. 2013 (revised 2016). Accessed 11 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provides an order of sequence when donning PPE, which includes eye/face protection. Guidance is also provided regarding how to wear facial protection and the required fit. Due to the unknown methods for producing this guidance recommendations, this is considered SIGN50 Level 4.

Funding: Guidance was funded by Public Health Agency Canada.

Aim: “to identify and promote infection prevention and control (IPC) practices and precautions for preventing the transmission of microorganisms in healthcare settings, with the exception of bone marrow transplant settings.”

Target audience: “to assist infection prevention and control professionals and all other healthcare providers responsible for developing policies and procedures related to routine practices and additional precautions in all healthcare settings whether in acute or long-term care, ambulatory care, home care or prehospital care settings.”

Appendix III provides the criteria for rating evidence on which recommendations are based:

Assessment of evidence

Strong AI. Direct evidence from meta-analysis or multiple strong design studies of high quality with consistent results.

Strong AII. Consistent results with either direct evidence from multiple strong studies of medium quality, or one strong design with support from multiple moderate designs of high quality, or one strong design of medium quality with support from multiple strong designs of high quality.

Moderate BI. Consistent results with either direct evidence from multiple moderate design studies of high quality, or from multiple strong designs of high quality.

Moderate BII. Direct evidence from a combination of strong/moderate design studies of high/medium quality with a clear trend but some inconsistent results, or consistent results from multiple strong design studies of medium quality/moderate designs of high/medium quality, or one strong design study with support from weak designs of high/medium quality.

Weak CI. Direct evidence from multiple weak design studies of high/medium quality with consistency of results, or extrapolation from any combination of strong/moderate studies of high/medium quality with inconsistency of results.

Weak CII. Studies of low quality or contradictory results regardless of design, case series/case reports, or expert opinion.

“Recommendations for routine practices in all healthcare settings:

7. Use of personal protective equipment

c. Facial protection

[…] Appropriate use of facial protection:

[…]

- Facial protection should be worn as instructed by manufacturer.”

“Appendix X: Technique for putting on and taking off personal protective equipment

Putting on PPE:

1. Perform HH
2. Put on Gown

Assessment of evidence

a. Tie neck and waist ties securely

3. Put on Mask or N95 Respirator
   a. Place mask over nose and under chin
   b. Secure ties, loops or straps
   c. Mould metal piece to your nose bridge
   d. For respirators, perform a seal-check
4. Put on Protective Eyewear
   a. Adjust eyewear to fit
   b. Face shield should fit over brow
5. Put on gloves
   a. Put on gloves, taking care not to tear or puncture glove
   b. If a gown is worn, the glove fits over the gown's cuff"

Limitations:

- No mention of plan or process for update.
- Unknown methods for producing guideline or consensus recommendations.
- May not be applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health New Zealand. COVID-19: Infection prevention and control recommendations for health and disability care workers. 15 August 2023. Updated 12 March 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

Guidance regarding the checking of eye protection and performing hand hygiene prior to donning is provided within this document. Aim: "provides the minimum recommendations for mask use for all employees, volunteers and contractors of healthcare facilities, and patients/clients and visitors of healthcare settings. […] to assist primary and community health and disability care workers in selecting additional PPE items required, following a risk assessment for acute respiratory infections, including COVID-19."

Target audience: primary and community health and disability care staff.

Last updated 15 August 2023: guidance documents update pending due to "The last remaining mandatory COVID-19 requirements have been removed."

"It is important that healthcare workers check all items of PPE before donning to ensure items are not damaged, have not expired".

"It is also important that you perform hand hygiene before putting on any PPE […]"

Eye protection is considered part of PPE within this document.

Assessment of evidence

Limitations:

- No evidence cited and unknown methods for producing guidance.
- No mention of process or schedules for update.
- May not be applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. The Control of Substances Hazardous to Health (Amendment) Regulations (COSHH) 2004 No. 3386. Accessed 24 March 2023	Legislation	Mandatory	N/A	N/A	N/A

Assessment of evidence

These regulations describe requirements to protect employees from substances hazardous to health in the workplace: “In these Regulations, a reference to an employee being exposed to a substance hazardous to health is a reference to the exposure of that employee to a substance hazardous to health arising out of or in connection with work at the workplace.” These regulations came into force on 21st November 2002.

Regulation 8 - Use of control measures:

Assessment of evidence
"(1) Every employer who provides any control measure, other thing or facility in accordance with these Regulations shall take all reasonable steps to ensure that it is properly used or applied as the case may be."

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health and Safety Executive (HSE). The Control of Substances Hazardous to Health Regulations 2002 (as amended). Approved Code of Practice and guidance. 6th Edition. 2013. ISBN: 9780717665822	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This document contains the "Approved Code of Practice (ACOP) to the Control of Substances Hazardous to Health Regulations 2002 (as amended) (COSHH) and covers all substances to which the Regulations apply." "The ACOP describes the preferred or recommended methods that can be used (or the standards to be met) to comply with the Regulations and the duties imposed by the Health and Safety at Work etc Act 1974 (HSW Act). The accompanying guidance also provides advice on achieving compliance, or it may give information of a general nature, including explanation of the requirements of the law, more specific technical information or references to further sources of information."

Assessment of evidence

ACOP 8

“167 Employers should establish procedures to ensure that control measures, including PPE and any other item or facility, are properly used or applied and are not made less effective by other work practices or by improper use. The procedures should include:

[…]

- ensuring that where more than one item of PPE is being worn, the different items are compatible”

“168 Employees should use the control measures in the way they are intended to be used and as they have been instructed. In particular, they should:

[…]

- wear the PPE provided, including any RPE, correctly and in accordance with the manufacturer’s instructions”

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

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 20 June 2023					

Assessment of evidence

Note: Below information taken from both the 1992 regulations and 2022 amendment.

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

“Compatibility of PPE

5.-(1) Every employer shall ensure that where the presence of more than one risk to health or safety makes it necessary for their workers 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 them 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.”

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

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
amended). Guidance on Regulations. 2022.					
Assessment of evidence					
"This guidance provides practical advice on how you can comply with the requirements of the Personal Protective Equipment at Work Regulations 1992 as amended by the Personal Protective Equipment at Work (Amendment) Regulations 2022" "53 If more than one item of PPE is to be worn, they must be compatible with each other and when used together, should adequately control the risks. For example, a half-mask respirator, provided under the Control of Substances Hazardous to Health Regulations 2002 (COSHH), may not be compatible with a pair of goggles, provided under these Regulations. Such incompatibility may prevent either from fitting properly and lead to increased risk of eye injury and/or respiratory exposure."					

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health Security Agency (UKHSA). Putting on (donning) personal protective equipment (PPE) for aerosol generating procedures (AGPs). Airborne Precautions – Gown version. 2020.	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 13 September 2023					

Assessment of evidence

This COVID-19 guidance advises that, when wearing gowns as part of PPE for airborne precautions, the gown is donned first, followed by the respirator, then eye protection and gloves. It provides guidance for checks to be done before donning, that it is performed outside the patient room. This guidance also provides pictures to aid user understanding.

- “The order for putting on is gown, respirator, eye protection and gloves. This is undertaken outside the patient’s room.”
- “Eye protection – Place over face and eyes and adjust the headband to fit”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health Security Agency (UKHSA). Putting on personal protective equipment (PPE) Standard Infection Control Precautions. 2020. Accessed 13 September 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This COVID-19 guidance document provides an order of sequence when donning PPE, which includes eye/face protection, pictures were provided to aid user understanding for putting on PPE during SICPs. The sequence of donning PPE is as follows: • “Hand hygiene • Apron • Facemask • Mould face mask metal strap • Eye protection if required • Gloves”

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.	Guideline	AGREE: Recommend with modifications	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 1 August 2023					

Assessment of evidence

This document contains recommendations, best practices, and principles focusing on the non-pharmacological aspects of infection prevention and control (IPC) for acute respiratory infections (ARI) in healthcare settings. Guidance is provided regarding the order of sequence when donning PPE (which includes eye protection) and where to don PPE during mortuary care and postmortem examination. This guidance is provided in Annex E and F, respectively and not as part of the document's recommendations. This guidance is deemed AGREE: recommend with modifications. Whilst this guideline is based on a systematic literature review, some aspects of this method are not provided, such as the search strategy. The link between recommendations and supporting evidence is also unclear.

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."

"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"

"Figure E.1 Putting on and removing personal protective equipment

[…]

2. Put on a gown

3. Put on particulate respirator or medical mask; perform user seal check if using a respirator.

4. Put on eye protection, e.g. face shield/goggles (consider anti-fog drops or fog-resistant goggles). Caps are optional: if worn, put on after eye protection.

Assessment of evidence
5. Put on gloves (over cuff).” “Mortuary care and postmortem examination […] put on PPE in the dress in room before entering the autopsy room where the body is located” PPE includes eye protection within the document.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Social Care and UK Health Security Agency. Infection prevention and control (IPC) in adult social care: acute respiratory infection (ARI). 2024. Updated 25 March Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This guidance provides information on IPC measures for acute respiratory infections, including COVID-19. “It applies to adult social care providers, managers of adult social care services and adult social care staff in England.”

Assessment of evidence
This guidance document appears to replace existing guidance documents ‘COVID-19 supplement to the infection prevention and control resource for adult social care: PPE’ and ‘COVID-19 PPE guide for adult social care services and settings’ by the Department of Health and Social Care. “Eye protection should: […] • not be worn around the neck or top of the head” **Limitations:** • No references provided.

Evidence from previous updates

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Siegel JD, Rhinehart E, Jackson M, et al. 2007 guideline for isolation precautions: preventing transmission of infectious agents in health care settings. 2007. Accessed 23 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document describes the requirements of eye protection to provide an adequate fit.

Scope: “The objectives of this guideline are to

(1) provide infection control recommendations for all components of the health care delivery system, including hospitals, long-term care facilities, ambulatory care, home care, and hospice;

(2) reaffirm Standard Precautions as the foundation for preventing transmission during patient care in all health care settings;

(3) reaffirm the importance of implementing Transmission-Based Precautions based on the clinical presentation or syndrome and likely pathogens until the infectious etiology has been determined (Table 2); and

(4) provide epidemiologically sound and, whenever possible, evidence-based recommendations.”

Target audience: “This guideline is designed for use by individuals who are charged with administering infection control programs in hospitals and other health care settings. The information also will be useful for other HCWs, health care administrators, and anyone needing information about infection control measures to prevent transmission of infectious agents.”

“II.E.3. Face Protection: Masks, Goggles, and Face Shields.

II.E.3.b. Goggles and Face Shields.

[…] NIOSH guidelines specify that eye protection must be […] adjustable to ensure a secure fit.”

Limitations:

- Lack of detail provided to determine if a systematic literature review was carried out to obtain evidence.
- May be outdated as was last updated in 2007.
- May not be fully applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Coia JE, Ritchie L, and Adisesh A, et al. Guidance on the use of respiratory and facial protection equipment. Journal of Hospital Infection. 2013; 85;170-182. Doi: 10.1016/j.jhin.2013.06.020.	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

Guidance is provided within this document on how to wear eye protection correctly.

Best practice guidance based on a non-systematic literature review published separately (Bunyan D, Ritchie L, Jenkins D, Coia JE. Respiratory and facial protection: a critical review of recent literature. J Hosp Infect 2013;85:165e169).

“The Scientific Development Committee of the Healthcare Infection Society established a short-life working group in May 2011 to develop appropriate guidance. The working group included representation from the Healthcare Infection Society, Public Health England, Health and Safety Executive (HSE), Association of National Health Occupational Physicians, Health Protection Scotland, Infection Prevention Society, Intensive Care Society, Clinical Virology Network and British Infection Association.”

Aim: “This article provides guidance (best practice guidelines) to support HCWs in hospital or community settings to select and wear the appropriate respiratory and facial protection to minimize the risk of acquisition of infection in the workplace.”

“Do

- Ensure the eye protection, […] is worn correctly, completely covering the eyes, […] and secured on to the face according to the manufacturer’s instructions.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Association of Surgical Technologies (AST). AST Guidelines for Best Practices in Use of Eye Protection During Surgical Procedures. 2008. Revised April 14, 2017. Accessed 27 July 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provides a guideline on the requirements of goggles to provide an effective fit and checking the goggles prior to donning. These guidelines were produced and authored by the AST Education and Professional Standards Committee, and are said to be AST approved. Due to unclear processes for developing guidance, this document was graded SIGN50 Level 4.

Purpose: “to provide information OR supervisors, risk management, and surgical team members can use in the development and implementation of policies and procedures for eye protection during surgical procedures in the surgery department.”

“Guideline II

1. […]

A. The goggles must […] be adjustable to ensure a secure fit. The goggles must fit snugly across the brow from one corner of the eye to the other to be effective.

[…]

Assessment of evidence

2. The surgery department should obtain the manufacturer's written information and instructions for use (IFU) for the goggles, and have the information available for surgery personnel.

A. Prior to use, the CST should complete a thorough visual inspection of the goggles to identify possible defects, e.g., excessive scratches on the lens that could interfere with visualization of the surgical field; cracked lens; and broken parts."

Limitations:

- May not be applicable to Scottish health and care settings.
- No mention of plan for update.
- Unknown methods of producing guidelines.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
European Centre for Disease Prevention and Control (ECDC). Guidance for wearing and removing personal protective equipment in healthcare settings for the care of patients with suspected or confirmed COVID-19.	Technical Report	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
2020. Accessed 14 August 2023					

Assessment of evidence

This document provides guidance on compatibility of eye/face protection with RPE and an order of sequence when donning PPE, which includes eye/face protection. Figures are provided showing how to wear facial protection and the required fit.

Scope: “This document provides support to healthcare workers managing suspected or confirmed cases of novel coronavirus 2019 (COVID-19). The general objectives of the document are:

- to present the minimal set of personal protective equipment (PPE) required for managing suspected or confirmed COVID-19 cases;
- to make healthcare workers aware of the critical aspects of the donning and doffing of PPE; and
- to strengthen occupational safety in healthcare workers for patients suspected of, or confirmed with, COVID-19.

Target audience: “Healthcare workers and infection prevention and control personnel in EU/EEA countries and in the United Kingdom.”

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

“Eye protection

[…] Important: goggles need to fit the user’s facial features and have to be compatible with the respirator.”

“Wearing (donning) the PPE”

Figures are provided to show steps for donning the PPE, Figure 10 shows wearing of goggles with textile elastic strap and a side view of this (figure 11). Figure 12 shows wearing of goggles with temples and states “If goggles with temples are used, make sure that they are properly positioned and fit well (Figure 12).” Goggles are stated to be donned after putting on a respirator and before putting on gloves.

Limitations:

- No references provided for this statement.

Assessment of evidence
• Unclear how evidence based was identified. • Contributing ECDC experts are listed however unknown of their area of expertise to ensure full representation. • Specific to COVID-19 patients, also formed early in pandemic (2020).

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centres for Disease Control and Prevention (CDC). Sequence for putting on Personal Protective Equipment (PPE) and How to safely remove Personal Protective Equipment (PPE). 2014. Page last reviewed March 14 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This poster demonstrates options for donning and doffing PPE. One example for donning PPE is provided in the form of a four-step process with illustrations.

Assessment of evidence

“1. Gown

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist

2. Mask or Respirator

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator

3. Goggle or Face shield

- Place over face and eyes and adjust to fit 4.

4. Gloves

- Extend to cover wrist of isolation gown”

Question 7: Where and how should eye/face protection be doffed?

Evidence added to Literature Review V2.0

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.11.23. Updated 28 February 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A
Assessment of evidence					
This guidance document provides an order of sequence when doffing PPE, which includes eye/face protection. Funding: Guidance was co-funded by the National Health and Medical Research Council and Australian Commission on Safety and Quality in Health Care. Aim (page 19): “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.”					

Assessment of evidence

Stated in the introduction that all recommendations are based on systematic reviews, however there is insufficient evidence within the guidance to support this.

“Table 14. Putting on and removing PPE” table shows removing protective eyewear or face shield to be step four of a six-step process. Order of sequence:

1. “Remove Gloves […]
2. Perform hand hygiene […]
3. Remove gown […]
4. Remove protective eyewear or face shield - Outside of eye protection or face shield is contaminated! To remove, handle by head band or ear pieces. Place in designated receptacle for reprocessing or in waste container.
5. Remove mask […]
6. Perform hand hygiene […]”

“Removal of PPE should be done at the doorway (just prior to leaving patient’s room) or immediately outside patient room.”

“Remove protective eyewear or faceshield before removing and disposing of the respirator in a closed container and performing hand hygiene again.”

“At a minimum, hand hygiene should be performed after the removal of gloves as well as after the removal of any other individual item of contaminated PPE.”

“Removing face and eye protection

Removal of a face shield, protective eyewear and surgical mask can be performed safely after gloves have been removed and hand hygiene performed. The ties, earpieces and/or headband used to secure the equipment to the head are considered ‘clean’ and therefore safe to touch with bare hands. The front of a mask, protective eyewear or face shield is considered contaminated.”

“Certainty of evidence -

There is little high quality evidence to support the use of masks and protective eyewear in healthcare facilities. The use of masks is supported by a strong theoretical rationale and occupational health and safety principles.”

Assessment of evidence
"Rationale – Whilst there is little high quality evidence to support the use of face and protective eyewear, their use is supported by work health and safety principles and expert advice." Note: a conditional recommendation is considered a weak recommendation. Definition for weak recommendation is found in the glossary (page 264), as follows: "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."

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Government. Infection Prevention and Control Expert Group – Guidance on the use of personal protective equipment (PPE) for health workers in the context of COVID-19. 2022. Accessed 3 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance on where and how to doff eye/face protection.

This guidance is endorsed by the Australian Health Protection Principal Committee and developed with advice from the National COVID-19 Clinical Evidence Taskforce Infection Prevention and Control Panel (IPC Panel). Consensus recommendations are based on the combined expertise and experience of the IPC panel and ICEG members.

Scope: Document provides guidance on the use of PPE for health care workers during the COVID-19 pandemic, who working in a health and care setting. “This may include in hospitals, non-inpatient settings, managed quarantine facilities, residential care facilities, COVID-19 testing clinics, in-home care and other environments where clinical care is provided”.

Aim: Document aims to “supplement detailed guidance available at a state, territory and institutional level”

“Remove eye protection and perform hand hygiene. To take off eye protection, the wearer should remove them using the tip of the goggle arms or the elastic band/garter that secures them to the wearer’s head. Avoid touching the face near the eyes and perform hand hygiene following removal. Protective eyewear labelled single use, should be discarded.”

“NOTE Eye protection, and surgical masks or PFRs, should only be removed outside of the patient/ /client/resident zone.”

Limitations:

- Limited referencing throughout document.
- Unknown how evidence contributing to recommendations was obtained.
- Lack of detail regarding reaching a consensus.
- May not be applicable to Scottish health and care settings, as is specific to Australia.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Commission on Safety and Quality in Healthcare. For all staff Airborne precautions in addition to standard precautions. 2022. Accessed 3 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

Poster displays steps for before entering room/care zone:

Poster displays steps for doffing PPE at doorway prior to leaving room/care zone:

"1. Perform hand hygiene

2. Leave the room/care zone

3. Perform hand hygiene (in the anteroom/outside the room/care zone)

4. Remove protective eyewear (in the anteroom/outside the room/care zone)

5. Perform hand hygiene (in the anteroom/outside the room/care zone)

6. Remove and dispose of particulate filter respirator (in an anteroom/outside the room/care zone)

7. Perform hand hygiene"

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Commission on Safety and Quality in Healthcare. For all staff Combined airborne & contact precautions in addition to standard precautions. 2023. Accessed 4 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

Poster provides steps for health care workers to don PPE at doorway prior to leaving room/care zone during combined airborne and contact precautions.

Nine step process:

“1. Remove and dispose of gloves if worn

2. Perform hand hygiene

3. Remove and dispose of gown

4. Leave room/care zone

5. Perform hand hygiene (in an anteroom/outside the room/care zone)

6. Remove protective eyewear (in an anteroom/outside the room/care zone)

Assessment of evidence
7. Perform hand hygiene (in an anteroom/outside the room/care zone) 8. Remove and dispose of particulate respirator (in an anteroom/outside the room/care zone) 9. Perform hand hygiene”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Commission on Safety and Quality in Healthcare. For all staff Combined contact & droplet precautions in addition to standard precautions. 2023. Accessed 4 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
Poster provides steps for health care workers to doff PPE at the doorway prior to leaving room/care zone during combined contact & droplet precautions in addition to standard precautions. Nine step process: “1. Remove and dispose of gloves if worn

Assessment of evidence
2. Perform hand hygiene 3. Remove and dispose of gown 4. Perform hand hygiene 5. Remove protective eyewear 6. Perform hand hygiene 7. Remove and dispose of mask 8. Leave the room/care zone 9. Perform hand hygiene”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Commission on Safety and Quality in Healthcare. For all staff Droplet precautions in addition to standard precautions. 2022. Accessed 4 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
Poster provides steps for health care workers to doff PPE at the doorway prior to leaving room/care zone during droplet precautions in addition to standard precautions. Six step process: 1. Perform hand hygiene 2. Remove protective eyewear 3. Perform hand hygiene 4. Remove mask and dispose of mask 5. Leave the room/care zone 6. Perform hand hygiene

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Commission on Safety and Quality in Healthcare. Precautions for aged care homes caring for residents with or suspected of having respiratory viruses. 2023.	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 4 August 2023					

Assessment of evidence

Poster provides steps for health care workers to doff PPE after you finish and are ready to leave the room during precautions for aged care homes caring for residents with or suspected of having respiratory viruses.

Nine step process:

“1. Remove gloves and dispose if worn

2. Perform hand hygiene

3. Remove and dispose of gown

4. Leave the room

5. Perform hand hygiene

6. Remove protective eyewear and dispose in a designated container

7. Perform hand hygiene

8. Remove and dispose of particulate respirator

9. Perform hand hygiene”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health Security Agency (UKSHA). Guide to donning and doffing PPE: Droplet Precautions for health and social care settings 2023. Accessed 4 August 2023	Expert Opinion Guidance (UK)	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance poster provides instructions on donning and doffing PPE as part of droplet precautions in health and social care settings. The following recommendations are made;

“Doffing or taking off PPE

1. Remove gloves […]
2. Perform hand hygiene […]
3. Snap or unfasten apron […]
4. Once outside the patient room. Remove eye protection.
5. Perform hand hygiene […]
6. Remove surgical mask.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and the Health protection Agency. Pandemic (H1N1) 2009 Influenza. A summary of guidance for infection control in healthcare settings. 2009. Accessed 4 August 2023	Expert Opinion Guidance (UK)	Level 4	N/A	N/A	N/A
Assessment of evidence					
This guidance document provides an order of sequence when doffing PPE, which includes eye/face protection. It represents an updated version of Pandemic flu: A summary of guidance for infection control in health care settings issued in September 2007. It was tailored to the pandemic influenza virus of that time, pandemic (H1N1) 2009, making it current and relevant. Although it was primarily intended for the NHS, the infection control principles were applicable to other healthcare settings as well. The guidance was to be utilized for all patients suspected or confirmed to have pandemic (H1N1) 2009 influenza. Regarding doffing eye protection, the following recommendations were made. “Before leaving the side room or cohorted area, gloves, gown and eye protection should be removed (in that order, where worn) and disposed of as clinical (also known as infectious) waste.” 1. Remove gloves 2. Remove gown or apron					

Assessment of evidence
3. Remove eye protection “To remove, handle by headband or earpieces and discard appropriately” 4. Remove respirator or surgical mask “Clean hands thoroughly immediately after removing all PPE.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). Guidelines for Infection Control in Dental Health-Care Settings. 2003. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This guidance document provides a recommendation on where to doff eye/face protection. Due to unclear processes for developing this guidance, it is considered SIGN50 Level 4. Aim: “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

Assessment of evidence

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.

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.

Recommendation –

"IV PPE

B. Protective Clothing

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

Limitations:

- No information provided on the experts/authorities contributing to guidelines.
- Unknown how expert opinion consensus was reached.
- No evidence of systematic review, or methods of obtaining scientific evidence used/cited.

Assessment of evidence
• Not clear per each recommendation the studies contributing to the evidence base.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the Coronavirus Disease 2019 (COVID-19) Pandemic. 2020. Updated 18 March 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A
Assessment of evidence					
This document provides guidance on when and where to doff eye/face protection when transporting a patient with suspected or confirmed COVID-19.					

Assessment of evidence
Aim: “Guidance provides a framework for facilities to implement select infection prevention and control practices (e.g., universal source control) based on their individual circumstances (e.g., levels of respiratory virus transmission in the community).” Audience: “Guidance is appliable to all U.S settings where healthcare is delivered”. “Emergency Medical Services Considerations for vehicle configuration when transporting a patient with suspected or confirmed SARS-CoV-2 infection […] Before entering the driver’s compartment, the driver (if they were involved in direct patient care) should remove their gown, gloves and eye protection and perform hand hygiene to avoid soiling the compartment.” **Limitations:** • No references provided. • Unknown evidence base for guidance or how this has been formed.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Social Care (DHSC). PPE guide for non-aerosol generating procedures. 2022. Accessed 10 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

Text only version of a poster/infographic which provides an order of sequence when doffing PPE (includes eye/face protection).

“Taking off PPE

To take off your PPE safely and correctly:

1. Remove gloves
2. Clean hands and wrists (and forearms if necessary) with alcohol-based hand rub or gel, or use soap and water
3. Remove apron – do not touch the outside front of the apron, this will be contaminated
4. Clean hands and wrists (and forearms if necessary) again with alcohol-based hand rub or gel, or use soap and water
5. When 2 meters from the client, carefully remove eye protection by the sidearms or side straps. Discard or disinfect for next use
6. Clean hands and wrists (and forearms if necessary) again with alcohol-based hand rub or gel, or use soap and water
7. Remove mask – do not touch the front of the mask but remove by the ear loops or ties
8. Clean hands and wrists (and forearms if necessary) again with alcohol-based hand rub or gel, or use soap and water
9. If required, put on a clean face mask before contact with others in a care setting or service”

Limitations:

- No references provided.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
NHS England. National infection prevention and control manual	Expert Opinion (England)	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
(NIPCM) for England. Updated 4 July 2023. Accessed 14 August 2023					

Assessment of evidence

The NIPCM has been tailored from the Scottish NIPCM for implementation in England, with the purpose of assisting healthcare providers in showcasing their adherence to the ten criteria outlined in the 'Health and Social Care Act 2008, Code of Practice on the prevention and control of infections and related guidance' (hereafter referred to as The "Code of Practice"). This adaptation aims to provide robust support and facilitation to healthcare providers in meeting the prescribed standards.

The following recommendations regarding doffing of eye/face protection are made under chapter 2 Transmission based precautions (TBPs):

- “In the absence of an anteroom/lobby remove FFP3 respirators and eye/face protection in a safe area (eg, outside the isolation/cohort room/area)”
- “All other PPE should be removed in the patient care area.”

Limitations:

- NIPCM for England links throughout to ARHAI NIPCM. In this case, the recommendations differ, however the foundation for these recommendations is unknown with lack of appropriate referencing (makes reference to ARHAI NIPCM HCID PPE review and UKHSA donning/doffing PPE, neither suggest material provided).

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Public Health Agency Canada. Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings. 2013 (revised 2017). Accessed 11 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance on how to doff eye/face protection, and where to place used eye/face protection after doffing. Due to the unknown methods for producing this guidance recommendations, this is considered SIGN50 Level 4.

Funding: Guidance was funded by Public Health Agency Canada.

Aim: “to identify and promote infection prevention and control (IPC) practices and precautions for preventing the transmission of microorganisms in healthcare settings, with the exception of bone marrow transplant settings.”

Target audience: “to assist infection prevention and control professionals and all other healthcare providers responsible for developing policies and procedures related to routine practices and additional precautions in all healthcare settings whether in acute or long-term care, ambulatory care, home care or prehospital care settings.”

Appendix III provides the criteria for rating evidence on which recommendations are based:

Strong AI. Direct evidence from meta-analysis or multiple strong design studies of high quality with consistent results.

Assessment of evidence

Strong AII. Consistent results with either direct evidence from multiple strong studies of medium quality, or one strong design with support from multiple moderate designs of high quality, or one strong design of medium quality with support from multiple strong designs of high quality.

Moderate BI. Consistent results with either direct evidence from multiple moderate design studies of high quality, or from multiple strong designs of high quality.

Moderate BII. Direct evidence from a combination of strong/moderate design studies of high/medium quality with a clear trend but some inconsistent results, or consistent results from multiple strong design studies of medium quality/moderate designs of high/medium quality, or one strong design study with support from weak designs of high/medium quality.

Weak CI. Direct evidence from multiple weak design studies of high/medium quality with consistency of results, or extrapolation from any combination of strong/moderate studies of high/medium quality with inconsistency of results.

Weak CII. Studies of low quality or contradictory results regardless of design, case series/case reports, or expert opinion.

“Recommendations for routine practices in all healthcare settings:

7. Use of personal protective equipment

c. Facial protection

[…] Appropriate use of facial protection:

[…]

- Self-contamination should be avoided during use and disposal by not touching facial protection on its external surface.
- Facial protection should be removed carefully by the straps or ties.
- […] Eye protection or face shields should be removed immediately after use and placed promptly into a no-touch receptacle followed by hand hygiene. [CII]””

“Appendix X: Technique for putting on and taking off personal protective equipment

Taking off PPE:

Assessment of evidence

1. Remove gloves […]
2. Remove gown […]
3. Perform HH
4. Remove eye protection
    a. Arms of goggles and headband of face shields are considered to be ‘clean’ and may be touched with the hands
    b. The front of goggles or face shield is considered to be contaminated
    c. Remove eye protection by handling ear loops, sides or back only
    d. Discard into waste receptacle or into appropriate container to be sent for reprocessing
    e. Personally-owned eyewear may be cleaned by the individual after each use
5. Remove mask or N95 respirator […]
6. Perform HH

Additional optional opportunities for hand hygiene are between steps 1 and 2, between steps 4 and 5 and before leaving the care area.”

Limitations:

- No mention of plan or process for update.
- Unknown methods for producing guideline or consensus recommendations.
- May not be applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
The Control of Substances Hazardous to Health (Amendment) Regulations (COSHH) 2004 No. 3386. Accessed 16 August 2023	Statutory Instrument	Mandatory	N/A	N/A	N/A

Assessment of evidence

This legislation provides regulation on when PPE should be removed the actions required following removal.

Summary: Mandatory law that requires employers to prevent and/or control substances that are hazardous to health.

Introduction:

These regulations describe requirements to protect employees from substances hazardous to health in the workplace: “In these Regulations, a reference to an employee being exposed to a substance hazardous to health is a reference to the exposure of that employee to a substance hazardous to health arising out of or in connection with work at the workplace.”

A hazard includes biological agents – ““biological agent” means a micro-organism, cell culture, or human endoparasite, whether or not genetically modified, which may cause infection, allergy, toxicity or otherwise create a hazard to human health;”

“Regulation 9 Maintenance, examination and testing of control measures

[…]

(6) Personal protective equipment which may be contaminated by a substance hazardous to health shall be removed on leaving the working area and kept apart from uncontaminated clothing and equipment.

Assessment of evidence
(7) The employer shall ensure that the equipment referred to in paragraph (6) is subsequently decontaminated and cleaned or, if necessary, destroyed.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health Security Agency (UKHSA). Removal of (doffing) personal protective equipment (PPE). Airborne Precautions for AGPs – Gown version 2022. Accessed 13 September 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This COVID-19 guidance advises the process by which eye protection should be doffed following AGPs whilst the healthcare worker is wearing a gown, and that this process should be outside a patient’s room (in an anteroom, lobby or safe area) with (where possible) a buddy observing at a distance of 2m. Pictures are also provided to aid understanding. Sequence: 1. Gloves 2. Gown

Assessment of evidence
3. "Eye protection (preferably a full-face visor) – the outside will be contaminated. To remove, use both hands to handle the retraining straps by pulling away from behind and discard" 4. Respirator 5. Wash hands

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health Security Agency (UKHSA). Removing (doffing) personal protective equipment (PPE) including coveralls for aerosol generating procedures (AGPs). Airborne Precautions. 2020. Accessed 13 September 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This COVID-19 guidance advises the process by which eye protection should be doffed following AGPs whilst the healthcare worker is wearing a coverall. Pictures are also provided to aid understanding.

Assessment of evidence
"PPE is to be removed carefully in a systematic way before leaving the patient's room. Where possible in a dedicated isolation room with ante room or at least 2m away from the patient area. Sequence: 1. Remove Gloves 2. Remove Coveralls 3. Remove "Eye protection (preferably a full-face visor- goggles can be used as an alternative) – the outside will be contaminated. To remove, use both hands to handle the retraining straps by pulling away from behind and discard" 4. Remove Respirator 5. Clean hands with soap and water "All PPE must be disposed of as infectious clinical waste"

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health Security Agency (UKHSA). Taking off personal protective equipment (PPE) Standard Infection Control Precautions. 2020. Accessed 13 September 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This COVID-19 guidance provides pictures to aid user understanding for taking off PPE during SICPs.

It is stated “PPE should be removed in an order that minimises the risk of self-contamination” and “gloves, aprons (and eye protection if used) should be taken off in the patient’s room or cohort area”.

Sequence:

- Remove gloves
- Clean hands
- Apron
- “Remove eye protection if worn. Use both hands to handle the staps by pulling away from the face and discard”
- Clean hands
- Remove face masks once clinical work is completed
- Clean hands with soap and water

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). Infection prevention and control of epidemic-and pandemic prone acute respiratory	Expert Opinion Guidance	AGREE: 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

This document contains recommendations, best practices, and principles focusing on the non-pharmacological aspects of infection prevention and control (IPC) for acute respiratory infections (ARI) in healthcare settings. Guidance is provided within Annex E and F on the order of sequence when doffing PPE (which includes eye/face protection) where to doff PPE when leaving an isolation room/area or mortuary care/postmortem examination area. It is stated within the document these provide background information for the recommendations.

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.”

This guidance is deemed AGREE: recommend with modifications. Whilst this guideline is based on a systematic literature review, some aspects of this method are not provided, such as the search strategy. The link between recommendations and supporting evidence is also unclear.

Annex E: “Leaving the isolation room or area

[…]

Remove PPE in a manner that prevents self-contamination or self-inoculation with contaminated PPE or hands.”

Figure E.1 Taking off PPE

“1. Avoid contamination of self, others and the environment. Remove the most heavily contaminated items first. Remove gloves and gown […]

2. Perform hand hygiene

3. Remove cap (if worn). Remove goggles from behind. Put goggles in a separate container for reprocessing.

Assessment of evidence
4. Remove respirator from behind. 5. Perform hand hygiene.” Annex F: “Mortuary care and postmortem examination […] remove PPE in the designated dress out room” PPE includes eye protection within the document.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). Droplet Precautions 2016. Accessed 4 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
Sign displays information for healthcare workers when entering an area under droplet precautions. Sign states “everyone must clean their hands, including entering and when leaving the room. Make sure their eyes, nose and mouth are fully covered before room entry. Remove face protection before room exit”.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
World Health Organization (WHO). How to put on and how to remove personal protective equipment (PPE). 2015. Accessed 02 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This infographic serves as a reference guide, offering step-by-step instructions on the proper procedure for doffing personal protective equipment including coveralls or gowns.

- “Always remove PPE under the guidance and supervision of a trained observer (colleague). Ensure that infectious waste containers are available in the doffing area for safe disposal of PPE. Separate containers should be available for reusable items.
- Perform hand hygiene on gloved hands.
- Remove apron […]
- Perform hand hygiene on gloved hands.
- Remove outer pair of gloves and dispose of them safely
- Perform hand hygiene on gloved hands.
- Remove head and neck covering […]
- Remove the gown […]
- Remove eye protection by pulling the string from behind the head and dispose of it safely

Assessment of evidence
• Perform hand hygiene on gloved hands. • Remove the mask […] • Perform hand hygiene on gloved hands. • Remove rubber boots […] • Perform hand hygiene on gloved hands • Remove gloves […] • Perform hand hygiene”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Social Care and UK Health Security Agency. Infection prevention and control (IPC) in adult social care: acute respiratory infection (ARI). 2024. Updated 25 March Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This guidance provides information on IPC measures for acute respiratory infections, including COVID-19. “It applies to adult social care providers, managers of adult social care services and adult social care staff in England.” This guidance document appears to replace existing guidance documents ‘COVID-19 supplement to the infection prevention and control resource for adult social care: PPE’ and ‘COVID-19 PPE guide for adult social care services and settings’ by the Department of Health and Social Care. “Eye protection should: […] be removed upon leaving the room or leaving the home of a care recipient” **Limitations:** • No references provided.

Evidence from previous updates

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Coia JE, Ritchie L, and Adisesh A, et al. Guidance on the use of respiratory and facial protection equipment. Journal of Hospital Infection. 2013; 85;170-182. Doi:	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
10.1016/j.jhin.2013.06.020.					

Assessment of evidence

Best practice guidance based on a non-systematic literature review published separately (Bunyan D, Ritchie L, Jenkins D, Coia JE. Respiratory and facial protection: a critical review of recent literature. J Hosp Infect 2013;85:165e169), providing an order of sequence when doffing PPE (which includes eye protection) and how to doff eye protection.

“The Scientific Development Committee of the Healthcare Infection Society established a short-life working group in May 2011 to develop appropriate guidance. The working group included representation from the Healthcare Infection Society, Public Health England, Health and Safety Executive (HSE), Association of National Health Occupational Physicians, Health Protection Scotland, Infection Prevention Society, Intensive Care Society, Clinical Virology Network and British Infection Association.”

Aim: “This article provides guidance (best practice guidelines) to support HCWs in hospital or community settings to select and wear the appropriate respiratory and facial protection to minimize the risk of acquisition of infection in the workplace.”

“Before leaving the relevant work area

- Gloves, gown/apron and eye protection should be removed (in that order, where worn) […].
- On removal of eye protection, it should be handled by the headband or earpieces only.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Loveday HP, Wilson JA, Pratt RJ, et al. epic3: National Evidence-Based Guidelines for Preventing	Guidance	AGREE Recommend with modifications	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Healthcare-Associated Infections in NHS Hospitals in England. Journal of Hospital Infection. 2014; 1-70.					

Assessment of evidence

This guideline provides a recommendation on the order of sequence when doffing PPE (which includes eye protection).

“National evidence-based guidelines for preventing HCAI in NHS hospitals were first published in January 20011 and updated in 2007.2 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.”

“SP32 Personal protective equipment should be removed in the following sequence to minimise the risk of cross/self-contamination:

- gloves;
- apron;
- eye protection (when worn); and
- mask/respirator (when worn).
- Hands must be decontaminated following the removal of personal protective equipment.

New recommendation Class D/GPP/H&S””

Assessment of evidence

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.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Siegel JD, Rhinehart E, Jackson M, et al. 2007 guideline for isolation precautions: preventing transmission of infectious agents in health care settings. 2007. Accessed 23 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance on the order of sequence when doffing eye/face protection and how to remove eye/face protection.
Scope: “The objectives of this guideline are to

(1) provide infection control recommendations for all components of the health care delivery system, including hospitals, long-term care facilities, ambulatory care, home care, and hospice;

(2) reaffirm Standard Precautions as the foundation for preventing transmission during patient care in all health care settings;

Assessment of evidence
(3) reaffirm the importance of implementing Transmission-Based Precautions based on the clinical presentation or syndrome and likely pathogens until the infectious etiology has been determined (Table 2); and (4) provide epidemiologically sound and, whenever possible, evidence-based recommendations." Target audience: "This guideline is designed for use by individuals who are charged with administering infection control programs in hospitals and other health care settings. The information also will be useful for other HCWs, health care administrators, and anyone needing information about infection control measures to prevent transmission of infectious agents." "Removal of a face shield, goggles, and mask can be performed safely after gloves have been removed and hand hygiene performed. The ties, earpieces, and/or headband used to secure the equipment to the head are considered ''clean'' and thus safe to touch with bare hands. The front of a mask, goggles, and face shield are considered contaminated." Figure is provided with information/ examples of safe donning/doffing of PPE, this is a duplication and has therefore been covered within the CDC's "Sequence for Donning and Removing Personal Protective Equipment" evidence table. **Limitations:** • Lack of detail provided to determine if a systematic literature review was carried out to obtain evidence. • May be outdated as was last updated in 2007. • May not be fully applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centres for Disease Control and Prevention (CDC). Sequence for putting on Personal	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Protective Equipment (PPE) and How to safely remove Personal Protective Equipment (PPE) 2014. Page last reviewed March 14 2023.					

Assessment of evidence

This poster demonstrates options for order of sequence when doffing PPE, which includes eye/face protection.

Two examples are provided for doffing PPE with illustrations.

First example –

“Remove all PPE before exiting the patient room except a respirator, if worn. Remove the respirator after leaving the patient room and closing the door. Remove PPE in the following sequence:

1. Gloves […]

2. Goggles or Face shield

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band or ear pieces
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise discard in a waste container

Assessment of evidence

3. Gown […]

4. Mask or Respirator […]

5. Wash hands or use and alcohol-based hand sanitizer immediately after removing all PPE. ALL PPE”

Second example –

Remove all PPE before exiting the patient room except a respirator, if worn. Remove the respirator after leaving the patient room and closing the door. Remove PPE in the following sequence:

1. Gown and Gloves […]

2. Goggles of Face shield

Same description as example 1.

3. Mask or Respirator

Same description as example 1.

4. Wash hands or use an alcohol-based hand sanitiser immediately after removing all PPE

Limitations:

- Poster is not dated.
- No references provided.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Association of Surgical Technologies (AST).	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
AST Guidelines for Best Practices in Use of Eye Protection During Surgical Procedures. 2008. Revised April 14, 2017. Accessed 27 July 2023					

Assessment of evidence

This guidance document provides a guideline on the order of sequence when doffing eye/face protection and how to doff eye/face protection. Due to unclear processes for developing guidance, this document is considered SIGN50 Level 4.

These guidelines were produced and authored by the AST Education and Professional Standards Committee, and are said to be AST approved.

Purpose: “to provide information OR supervisors, risk management, and surgical team members can use in the development and implementation of policies and procedures for eye protection during surgical procedures in the surgery department.”

“Guideline III

Goggles should be carefully removed to minimize blood and body fluid splashes to the mucous membrane, particularly the conjunctiva of the eye, as well as prevent other surgical team members from being splashed. The used goggles should be placed in a designated receptacle to be collected for cleaning and disinfection.

1. Removal of gloves can cause blood splatter; therefore, the eye and face protection should be removed last.

Assessment of evidence
2. Goggles should only be handled and removed by the portion that secures it to the head (i.e., ties, elasticized band), since those are considered relatively clean, as opposed to the front and sides which are likely to be contaminated by splashes and sprays of blood and body fluids." 3. Upon removal, goggles should not be carried outside of the surgery department. […] A. A labelled container for used (potentially contaminated) goggles should be available in the surgery personnel change/locker rooms. The used goggles should be placed in the container for collection to be taken to the decontamination room for cleaning and disinfection." **Limitations:** • May not be applicable to Scottish health and care settings. • No mention of plan for update. • Unknown methods of producing guidelines.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
European Centre for Disease Prevention and Control (ECDC). Guidance for wearing and removing personal protective equipment in healthcare settings for the care of patients with suspected or	Technical Report	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
confirmed COVID-19. 2020. Accessed 14 August 2023					

Assessment of evidence

This document provides guidance on the order of sequence when doffing PPE (which includes eye/face protection) and how to doff eye/face protection.

Scope: “This document provides support to healthcare workers managing suspected or confirmed cases of novel

coronavirus 2019 (COVID-19). The general objectives of the document are:

- to present the minimal set of personal protective equipment (PPE) required for managing suspected or confirmed COVID-19 cases;
- to make healthcare workers aware of the critical aspects of the donning and doffing of PPE; and
- to strengthen occupational safety in healthcare workers for patients suspected of, or confirmed with, COVID-19.

Target audience: “Healthcare workers and infection prevention and control personnel in EU/EEA countries and in the United Kingdom.”

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

“Removing (doffing) the PPE”

Figures are provided to show doffing the PPE. Figure 19 shows the removal of goggles with textile elastic straps, touching the back and sides of the strap only. Figure 20 shows the removal of goggles with temples, touching the sides of the goggles only. Goggles with temples appear to be safety glasses. Goggles are removed after gowns are removed, and before removal of the respirator.

Assessment of evidence
Limitations: • No references provided for this statement. • Unclear how evidence based was identified. • Contributing ECDC experts are listed however unknown of their area of expertise to ensure full representation. • Specific to COVID-19 patients, also formed early in pandemic (2020).

Question 8: When should eye/face protection be changed or removed?

Evidence added to Literature Review V2.0

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Government. Infection Prevention and Control Expert Group – Guidance on the use of personal protective equipment (PPE) for health workers in the context of COVID-19. 2022. Accessed 3 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance on when to change/remove eye protection during extended use within a COVID-19 clinical area.

This guidance is endorsed by the Australian Health Protection Principal Committee and developed with advice from the National COVID-19 Clinical Evidence Taskforce Infection Prevention and Control Panel (IPC Panel). Consensus recommendations are based on the combined expertise and experience of the IPC panel and ICEG members.

Assessment of evidence

Scope: Document provides guidance on the use of PPE for health care workers during the COVID-19 pandemic, who working in a health and care setting. “This may include in hospitals, non-inpatient settings, managed quarantine facilities, residential care facilities, COVID-19 testing clinics, in-home care and other environments where clinical care is provided”.

Aim: Document aims to “supplement detailed guidance available at a state, territory and institutional level”

“Additional considerations:

Discard protective eyewear when it is difficult to see through or damaged.”

“Extended use of PPE

[…]

All PPE is required to be changed when leaving the COVID-19 clinical area or moving between COVID-19 clinical areas and non-COVID-19 areas.”

Limitations:

- Limited referencing throughout document.
- Unknown how evidence contributing to recommendations was obtained.
- Lack of detail regarding reaching a consensus.
- May not be applicable to Scottish health and care settings, as is specific to Australia.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). The National Institute for Occupational Safety and Health (NIOSH): Strategies for Conserving the Supply of Eye Protection. 2023. Accessed 10 August 2023.	Expert Opinion	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance on when to remove eye/face protection as part of conventional capacity strategies.

“Conventional Capacity Strategies

Implement extended use of eye protection

[…]

Eye protection should be discarded if damaged (e.g., face shield or goggles can no longer fasten securely to the provider, if visibility is obscured and cleaning and disinfecting does not restore visibility).

Limitations:

- No references provided.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Public Health Agency Canada. Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings. 2013 (revised 2017). Accessed 11 August 2023.	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance within an appendix on when to change/remove eye/face protection in a health and care setting. Due to the unknown methods for producing this guidance recommendations, this is considered SIGN50 Level 4.

Funding: Guidance was funded by Public Health Agency Canada.

Aim: “to identify and promote infection prevention and control (IPC) practices and precautions for preventing the transmission of microorganisms in healthcare settings, with the exception of bone marrow transplant settings.”

Target audience: “to assist infection prevention and control professionals and all other healthcare providers responsible for developing policies and procedures related to routine practices and additional precautions in all healthcare settings whether in acute or long-term care, ambulatory care, home care or prehospital care settings.”

Appendix III provides the criteria for rating evidence on which recommendations are based:

Strong AI. Direct evidence from meta-analysis or multiple strong design studies of high quality with consistent results.

Assessment of evidence

Strong AII. Consistent results with either direct evidence from multiple strong studies of medium quality, or one strong design with support from multiple moderate designs of high quality, or one strong design of medium quality with support from multiple strong designs of high quality.

Moderate BI. Consistent results with either direct evidence from multiple moderate design studies of high quality, or from multiple strong designs of high quality.

Moderate BII. Direct evidence from a combination of strong/moderate design studies of high/medium quality with a clear trend but some inconsistent results, or consistent results from multiple strong design studies of medium quality/moderate designs of high/medium quality, or one strong design study with support from weak designs of high/medium quality.

Weak CI. Direct evidence from multiple weak design studies of high/medium quality with consistency of results, or extrapolation from any combination of strong/moderate studies of high/medium quality with inconsistency of results.

Weak CII. Studies of low quality or contradictory results regardless of design, case series/case reports, or expert opinion.

Appendix IX: Advantages and disadvantages of barrier equipment includes a table on types of eye protection, their use, and advantages/disadvantages. Safety glasses and face shields are stated as providing good visibility, while goggles are reported as offering poor visibility. An advantage for safety glasses and goggles was stated as “may be cleaned and reused until visibility is compromised”.

Limitations:

- No mention of plan or process for update.
- Unknown methods for producing guideline or consensus recommendations.
- May not be applicable to Scottish health and care settings.

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

Assessment of evidence

This HSE document provides guidance on how to comply with the PPER legislation regarding when to remove (and discard) eye and face protection.

“This guidance provides practical advice on how you can comply with the requirements of the Personal Protective Equipment at Work Regulations 1992 as amended by the Personal Protective Equipment at Work (Amendment) Regulations 2022”

“Part 2

85 Part 2 provides guidance to employers to help them comply with their duties to select suitable PPE, ensure its proper use, and maintain it. It describes the PPE used for different parts of the body and covers PPE used to prevent drowning and falls from height.

[…]

Eye and Face Protection

Key points

[…]

Assessment of evidence
(e) do not use when visibility is noticeably reduced (for example, when the lenses are deeply scratched or worn) or the frame, headband or harness is deformed. Throw them away and replace them.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Commission on Safety and Quality in Healthcare. Precautions for aged care homes caring for residents with or suspected of having respiratory viruses. 2023. Accessed 4 August 2023	Poster	Level 4	N/A	N/A	N/A

Assessment of evidence
Poster provides steps for health care workers to don PPE before entering room/care zone during precautions for aged care homes caring for residents with or suspected of having respiratory viruses. “Tips for keeping safe: (…) Change your PPE if it becomes dirty or damaged”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health New Zealand. COVID-19: Infection prevention and control recommendations for health and disability care workers. 15 August 2023. Updated 12 March 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance on extended use of eye/face protection including when to change/remove this in primary and community health and care setting.

Aim: "provides the minimum recommendations for mask use for all employees, volunteers and contractors of healthcare facilities, and patients/clients and visitors of healthcare settings. […] to assist primary and community health and disability care workers in selecting additional PPE items required, following a risk assessment for acute respiratory infections, including COVID-19."

Target audience: primary and community health and disability care staff.

Last updated 15 August 2023: guidance documents update pending due to "The last remaining mandatory COVID-19 requirements have been removed."

"Sessional (or continuous) use of PPE is the ability to wear specific PPE items without needing to remove and replace each and every time you have undertaken and completed a task or activity. […]

Assessment of evidence

PPE items that can be worn sessionally: Medical masks, P2/N95 particulate respirators, Eye protection*, Long sleeve fluid-resistant gowns (unless soiled).

“Any item of PPE should be removed and disposed of safely after each session or earlier if damaged, soiled, or uncomfortable.”

Eye protection is regarded as PPE within this document.

Limitations:

- No evidence cited and unknown methods for producing guidance.
- No mention of process or schedules for update.
- May not be applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Social Care and UK Health Security Agency. Infection prevention and control (IPC) in adult social care: acute respiratory infection (ARI). 2024. Updated 25 March	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Accessed 26 March 2024					

Assessment of evidence

This document provides guidance on when to remove eye protection, the document provides IPC measures for acute respiratory infections, including COVID-19. “It applies to adult social care providers, managers of adult social care services and adult social care staff in England.”

This guidance document appears to replace existing guidance documents ‘COVID-19 supplement to the infection prevention and control resource for adult social care: PPE’ and ‘COVID-19 PPE guide for adult social care services and settings’ by the Department of Health and Social Care.

“Eye protection should:

[…]

- be removed when taking a break (to drink, eat, use the toilet)
- be discarded and replaced if damaged
- be adjusted or discarded and replaced as appropriate if uncomfortable”

Limitations:

- No references provided.

Evidence from previous updates

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Coia JE, Ritchie L, and Adisesh A, et al. Guidance on the use of respiratory and facial protection equipment. Journal of Hospital Infection. 2013; 85;170-182. Doi: 10.1016/j.jhin.2013.06.020.	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

Best practice guidance based on a non-systematic literature review published separately (Bunyan D, Ritchie L, Jenkins D, Coia JE. Respiratory and facial protection: a critical review of recent literature. J Hosp Infect 2013;85:165e169).

“The Scientific Development Committee of the Healthcare Infection Society established a short-life working group in May 2011 to develop appropriate guidance. The working group included representation from the Healthcare Infection Society, Public Health England, Health and Safety Executive (HSE), Association of National Health Occupational Physicians, Health Protection Scotland, Infection Prevention Society, Intensive Care Society, Clinical Virology Network and British Infection Association.”

Aim: “This article provides guidance (best practice guidelines) to support HCWs in hospital or community settings to select and wear the appropriate respiratory and facial protection to minimize the risk of acquisition of infection in the workplace.”

“Don’t

[…]

Assessment of evidence
Continue to wear eye protection if it is visibly soiled and/or vision is impaired.”

Question 9: How should eye/face protection be disposed of?

Evidence added to Literature Review V2.0

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.	Expert Opinion Guidance	AGREE: Recommend with modifications	N/A	N/A	N/A

Assessment of evidence

This document provides a recommendation on performing hand hygiene after disposal or cleaning of eye protection. This guidance is deemed AGREE: recommend with modifications. Whilst this guideline is based on a systematic literature review, some aspects of this method are not provided, such as the search strategy. The link between recommendations and supporting evidence is also unclear.

This document contains recommendations, best practices, and principles focusing on the non-pharmacological aspects of infection prevention and control (IPC) for acute respiratory infections (ARI) in healthcare settings.

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 for use of personal protective equipment:

Assessment of evidence
Rational use of personal protective equipment […] Eye protection Perform hand hygiene after disposal or cleaning of eye protection equipment that may be contaminated with splash or spray.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Government. Infection Prevention and Control Expert Group – Guidance on the use of personal protective equipment (PPE) for health workers in the context of COVID-19. 2022. Accessed 3 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This document provides guidance on disposing single use items of PPE (including eye/face protection) and performing hand hygiene after discarding.

Assessment of evidence

This guidance is endorsed by the Australian Health Protection Principal Committee and developed with advice from the National COVID-19 Clinical Evidence Taskforce Infection Prevention and Control Panel (IPC Panel). Consensus recommendations are based on the combined expertise and experience of the IPC panel and ICEG members.

Scope: Document provides guidance on the use of PPE for health care workers during the COVID-19 pandemic, who working in a health and care setting. “This may include in hospitals, non-inpatient settings, managed quarantine facilities, residential care facilities, COVID-19 testing clinics, in-home care and other environments where clinical care is provided”.

Aim: Document aims to “supplement detailed guidance available at a state, territory and institutional level”

“Do not re-use single-use items; discard after use.”

“Face shields

[…]

NOTE: face shields with foam bands are single use, as they CANNOT be cleaned and disinfected for re-use. This should be considered during purchase.”

“Remove eye protection and perform hand hygiene […]. Protective eyewear labelled single use, should be discarded.”

Limitations:

- Limited referencing throughout document.
- Unknown how evidence contributing to recommendations was obtained.
- Lack of detail regarding reaching a consensus.
- May not be applicable to Scottish health and care settings, as is specific to Australia.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). The National Institute for Occupational Safety and Health (NIOSH): Strategies for Conserving the Supply of Eye Protection. 2023. Accessed 10 August 2023.	Expert Opinion	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance for how to discard of eye/face protection as part of conventional capacity strategies.

“Contingency Capacity Strategies

Implement extended use of eye protection

[…] Single use eye protection should be removed and discarded.”

Limitations:

- No references provided.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Public Health Agency Canada. Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings. 2013 (revised 2017). Accessed 11 August 2023.	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance on how to discard eye/face protection in a health and care setting. Due to the unknown methods for producing this guidance recommendations, this is considered SIGN50 Level 4.

Funding: Guidance was funded by Public Health Agency Canada.

Aim: “to identify and promote infection prevention and control (IPC) practices and precautions for preventing the transmission of microorganisms in healthcare settings, with the exception of bone marrow transplant settings.”

Target audience: “to assist infection prevention and control professionals and all other healthcare providers responsible for developing policies and procedures related to routine practices and additional precautions in all healthcare settings whether in acute or long-term care, ambulatory care, home care or prehospital care settings.”

Appendix III provides the criteria for rating evidence on which recommendations are based:

Strong AI. Direct evidence from meta-analysis or multiple strong design studies of high quality with consistent results.

Assessment of evidence

Strong AII. Consistent results with either direct evidence from multiple strong studies of medium quality, or one strong design with support from multiple moderate designs of high quality, or one strong design of medium quality with support from multiple strong designs of high quality.

Moderate BI. Consistent results with either direct evidence from multiple moderate design studies of high quality, or from multiple strong designs of high quality.

Moderate BII. Direct evidence from a combination of strong/moderate design studies of high/medium quality with a clear trend but some inconsistent results, or consistent results from multiple strong design studies of medium quality/moderate designs of high/medium quality, or one strong design study with support from weak designs of high/medium quality.

Weak CI. Direct evidence from multiple weak design studies of high/medium quality with consistency of results, or extrapolation from any combination of strong/moderate studies of high/medium quality with inconsistency of results.

Weak CII. Studies of low quality or contradictory results regardless of design, case series/case reports, or expert opinion.

“Recommendations for routine practices in all healthcare settings:

Appropriate use of facial protection:

- Facial protection should be discarded immediately after the intended use into a no-touch receptacle (i.e., as soon as removed from the face) followed by hand hygiene.”

Limitations:

- No mention of plan or process for update.
- Unknown methods for producing guideline or consensus recommendations.
- May not be applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health New Zealand. COVID-19: Infection prevention and control recommendations for health and disability care workers. 15 August 2023. Updated 12 March 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance on how to discard PPE in a health and care settings.

Aim: “provides the minimum recommendations for mask use for all employees, volunteers and contractors of healthcare facilities, and patients/clients and visitors of healthcare settings. […] to assist primary and community health and disability care workers in selecting additional PPE items required, following a risk assessment for acute respiratory infections, including COVID-19.”

Target audience: primary and community health and disability care staff.

Last updated 15 August 2023: guidance documents update pending due to “The last remaining mandatory COVID-19 requirements have been removed.”

“In a healthcare setting, used PPE should be discarded in accordance with the healthcare settings policies and procedures for waste.

In a community setting, used PPE can be put into household general waste.”

Assessment of evidence

Limitations:

- No evidence cited and unknown methods for producing guidance.
- No mention of process or schedules for update.
- May not be applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health Security Agency (UKHSA). Removal of (doffing) personal protective equipment (PPE). Airborne Precautions for AGPs – Gown version. 2022. Accessed 13 September 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This COVID-19 guidance advises the process by which eye protection should be doffed following AGPs whilst the healthcare worker is wearing a gown, and that this process should be outside a patient's room (in an anteroom, lobby or safe area) with (where possible) a buddy observing at a distance of 2m.

Pictures are also provided to aid understanding.

Assessment of evidence
“All PPE must be disposed of as healthcare (including clinical) waste.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Health Security Agency (UKHSA). Removal of (doffing) personal protective equipment (PPE) including coveralls for aerosol generating procedures (AGPs). Airborne Precautions. 2020. Accessed 13 September 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This COVID-19 guidance advises the process by which eye protection should be doffed following AGPs whilst the healthcare worker is wearing a coverall. Pictures are also provided to aid understanding. “All PPE must be disposed of as infectious clinical waste.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Commission on Safety and Quality in Healthcare. Precautions for aged care homes caring for residents with or suspected of having respiratory viruses. 2023. Accessed 4 August 2023	Poster	Level 4	N/A	N/A	N/A

Assessment of evidence
Poster provides steps for health care workers to doff PPE after you finish and are ready to leave the room during precautions for aged care homes caring for residents with or suspected of having respiratory viruses. Nine step process: “[…] eyewear […] dispose in a designated container”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and the Health protection Agency. Pandemic (H1N1) 2009 Influenza. A summary of guidance for infection control in healthcare settings. 2009. Accessed 4 August 2023	Expert Opinion Guidance (UK)	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance on how to dispose of eye protection in health and care settings. The document represents an updated version of Pandemic flu: A summary of guidance for infection control in health care settings issued in September 2007. It was tailored to the pandemic influenza virus of that time, pandemic (H1N1) 2009, making it current and relevant. Although it was primarily intended for the NHS, the infection control principles were applicable to other healthcare settings as well. The guidance was to be utilized for all patients suspected or confirmed to have pandemic (H1N1) 2009 influenza.

Regarding doffing eye protection, the following recommendations were made.

“[…] eye protection should be removed […] and disposed of as clinical (also known as infectious) waste.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Social Care and UK Health Security Agency. Infection prevention and control (IPC) in adult social care: acute respiratory infection (ARI) 2024. Updated 25 March Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance provides information on IPC measures for acute respiratory infections, including COVID-19. “It applies to adult social care providers, managers of adult social care services and adult social care staff in England.”

This guidance document appears to replace existing guidance documents ‘COVID-19 supplement to the infection prevention and control resource for adult social care: PPE’ and ‘COVID-19 PPE guide for adult social care services and settings’ by the Department of Health and Social Care.

“Eye protection should:

[…]

- be discarded after use or if visibly dirty if single use”

Assessment of evidence
Limitations: • No references provided.

Evidence from previous updates

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Coia JE, Ritchie L, and Adisesh A, et al. Guidance on the use of respiratory and facial protection equipment. Journal of Hospital Infection. 2013; 85;170-182. Doi: 10.1016/j.jhin.2013.06.020.	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
Best practice guidance based on a non-systematic literature review published separately (Bunyan D, Ritchie L, Jenkins D, Coia JE. Respiratory and facial protection: a critical review of recent literature. J Hosp Infect 2013;85:165e169). "The Scientific Development Committee of the Healthcare Infection Society established a short-life working group in May 2011 to develop appropriate guidance. The working group included representation from the Healthcare Infection Society, Public Health England, Health and Safety Executive (HSE), Association of National Health Occupational Physicians, Health Protection Scotland, Infection Prevention Society, Intensive Care Society, Clinical Virology Network and British Infection Association."

Assessment of evidence
Aim: “This article provides guidance (best practice guidelines) to support HCWs in hospital or community settings to select and wear the appropriate respiratory and facial protection to minimize the risk of acquisition of infection in the workplace.” “Dispose of single-use eye protection, […] immediately after removal and in accordance with local policy” “[…] eye protection should be […] disposed of as healthcare waste.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centres for Disease Control and Prevention (CDC). Sequence for putting on Personal Protective Equipment (PPE) and How to safely remove Personal Protective Equipment (PPE). 2014. Page last reviewed March 14 2023	Poster	Level 4	N/A	N/A	N/A

Assessment of evidence
This poster demonstrates options for donning and doffing PPE. Two examples are provided for doffing PPE with illustrations.

Assessment of evidence

First example –

“Goggles or Face Shield

[…] discard in a waste container”

Limitations:

- Poster is not dated.
- No references provided.

Question 10: How should reusable eye/face protection be reprocessed/decontaminated?

Evidence added to Literature Review V2.0

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.11.23. Updated 28 February 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance on how to clean reusable eye/face protection in a health and care setting.

Funding: Guidance was co-funded by the National Health and Medical Research Council and Australian Commission on Safety and Quality in Health Care.

Aim (page 19): “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.”

Assessment of evidence
Stated in the introduction that all recommendations are based on systematic reviews, however there is insufficient evidence within the guidance to support this. “Cleaning reusable face and eye protection Reusable face shields and protective eyewear should be cleaned according to the manufacturer’s instructions, generally with detergent solution, and be completely dry before being stored. If they are to be disinfected, they should be disinfected using either a TGA-included sterilant or medical device disinfectant - low level, or by heat as per Standard AS 5369:2023.” “Rationale – Whilst there is little high quality evidence to support the use of face and protective eyewear, their use is supported by work health and safety principles and expert advice.” Note: a conditional recommendation is considered a weak recommendation. Definition for weak recommendation is found in the glossary (page 264), as follows: “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.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Australian Government. Infection Prevention and Control Expert Group – Guidance on the use of personal protective equipment (PPE) for health workers in the	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
context of COVID-19. 2022. Accessed 3 August 2023					

Assessment of evidence

This document provides guidance on how to clean and disinfect reusable eye/face protection in a health and care setting.

This guidance is endorsed by the Australian Health Protection Principal Committee and developed with advice from the National COVID-19 Clinical Evidence Taskforce Infection Prevention and Control Panel (IPC Panel). Consensus recommendations are based on the combined expertise and experience of the IPC panel and ICEG members.

Scope: Document provides guidance on the use of PPE for health care workers during the COVID-19 pandemic, who working in a health and care setting. “This may include in hospitals, non-inpatient settings, managed quarantine facilities, residential care facilities, COVID-19 testing clinics, in-home care and other environments where clinical care is provided”.

Aim: Document aims to “supplement detailed guidance available at a state, territory and institutional level”

“Certain face shields may be cleaned, disinfected, and reused (depending on the manufacturer’s instructions).”

“NOTE: face shields with foam bands are single use, as they CANNOT be cleaned and disinfected for re-use. This should be considered during purchase.”

“Clean reusable protective eyewear following the manufacturers’ instructions.”

“If they require disinfecting, use a disinfectant that has virucidal properties against SARS CoV-2 […]”.

Limitations:

- Limited referencing throughout document.

Assessment of evidence
• Unknown how evidence contributing to recommendations was obtained. • Lack of detail regarding reaching a consensus. • May not be applicable to Scottish health and care settings, as is specific to Australia.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Centers for Disease Control and Prevention (CDC). The National Institute for Occupational Safety and Health (NIOSH): Strategies for Conserving the Supply of Eye Protection. 2023. Accessed 10 August 2023	Expert Opinion	Level 4	N/A	N/A	N/A

Assessment of evidence
This document provides guidance on how to clean and disinfect reusable eye/face protection as part of conventional capacity strategies. l “Conventional Capacity Strategies […] Reusable eye protection should be cleaned and disinfected after each patient encounter.”

Assessment of evidence
“Contingency Capacity Strategies Implement extended use of eye protection […] Reusable eye protection should be cleaned and disinfected according to manufacturer instructions whenever it is removed and if it becomes visibly soiled or difficult to see through during use.” **Limitations:** • No references provided.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Social Care (DHSC). Infection prevention and control: resource for adult social care. 2022. Updated 01 March 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence
This document provides guidance on decontaminating reusable eye protection in health and care settings.

Assessment of evidence
Scope: “contains general infection prevention and control (IPC) principles to be used in combination with advice and guidance on managing specific infections.” Target audience: “for those responsible for setting and maintaining standards of IPC within adult social care in England.” “Decontaminate reusable eye protection in accordance with manufacturer’s instructions and store safely.” **Limitations:** • No references provided.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Public Health Agency Canada. Routine Practices and Additional Precautions for Preventing the Transmission of Infection in Healthcare Settings. 2013 (revised 2017). Accessed 11 August 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance on how to clean and disinfect eye/face protection in health and care settings. Due to the unknown methods for producing this guidance recommendations, this is considered SIGN50 Level 4.

Funding: Guidance was funded by Public Health Agency Canada.

Aim: “to identify and promote infection prevention and control (IPC) practices and precautions for preventing the transmission of microorganisms in healthcare settings, with the exception of bone marrow transplant settings.”

Target audience: “to assist infection prevention and control professionals and all other healthcare providers responsible for developing policies and procedures related to routine practices and additional precautions in all healthcare settings whether in acute or long-term care, ambulatory care, home care or prehospital care settings.”

Appendix III provides the criteria for rating evidence on which recommendations are based:

Strong AI. Direct evidence from meta-analysis or multiple strong design studies of high quality with consistent results.

Strong AII. Consistent results with either direct evidence from multiple strong studies of medium quality, or one strong design with support from multiple moderate designs of high quality, or one strong design of medium quality with support from multiple strong designs of high quality.

Moderate BI. Consistent results with either direct evidence from multiple moderate design studies of high quality, or from multiple strong designs of high quality.

Moderate BII. Direct evidence from a combination of strong/moderate design studies of high/medium quality with a clear trend but some inconsistent results, or consistent results from multiple strong design studies of medium quality/moderate designs of high/medium quality, or one strong design study with support from weak designs of high/medium quality.

Weak CI. Direct evidence from multiple weak design studies of high/medium quality with consistency of results, or extrapolation from any combination of strong/moderate studies of high/medium quality with inconsistency of results.

Weak CII. Studies of low quality or contradictory results regardless of design, case series/case reports, or expert opinion.

“Recommendations for routine practices in all healthcare settings:

7. Use of personal protective equipment

Assessment of evidence
c. Facial protection […] v. If eye protection or face shields are reusable, they should be cleaned and disinfected as per organizational policy before reuse. [CII]" "Appendix X: Technique for putting on and taking off personal protective equipment Taking off PPE: […] 4. […] d. Discard into waste receptacle or into appropriate container to be sent for reprocessing e. Personally-owned eyewear may be cleaned by the individual after each use" **Limitations:** • No mention of plan or process for update. • Unknown methods for producing guideline or consensus recommendations. • May not be applicable to Scottish health and care settings.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health New Zealand. COVID-19: Infection prevention and control recommendations for	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
health and disability care workers. 15 August 2023. Updated 12 March 2024. Accessed 26 March 2024					

Assessment of evidence

This document provides guidance on how to clean reusable eye protection in health and care settings when caring for those with acute respiratory infections.

Aim: "provides the minimum recommendations for mask use for all employees, volunteers and contractors of healthcare facilities, and patients/clients and visitors of healthcare settings. […] to assist primary and community health and disability care workers in selecting additional PPE items required, following a risk assessment for acute respiratory infections, including COVID-19."

Target audience: primary and community health and disability care staff.

Last updated 15 August 2023: guidance documents update pending due to "The last remaining mandatory COVID-19 requirements have been removed."

"Reusable eye protection should be cleaned safely prior to reuse, following local Infection Prevention and Control protocols or manufacturer's instructions."

Limitations:

- No evidence cited and unknown methods for producing guidance.
- No mention of process or schedules for update.

Assessment of evidence
• May not be applicable to Scottish health and care settings.

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 Accessed 20th June 2023	Legislation	Mandatory	N/A	N/A	N/A

Assessment of evidence
Note: Below information taken from both the 1992 regulations and 2022 amendment. “These Regulations may be cited as the Personal Protective Equipment at Work (Amendment) Regulations 2022 and come into force on 6th April 2022.” “Maintenance and replacement of personal protective equipment

Assessment of evidence
7.-(1) Every employer shall ensure that any personal protective equipment provided to their workers is maintained (including replaced or cleaned as appropriate) in an efficient state, in efficient working order and in good repair.”

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

Assessment of evidence
“This guidance provides practical advice on how you can comply with the requirements of the Personal Protective Equipment at Work Regulations 1992 as amended by the Personal Protective Equipment at Work (Amendment) Regulations 2022”
“61 […] While most PPE will be provided on a personal basis, some items may be used by a number of people. There should be arrangements for cleaning and disinfecting the PPE, so there are no health risks for the next person using it.”
“67 […] When PPE becomes contaminated during use, it should be cleaned and decontaminated before storage, otherwise the storage accommodation may itself become contaminated and will also require suitable cleaning and decontamination.”

Assessment of evidence
"Part 2 85 Part 2 provides guidance to employers to help them comply with their duties to select suitable PPE, ensure its proper use, and maintain it. It describes the PPE used for different parts of the body and covers PPE used to prevent drowning and falls from height. Eye and Face Protection Key points […] 93 (d) follow the manufacturer's instructions on cleaning, not forgetting headbands and frames. Use only anti-mist, cleaning and antistatic fluids and cloths recommended by the manufacturer"

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.	Expert Opinion Guidance	AGREE: Recommend with modifications	N/A	N/A	N/A

Assessment of evidence
This guideline provides a recommendation on how to clean and disinfect reusable eye protection worn when caring for those with an acute respiratory infection. This guidance is deemed AGREE: recommend with modifications. Whilst this guideline is based on a systematic

Assessment of evidence
literature review, some aspects of this method are not provided, such as the search strategy. The link between recommendations and supporting evidence is also unclear. This document contains recommendations, best practices, and principles focusing on the non-pharmacological aspects of infection prevention and control (IPC) for acute respiratory infections (ARI) in healthcare settings. 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 for use of personal protective equipment Rational use of personal protective equipment […] Eye protection Reusable eye protective equipment can be used (e.g. goggles or face shield), but may pose a risk of cross-infection if not cleaned and decontaminated properly according to the manufacturer’s instructions after each use. Ensure that equipment is thoroughly cleaned before disinfection. Perform hand hygiene after disposal or cleaning of eye protection equipment that may be contaminated with splash or spray.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Social Care and UK Health Security Agency. Infection prevention and control (IPC) in adult social care:	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
acute respiratory infection (ARI) 2024. Updated 25 March Accessed 26 March 2024					

Assessment of evidence

This guidance provides information on IPC measures for acute respiratory infections, including COVID-19. “It applies to adult social care providers, managers of adult social care services and adult social care staff in England.”

This guidance document appears to replace existing guidance documents ‘COVID-19 supplement to the infection prevention and control resource for adult social care: PPE’ and ‘COVID-19 PPE guide for adult social care services and settings’ by the Department of Health and Social Care.

“Eye protection should:

[…]

- be cleaned and disinfected between use or if visibly dirty and stored safely if reusable”

Limitations:

- No references provided.

Evidence from previous updates

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
British Standards Institution (BSI). BS 7028:1999 Eye protection for industrial and other uses – Guidance on selection, use and maintenance.	Standard	Level 4	N/A	N/A	N/A

Assessment of evidence

Scope: “This British Standard gives guidance and background information on occupational eye- and face-protectors.”

“7.4 Cleaning

Eye-protectors should be cleaned, as necessary prior to storage, following the procedures contained in the user instructions. Generally, the eye-protector should be cleaned with a non-abrasive mild detergent, warm water and a soft lint-free cloth; followed by rinsing and drying. Manufacturers' cleaning solutions may be used but any ªgeneral purposeº cleaning solution should be treated with suspicion. Solvents or industrial cleaners should not be used.”

“7.6 Storage

[…] Any necessary cleaning should be performed prior to storage.”

Limitations:

- No referencing throughout, bibliography provided with three legislative sources.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Association of Surgical Technologies (AST). AST Guidelines for Best Practices in Use of Eye Protection During Surgical Procedures. 2008. Revised April 14, 2017. Accessed 27 July 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provides guidelines on how to clean and disinfect goggles. Due to unclear processes for developing guidance, this document was graded SIGN50 Level 4.

These guidelines were produced and authored by the AST Education and Professional Standards Committee, and are said to be AST approved.

Purpose: “to provide information OR supervisors, risk management, and surgical team members can use in the development and implementation of policies and procedures for eye protection during surgical procedures in the surgery department.”

“Guideline II:

3. […] if the goggles are used by more than one person, the goggles should be cleaned and disinfected prior to use by another person.”

“Guideline III:

3. […] HDO procedures and manufacturer’s instructions should be followed for cleaning and disinfecting goggles.

Assessment of evidence

A. […] The goggles should be physically cleaned and disinfected with the manufacturer's recommended disinfectant, thoroughly rinsed, and allowed to air dry."

Limitations:

- May not be applicable to Scottish health and care settings.
- No mention of plan for update.
- Unknown methods of producing guidelines.

Question 11: How should eye/face protection be stored?

Evidence added to Literature Review V2.0

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.11.23. Updated 28 February 2024. Accessed 26 March 2024	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This document provides guidance on how to store PPE, including eye protection, in health and care settings.

Funding: Guidance was co-funded by the National Health and Medical Research Council and Australian Commission on Safety and Quality in Health Care.

Aim (page 19): “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.”

Assessment of evidence
Stated in the introduction that all recommendations are based on systematic reviews, however there is insufficient evidence within the guidance to support this. “It is also essential that all areas of the facility are designed to facilitate appropriate use of PPE. All rooms should have dedicated and accessible areas for storage of gowns, aprons, gloves, masks and protective eyewear.” “Rationale – Whilst there is little high quality evidence to support the use of face and protective eyewear, their use is supported by work health and safety principles and expert advice.” Note: a conditional recommendation is considered a weak recommendation. Definition for weak recommendation is found in the glossary (page 264), as follows: “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.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health and Safety Executive (HSE). The Control of Substances Hazardous to Health Regulations 2002. Approved Code of Practice and guidance. 6th Edition.	Regulation	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
2013. ISBN: 9780717665822					

Assessment of evidence

This HSE document provides guidance on how to comply with COSHH legislation regarding appropriate storage of PPE.

This document contains the “Approved Code of Practice (ACOP) to the Control of Substances Hazardous to Health Regulations 2002 (as amended) (COSHH) and covers all substances to which the Regulations apply.” “The ACOP describes the preferred or recommended methods that can be used (or the standards to be met) to comply with the Regulations and the duties imposed by the Health and Safety at Work etc Act 1974 (HSW Act). The accompanying guidance also provides advice on achieving compliance, or it may give information of a general nature, including explanation of the requirements of the law, more specific technical information or references to further sources of information.”

Guidance 9

“198 Employers should ensure that accommodation is provided for PPE so that it can be safely stored or kept when it is not in use. The adequacy of the accommodation will vary according to the quantity, type and its use, e.g pegs, (labelled) lockers, shelves or containers etc. The storage should be adequate to protect the PPE from contamination, loss or damage by, for example, harmful substances, damp or sunlight.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
UK Government. UK Statutory Instrument No. 8 Health and Safety The Personal Protective	Legislation	Mandatory	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Equipment at Work (Amendment) Regulations. 2022. Came into force 6th April 2022 Accessed 20 June 2023					

Assessment of evidence

This legislation provides regulations on appropriate accommodation of PPE.

Note: Below information taken from both the 1992 regulations and 2022 amendment.

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

“Accommodation for personal protective equipment

8.-Where an employer or 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.”

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Health and Safety Executive (HSE). Personal protective equipment at work. The Personal Protective	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Equipment at Work Regulations 1992 (as amended). Guidance on Regulations. 2022.					

Assessment of evidence

"This guidance provides practical advice on how you can comply with the requirements of the Personal Protective Equipment at Work Regulations 1992 as amended by the Personal Protective Equipment at Work (Amendment) Regulations 2022"

Regulation 8

"67 Accommodation can be simple (for example, pegs for weatherproof clothing, safety helmets or hard hats). It does not have to be fixed; for example, safety spectacles could be kept by the user in a suitable carrying case, and PPE used by mobile workers could be stored in suitable containers in their vehicles."

Regulation 10

"79 Most PPE should be returned after use to the storage place provided under regulation 8."

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Department of Health and Social Care and UK Health Security Agency. Infection prevention and control (IPC) in adult social care:	Guidance	Level 4	N/A	N/A	N/A

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
acute respiratory infection (ARI). 2024. Updated 25 March Accessed 26 March 2024					

Assessment of evidence

This document provides guidance on storing eye protection.

This guidance provides information on IPC measures for acute respiratory infections, including COVID-19. “It applies to adult social care providers, managers of adult social care services and adult social care staff in England.”

This guidance document appears to replace existing guidance documents ‘COVID-19 supplement to the infection prevention and control resource for adult social care: PPE’ and ‘COVID-19 PPE guide for adult social care services and settings’ by the Department of Health and Social Care.

“Eye protection

To use eye protection safely

[…]

Decontaminate your eye protection after removing it and store safely”

Limitations:

- No references provided.

Evidence from previous updates

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
British Standards Institution (BSI). BS 7028:1999 Eye protection for industrial and other uses – Guidance on selection, use and maintenance.	Standard	Level 4	N/A	N/A	N/A

Assessment of evidence

Scope: “This British Standard gives guidance and background information on occupational eye- and face-protectors.”

“7.6 Storage

Procedures in user instructions on storage conditions should be rigorously adhered to.

Eye-protectors should be provided with individual storage facilities to protect from dirt, oil, grease, excessive temperatures, strong sunlight, strong artificial light, moisture and high voltage equipment. It should be checked that the eye-protector is not distorted during storage.”

Limitations:

- No referencing throughout, bibliography provided with three legislative sources.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
Association of Surgical Technologies (AST). AST Guidelines for Best Practices in Use of Eye Protection During Surgical Procedures. 2008. Revised April 14, 2017. Accessed 27 July 2023	Guidance	Level 4	N/A	N/A	N/A

Assessment of evidence

This guidance document provides guidelines on how to store goggles. Due to unclear processes for developing guidance, this document was graded SIGN50 Level 4.

These guidelines were produced and authored by the AST Education and Professional Standards Committee, and are said to be AST approved.

Purpose: “to provide information OR supervisors, risk management, and surgical team members can use in the development and implementation of policies and procedures for eye protection during surgical procedures in the surgery department.”

“Guideline II

B. […] During non-use, the goggles should be stored so that they are protected from damage.”

Limitations:

- May not be applicable to Scottish health and care settings.

Assessment of evidence
• No mention of plan for update. • Unknown methods of producing guidelines.

Study	Study Type	Evidence Level	Intervention	Comparison	Outcome measure
The Control of Substances Hazardous to Health (Amendment) Regulations (COSHH) 2004 No. 3386. Accessed 16 August 2023	Statutory Instrument	Mandatory	N/A	N/A	N/A

Assessment of evidence
Summary: Mandatory law that requires employers to prevent and/or control substances that are hazardous to health. Introduction: These regulations describe requirements to protect employees from substances hazardous to health in the workplace: “In these Regulations, a reference to an employee being exposed to a substance hazardous to health is a reference to the exposure of that employee to a substance hazardous to health arising out of or in connection with work at the workplace.” A hazard includes biological agents – ““biological agent” means a micro-organism, cell culture, or human endoparasite, whether or not genetically modified, which may cause infection, allergy, toxicity or otherwise create a hazard to human health;” “Regulation 9 Maintenance, examination and testing of control measures

Assessment of evidence
“[…] (5) Every employer shall ensure that personal protective equipment, including protective clothing, is: (a) properly stored in a well-defined place”