



National Infection Prevention and Control Manual: Methodology

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Key Information

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4.0	November 2022	Updated to include new ARHAI Scotland NIPCM governance structure. Update of search strategies in Appendix 5.
3.0	September 2019	Updated to include two-person systematic methodology. Grading of recommendations updated to include new system based on HICPAC grading. New search strategies including this for CINHAL included for select literature reviews - more to be included as work progresses.
2.0	July 2017	Addition of section 3.3.4 – Grading as ‘mandatory’ Addition of search terms for TBPs literature reviews ‘Infection Control During Care of the Deceased’ and ‘Personal Protective Equipment (PPE) for Infectious Diseases of High Consequence (IDHC).’
1.0	November 2016	New document

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Document Information

- Purpose:** This document describes the processes undertaken and governance arrangements for development of the National Infection Prevention and Control Manual.
- Target audience:** All persons involved in the development of the NIPCM.
Available to all NHSScotland staff and the wider public.
- Circulation list:** Infection Control Managers, Infection Prevention and Control Teams, Public Health Teams.
- Description:** This document describes the methodology for developing the NIPCM, it should be used as a reference for all those involved in the development of the NIPCM.
- Review schedule:** Following scheduled review of related SOPs.
- Cross reference:** The [National Infection Prevention and Control Manual](#).

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1. Introduction

The NHSScotland National Infection Prevention and Control Manual (NIPCM) was first published on 13 January 2012, by the Chief Nursing Officer ([CNO \(2012\)1](#)) [http://www.sehd.scot.nhs.uk/cmo/CNO\(2012\)01.pdf](http://www.sehd.scot.nhs.uk/cmo/CNO(2012)01.pdf), and updated on 17 May 2012 ([http://www.sehd.scot.nhs.uk/cmo/CNO\(2012\)01update.pdf](http://www.sehd.scot.nhs.uk/cmo/CNO(2012)01update.pdf)).

The NIPCM was [endorsed on 3 April 2017](#) by the Chief Medical Officer (CMO), Chief Pharmaceutical Officer (CPO), Chief Dental Officer (CDO) and Chief Executive Officer of Scottish Care.

The NIPCM is an evidence-based practice guide for use in Scotland containing Standard Infection Control Precautions (SICPs) and Transmission Based Precautions (TBPs), guidance for prevention and management of healthcare infection incidents, outbreaks and data exceedances, and an addendum for IPC within neonatal settings. To support care homes successfully adopt and implement the NIPCM the Infection Prevention and Control Manual for older people and adult care homes (CH IPCM) was added to the NIPCM in May 2021. The NIPCM is intended to reduce the risk of Healthcare Associated Infection (HAI) and ensure the safety of those being cared for, staff and visitors in the care environment.

In 2022, a new chapter for the NIPCM was developed (Chapter 4), which covers infection prevention and control (IPC) in the built environment and decontamination. Chapter 4 will initially exist as a repository for evidence reviews and tools relating to IPC in the built environment including delivery of appropriate decontamination within health and care settings and risk mitigation for water-based pathogens.

The NIPCM aims to:

- Make it easy for care staff to apply effective infection prevention and control precautions;
- Reduce variation and optimise infection prevention and control practices throughout Scotland;
- Help reduce the risk of HAI;
- Help align practice, monitoring, quality improvement and scrutiny.

It is expected that all NHSScotland employees and all NHSScotland health and care settings apply guidance contained within the NIPCM. It can also be used in other care settings where it should be considered best practice.

A number of supporting tools are available to complement the NIPCM including a compliance monitoring tool which may be utilised locally to monitor and record compliance with elements of the NIPCM. In April 2016 the [National Infection Prevention and Control Manual website](#) was launched to present the NIPCM and its associated literature reviews and supporting tools on a single standalone website which is also mobile device friendly.

The NIPCM is underpinned by systematic literature reviews which summarise the available evidence and highlight research gaps.

This document outlines the methodology for producing the NIPCM.

2. Governance Process

2.1 Purpose

It is fundamental to the integrity and applicability of the NIPCM that a wide group of stakeholders are involved in all stages of its development. Involving stakeholders from appropriate multidisciplinary groups during development of the NIPCM ensures that its recommendations are appropriate, practical and acceptable in all health and care settings.

The governance process for the NIPCM is split across 3 levels.

- **Level 1** provides governance for each of ARHAI Scotland's 6 Priority Programmes, with an Oversight & Advisory Group overseeing the Priority Programmes, and associated Working Groups reporting into the Oversight & Advisory Group.

For the NIPCM, there are 3 relevant Priority Programmes:

- National Policy, Guidance and Evidence (NPGE) programme,
- Infection Control in the Built Environment & Decontamination (ICBED) programme,
- Community Infection Prevention and Control (CIPC) programme.

- **Level 2** provides collective governance for the 6 Programmes with reporting into the ARHAI Scotland Senior Management Team.
- **Level 3** is ARHAI Scotland reporting into the NHS Scotland Assure Divisional Management Team (DMT).

2.2 Membership

Working Groups

The NPGE Working Group has at least one representative (plus a deputy) from each of the following professional organisations:

- Infection Control Managers (ICM) Network
- Infection Control Nurses (ICN) Network
- Infection Control Doctors (ICD) Network
- Scottish Microbiology & Virology Network
- CIPC working group
- ICBED working group
- Scottish Ambulance Service
- Domestic Services Expert Group (DSEG)
- Linen Services Expert Group (LSEG)
- Health Facilities Scotland (HFS) (by invite)
- Occupational Health & Safety, NHS Scotland
- NHS Education for Scotland (NES)
- Scottish Executive Nurse Directors
- Scottish Government Health and Social Care Directorates (observing only)
- Health and Safety

Members for working groups are recruited by an invitation sent to NHS Board or organisational executive leads to nominate representatives and deputies. All members must be employed in a relevant position i.e. related to healthcare associated infection and infection control, or health protection. A lay representative is also engaged for the lifespan of the Working Group. This

person will have an interest in the NHS and/or health care in general and the reduction of the incidence and impact of HAI in Scotland through applicable and accessible infection prevention and control guidance. This person will also have a good understanding of the subject matter and will be a resident of a local NHS Board. The lay representative is expected to attend all meetings and comment on recommendations from the perspective of patients.

The ICBED Working Group has at least one representative (plus a deputy) from each of the following professional organisations:

- Infection Control Managers (ICM) Network
- Infection Control Doctors (ICD)
- Infection Control Nurses (ICN) Network
- NHS Education for Scotland (NES)
- Scottish Ambulance Service (SAS)
- Strategic Facilities Network
- Property and Support Services Division (PSSD)
- Domestic Services Expert Group (DSEG)
- Linen Services Expert Group (LSEG)
- Health Facilities Scotland (HFS)
- Scottish Government Health and Social Care Directorates (observing only)

The CIPC Working Group has at least one representative (plus a deputy) from each of the following professional organisations:

- Infection Control Managers (ICM) Network
- Health Facilities Scotland (HFS)
- Scottish Care
- NHS Education for Scotland (NES)

- Scottish Social Services Council (SSSC)
- Health Improvement Scotland (HIS)
- Care Inspectorate (CI)
- NHS Board Care Home Assurance Lead
- Dental Services Expert Group (DSEG)
- Care Home representative

The CIPC working group currently has a remit to support content additions and updates to the care home manual. The membership will be expanded as the remit of the CIPC programme expands beyond care homes to wider community settings.

IPC Oversight & Advisory group

The IPC Oversight & Advisory group has at least one representative (plus a deputy) from each of the following professional organisations:

- Infection Control Managers Network
- Infection Control Doctors Network
- Scottish Executive of Nursing Director (SEND) (Deputy)
- Health Facilities Scotland
- Scottish Government HAI Policy Unit
- NHS Education for Scotland
- Care Inspectorate
- ARHAI SONAAR
- ARHAI D&I
- ARHAI Nurse Consultant Infection Control
- ARHAI Senior Nurse Infection Control

- ARHAI Lead Healthcare Scientist

2.3 Roles and responsibilities

The roles and responsibilities of all Working Group members are laid out in full in the terms of reference (ToR) corresponding to each group. Briefly, Working Group members must:

- Contribute to the consultation process on the NIPCM (including literature reviews and any supporting documents/tools); feeding back the views of the professional groups/ organisations they represent, such as operationalisation of guidance and barriers to implementation.
- Contribute to the identification of evidence/research gaps in the literature pertaining to the NIPCM and support the development of research studies to enhance the evidence base.
- Identify/review/update new/existing tools/procedures/systems that could assist Scottish health and care settings and ARHAI Scotland in the prevention, identification and control of healthcare infection outbreaks and incidents.

IPC Oversight & Advisory group members must:

- Contribute to the continual development of the NIPCM.
- Provide expert opinion/support to the Working Groups on the development of additional guidance.
- Agree the content of any supporting documentation and tools to ensure they are implementable across appropriate sectors for which they are applicable within Scottish health and care settings.
- Contribute to the consultation and testing process of any new supporting documents and tools if required.
- Provide input at meetings; representing the views of all appropriate staff members /groups within their representing/professional body.

2.4 Meetings

Meetings of the Working Groups are bi-monthly and the IPC Oversight & Advisory Group meetings are scheduled on a quarterly basis for the lifespan of the groups. In order for a

meeting to be quorate, the following representatives must be present: ARHAI Scotland Nurse Consultant (programme lead), Chair (or deputy if Chair is absent), a representative from one of the following networks - Scottish Microbiology and Virology Network (SMVN), Infection Control Managers (ICM) Network or Infection Control Doctors (ICD) Network – plus 3 other external (non-ARHAI Scotland) members.

2.5 Competing interests

All members (including chairs) of both the Working Groups and IPC Oversight & Advisory Group are required to declare any competing interests in accordance with the NIPCM competing interests policy ([appendix 2](#)).

3. Literature review methodology

The need to undertake a new literature review is determined by stakeholder engagement with Working Groups during which a scoping review is undertaken by ARHAI Scotland to ensure there isn't any existing evidence-based guidance that may be suitable/appropriate for modification for Scotland – in which case, a new literature review may not be required. If there is existing evidence-based guidance, it must achieve an AGREE rating of 'recommend' or 'strongly recommend' (see [Section 3.3](#) for detail).

Two methods for literature reviewing are currently in use for production of the NIPCM; a single-person methodology and a two-person methodology. It is intended that all NIPCM literature reviews will be updated using the two-person methodology by end 2024. A summary comparison of the two methods is provided in [Appendix 6: Comparison of single-person and two-person methodology](#).

3.1 Development of research questions

The question sets within the literature reviews were originally based on the recommendations of the original Model Policies (previously used in NHSScotland (archived December 2011)). Modifications to research questions, including additions, are posed if there is a need to address emerging infection control issues that have been identified by the IPC Oversight & Advisory Group, or common themes emerging from stakeholder enquiries and infection incidents/outbreaks reported to ARHAI Scotland or identified in the literature. All question sets are drafted by the lead healthcare scientist in collaboration with Senior Infection Control Nurses and agreed by consultation with the relevant Working Groups as well as relevant experts co-

opted from within, healthcare, academia or other professional organisations, and signed off by the relevant lead ARHAI Scotland Nurse Consultant Infection Control.

3.2 Identifying evidence

In both the single- and two-person methodologies a lead scientist is responsible for running searches and retrieving articles. First and second stage screening and selection of relevant articles is carried out independently either by a single reviewer or by two reviewers. In a single-person review there is no cross-checking of included and excluded articles, in a two-person review the final list of included articles is agreed jointly; if agreement cannot be reached the final decision will be made by the IPC Lead Healthcare Scientist. All search results, exclusions and consensus decisions are recorded for two-person reviews and, from 2022 onwards, presented in a PRISMA format within the literature review.

3.2.1 Search strategies

Search strategies for literature reviews are initially developed by healthcare scientists using the PICO framework; these undergo a consultation with the relevant Working Groups and the final searches are further optimised by the NSS library service. A complete list of NIPCM search strategies is available in [Appendix 5](#): Literature review search strategies.

3.2.2 Databases and resources searched

The following electronic databases are searched for all relevant papers using the search terms in [appendix 5](#):

- Medline
- Embase
- Cinahl (Cumulative Index to Nursing and Allied Health Literature)

Depending on the literature review topic, additional databases may be accessed by recommendation of the NSS Library service. The following online resources are also searched where appropriate in order to identify any relevant legislation, policy, guidance documents and any grey literature:

- The Cochrane Library
- Scottish Government Health Department (SGHD)

- Department of Health and Social Care (DHSC)
- World Health Organization (WHO)
- US Centers for Disease Control and Prevention (CDC)
- UK Health Security Agency (UKHSA)
- Public Health Wales
- Public Health Agency Northern Ireland
- Public Health Scotland
- European Society of Clinical Microbiology and Infectious Diseases (ESCMID)
- The National Institute for Health and Care Excellence (NICE)
- Scottish Intercollegiate Guidelines Network (SIGN)
- European Centre for Disease Prevention and Control (ECDC)
- Society for Healthcare Epidemiology of America (SHEA)
- Association for Professionals in Infection Control and Epidemiology (APIC)
- National Resource for Infection Control (NRIC)
- UK Scientific Advisory Group for Emergencies (SAGE)
- UK Health and Safety Executive (HSE)

3.2.3 Inclusion/exclusion criteria

Titles and abstracts are reviewed by subject relevance (inclusion), the following exclusion criteria are then applied.

Exclusion:

- Item is not applicable to health or social care settings;
- Item is focussed on compliance/promotion/monitoring or effectiveness of training;

- Item studies intervention(s) as part of a bundled approach;
- Item is appraised as having an unacceptable level of bias i.e. SIGN50 level 1- or 2-;
- Item is not available in English language;
- Item uses animal models of infection;

Additional and/or a modified exclusion criteria may be applied depending on the subject area and will be detailed within the individual literature review.

3.3 Critical appraisal and grading of evidence

Identified studies and guidance documents are appraised and graded using the SIGN 50 methodology and AGREE tool, respectively. A lead reviewer critically appraises each study or guidance document. In two-person reviews a second reviewer carries out a check of a minimum 30% of the included studies. Errors or omissions are resolved by discussion, a final decision on any disagreements is made by the IPC Lead Healthcare Scientist.

3.3.1 SIGN 50 levels of evidence

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

3.3.2 AGREE grades of recommendation

Strongly recommend: This indicates that the guideline has a high overall quality and that it can be considered for use in practice without provisos or alterations.

Recommend: This indicates that the guideline has a moderate overall quality. This could be due to insufficient or lacking information in the guideline for some items. If provisos or alterations are made the guideline could still be considered for use in practice, in particular when no other guidelines on the same topic are available.

Would not recommend: This indicates that the guideline has a low overall quality and serious shortcomings. Therefore, it should not be recommended for use in practice.

4. Development of recommendations

Following assessment of the extant scientific literature, evidence tables are compiled summarising each item and discussing its impact on/contribution to the specified topic area. Evidence tables are used in conjunction with the SIGN50 considered judgment form ([appendix 3](#)) to synthesise and grade draft recommendations based on the volume, consistency, applicability etc. of the available evidence. Draft recommendations for practice are made by the lead reviewer and Senior Nurse Infection Control and are based on an assessment of the extant professional and scientific literature. Draft recommendations then undergo an internal consultation with ARHAI Scotland Senior Nurses Infection Control, the IPC Lead Healthcare Scientist and relevant colleagues from Health Facilities Scotland where applicable, and are then approved for external consultation by the Nurse Consultant Infection Control responsible for the review. Following a period of external consultation (see [section 3.5](#)) final recommendations are agreed by consensus amongst Working Group members.

4.1 Grading of recommendations

Recommendations are given a grade to highlight the strength of evidence underpinning them, the NIPCM grades of recommendations are as follows*:

Grade	Descriptor	Levels of evidence
Mandatory	'Recommendations' that are directives from government policy, regulations or legislation	N/A
Category A	Based on high to moderate quality evidence	SIGN level 1++, 1+, 2++, 2+, AGREE strongly recommend
Category B	Based on low to moderate quality of evidence which suggest net clinical benefits over harm	SIGN level 2+, 3, 4, AGREE recommend
Category C	Expert opinion, these may be formed by the NIPC groups when there is no robust professional or scientific literature available to inform guidance.	SIGN level 4, or opinion of NIPC group
No recommendation	Insufficient evidence to recommend one way or another	N/A

*Literature reviews published before October 2018 use the SIGN50 (1999-2012) ABCD system for grading recommendations; this will be phased out as reviews are updated, anticipated completion by end 2024.

4.2 External consultation

All literature reviews undergo a process of external consultation to ensure recommendations are unbiased and appropriate for all care settings where applicable. Literature reviews are disseminated via the relevant Working Group (see [section 2.1](#)) to each of the professional bodies listed in [section 2.2](#) accompanied by a literature review evaluation tool. The evaluation tool may be modified as appropriate for each review, an example is provided in [appendix 4](#). Each member of the Working group is expected to collate and return the comments of the professional body/organisation they represent using the literature review evaluation tool. Where it is deemed necessary, additional experts/professional groups relevant to the topic area are included in the consultation process. The ARHAI Scotland administration team collates all feedback from the group which is then addressed by the lead reviewer and lead NCIC, and any changes required are made to the final literature review and recommendations. Any points that require further discussion are brought to the next Working Group meeting to reach consensus, or are shared electronically via a further consultation. Where consultation cannot be reached by the Working Group, a final decision is made by the IPC Oversight & Advisory Group by majority vote.

5. Development of the NIPCM

Following approval of the literature review and recommendations by the Working Group, literature review recommendations are incorporated into the relevant section/chapter of the NIPCM including the care home manual where appropriate. The recommendations are consolidated into high level practice statements to allow a streamlined presentation which is easier for staff nearest to those receiving care to read, understand and put into practice. The NIPCM is not intended to state recommendations for specific sectors or specialities. The individual recommendations and evidence (including grade(s)) underpinning these is presented in the associated literature reviews.

The SICPs literature review recommendations are consolidated under the '10 elements of SICPs' in Chapter 1:

- Patient placement
- Hand hygiene
- Respiratory and cough hygiene
- Personal protective equipment
- Safe management of care equipment
- Safe management of the care environment
- Safe management of linen
- Safe management of blood and body fluid spills
- Safe disposal of waste
- Occupational safety: prevention and exposure management (including sharps)

The TBP's literature review recommendations are consolidated under the following headings in Chapter 2:

- Patient placement
- Safe management of patient care equipment in an isolation room/cohort area

- Safe management of the care environment
- Personal protective equipment
- Infection prevention and control during care of the deceased

Chapter 3 is underpinned by two literature reviews which inform the sections:

- Definitions of Healthcare Infection Incident, Outbreak and Data Exceedance, and
- Detection and recognition of a Healthcare Infection incident/outbreak or data exceedance

New chapters, and any changes to the NIPCM out-with the literature review process, are agreed by a process of consultation with the Working Groups and IPC Oversight & Advisory Group, respectively (see [sections 2](#) and [3.5](#)).

6. Development of supporting tools

To support the implementation of the NIPCM by stakeholders a number of supporting tools are available. The tools are included in the NIPCM as appendices and are typically in the form of diagrams to illustrate processes and procedures, or algorithms to aid decision making processes. Supporting tools are developed based on stakeholder need and are directly informed by the content of the NIPCM and its associated literature reviews; they are subject to the same consultation process as the literature reviews that underpin them, which ensures they are evidence-based and fit for purpose.

7. Maintaining and updating the NIPCM

The NIPCM is a 'live' document; the evidence base underpinning it is under continual review through 'living' systematic literature reviews. The evidence base which underpins the NIPCM recommendations is monitored using monthly autoalerts of Medline and Embase which utilise the search strategies detailed in [appendix 5](#); and RSS feeds for the following organisations:

- ECDC – Epidemiological update
- CDC (Emerging Infectious Diseases Journal, Morbidity & Mortality Weekly Report)

- UK Health & Safety Executive (HSE)
- WHO (News; Disease Outbreak news)
- NICE
- Scottish Government
- UK Government
- Care Quality Commission
- UK Health Security Agency (UKHSA)
- Care Inspectorate

The responsible scientists review all titles and abstracts to identify any evidence that supports, modifies or refutes the recommendations of the NIPCM. Any evidence identified which disagrees with current recommendations is subjected to immediate appraisal and, where appropriate, inclusion in the relevant literature review following the methodology described in [section 3](#) of this document; changes are made to the NIPCM after consulting with the NCIC, relevant Working Group (and if applicable, the IPC Oversight & Advisory Group). Any evidence identified which supports the current recommendations of the NIPCM is collated in an ongoing evidence table which is presented to the IPC Oversight & Advisory Group on a quarterly basis. The identified evidence is subject to full appraisal as per the research methodology and addition to the relevant literature review(s) during the next scheduled update (every 3 years).

Detailed roles and responsibilities for updating the NIPCM can be found in [appendix 1](#).

8. Presentation of guidance

All literature reviews are presented in a standardised format, the contents are limited to:

1. Objectives
2. Methodology
3. Discussion

- 3.1 Implications for practice
- 3.2 Implications for research
4. Recommendations
5. References
6. Appendices

All draft versions of guidance and supporting tools are finalised by an information officer to ensure version control, consistency of presentation, and accessibility.

8.1 Document control

Document control sheets are standardised, present and up to date on all literature reviews and the NIPCM itself. Document control sheets include;

- Current version number;
- Publication date of current and previous versions;
- Any changes made to the document if a previous version exists (update level);
- Purpose and description of the document;
- Approvals;
- Target audience;
- A cross reference section linking to this document and any related literature reviews or guidance documents;
- Date of next scheduled review.

Similarly, all supporting tools should state the publication date, current version number and have ARHAI Scotland/NSS branding.

8.2 Language, clarity and ease of understanding

The NIPCM and all literature reviews produced after September 2018 are formatted in an accessible template to comply with the UK Public Sector Bodies (Websites and Mobile Applications) (No. 2) Accessibility Regulations 2018.

The NIPCM includes a glossary of terms. When a literature review is updated the responsible scientist and Senior Nurse Infection Control /Nurse Consultant in Infection Control determine whether any new terminology has been used that would require addition to the glossary. New terms may also be added at the request of stakeholders e.g. via the IPC Oversight & Advisory Group or associated Working Groups. Abbreviations are avoided where possible, only those that are commonly and frequently used in most care settings e.g. ABHR (alcohol based hand rub) are included.

An Equality Impact Assessment is conducted annually for the NIPCM. Equality analysis is a way of considering the effect on different groups protected from discrimination by the Equality Act, such as people of different ages. This is to ensure the NIPCM will be fully effective for all target groups and to ensure there are no unintended consequences for any groups.

9. Editorial independence

The NIPCM and its associated literature reviews and tools are funded by the Scottish Government. The Scottish Government HAI policy unit is present at meetings of the IPC Oversight & Advisory Group, and the Working Groups; however, this forms part of the governance structure and the representative acts as an observer only i.e. they do not take part in consultations or the forming of recommendations. The representative also complies with the competing interest policy for completeness.

10. Publication and dissemination

The NIPCM and its associated literature reviews and supporting tools are available electronically from the [NIPCM website](#). Any changes or updates to the content of the NIPCM, its associated literature reviews or supporting tools are communicated to stakeholders via a

monthly ARHAI Scotland newsletter; this forms part of an overarching NIPCM communications strategy.

11. Implementation

It is the responsibility of organisations to ensure adoption and implementation of the NIPCM in accordance with local governance policies (see [appendix 1](#)). As described in [section 6](#), a number of supporting tools are available to support implementation of the NIPCM. In addition a [compliance and quality improvement data collection tool](#) accompanies the NIPCM. This data collection tool has been designed to support SICPs implementation at a local level, e.g. ward level. It can be used by all staff disciplines in any care environment. The tool enables staff to assess compliance with any and all of the 10 SICPs elements as well as TBPs for patient placement and to identify any critical elements that need to be improved and the system changes that can help clinical teams ensure compliance and reduce the HAI risks in their care setting.

ARHAI Scotland collaborates with NHS Education for Scotland (NES) to develop IPC education and training resources for health and social care staff across Scotland. This includes the [TURAS Learn IPC Zone](#) and within that the Scottish Infection Prevention and Control Education Pathway ([SIPCEP](#)). There is also a TURAS Learn [Healthcare Built Environment Zone](#) currently under development.

12. Feedback and enquiries

The NIPCM website has a [contact us](#) section to allow frontline staff to comment on the usability of the website and its tools as well as issues with content or clarity. In addition, the ARHAI Scotland IPCT has an enquiry system in place to field queries regarding infection control practices including implementation of the NIPCM. Issues with clarity, presentation, research gaps or barriers to implementation can also be highlighted through this system.

Appendix 1: Roles and responsibilities

The following responsibilities form part of the standard operating procedure (SOP) for maintaining the National Infection Prevention and Control Manual.

A [list of roles and responsibilities for adopting and implementing the NIPCM](#) can be found on the NIPCM website.

Nurse Consultant (NC) Infection Control responsibilities

Typically, each Nurse Consultant (NC) as clinical lead for the 3 IPC programmes of work develop and inform content for inclusion within the NIPCM relevant to their respective programmes of work;

- ICBED NC Clinical lead: Chapter 4 and associated tools/appendices;
- CIPC NC Clinical lead: Care Home Manual and associated tools/appendices;
- NPGE NC Clinical lead: All other aspects of the NIPCM not described above.

Governance responsibilities are distributed as follows;

NPGE NC Clinical lead

- Overall lead for the ongoing development and maintenance of the NIPCM as a whole.
- Ensuring oversight and alignment of the various chapters and content within the NIPCM via final sign-off of published content.

NPGE, ICBED and CIPC leads

- Engagement with working groups to ensure content of NIPCM relevant to respective programmes meets the needs of stakeholders;
- Supporting literature reviews to be undertaken by the ARHAI Infection Prevention and Control Team relevant to respective programmes of work;
- Attending and contributing to the IPC Oversight & Advisory Group and Working Groups;
- Proposing changes to and appraising feedback from the NIPCM from the IPC Oversight & Advisory Group and other relevant persons;

- Managing the updates to the NIPCM relevant to respective programmes of work;
- Leading on development of tools relevant to respective programme of work and associated literature reviews;
- Leading on education, communications and promotion of NIPCM content relevant to their respective programmes of work.

Senior Nurse Infection Control responsible for:

- Attending and contributing to the Working Groups;
- Providing clinical input to all stages of the literature review process to support the Healthcare Scientists;
- Preparing updates to the NIPCM based on the information provided by the Healthcare Scientist and feedback from the Working Groups;

Healthcare Scientists responsible for:

- Establishing autoalerts as required i.e. on identification of new subject areas/ agreement with Nurse Consultant Infection Control;
- Monitoring outputs of the autoalerts (monthly);
- Screening the titles and abstracts for relevance;
- Obtaining potentially relevant papers;
- Critically appraising identified literature;
- Producing a quarterly summary evidence tables for discussion at the IPC Oversight & Advisory Group;
- Updating literature reviews every 3 years or when new evidence will make a major change to recommendations.

Information Officer responsible for:

- Making changes to the NIPCM as instructed by the NPGE Nurse Consultant Infection Control;

- Editing and formatting of the NIPCM and literature reviews;
- Updating the NIPCM website with the NIPCM and literature reviews.

Team Administrator responsible for:

- Scheduling meetings, preparing minutes and agenda and other correspondence for the relevant groups;
- Collating comments received from consultation documents sent out for the NIPCM.

ARHAI Scotland Infection Control Team

- Informing Healthcare Scientist(s) of any new literature/guidance/legislation they become aware of which may impact on the NIPCM.

Appendix 2: Competing interests policy and declaration of interests form

Why do we need a competing interests policy?

A competing interests policy strengthens the integrity of the development process for the National Infection Prevention and Control Manual (NIPCM) to ensure the recommendations produced are unbiased, evidence-based and not subject to any outside influence or commercial interests.

Who does this policy apply to?

This policy applies to all persons involved in the development of the NIPCM, its associated literature reviews and supporting tools. All members (including chairs) of the IPC Oversight and Advisory Group and Working Groups and any invited peer reviewers from out with these groups should complete the accompanying declaration of interests form.

How will declared competing interests be managed?

Individuals with competing interests are not eligible to chair the IPC Oversight and Advisory Group and Working Groups. Declared competing interests will be considered by the chair in the first instance, if the potential impact of the declared interest is unclear this will be discussed by the other members of the consensus/steering group(s) and taken to a vote. If declared interests are likely to impact on a significant number of topics the member may be asked to withdraw completely from the consensus/steering group(s). Members who have declared a topic-specific competing interest should withdraw from commenting or contributing to the development of any guidance to which the competing interest applies, an appointed deputy should take their place.

How will this policy be applied?

As per the terms of reference for all groups, members will be asked to declare any new competing interests before each group meeting commences. Out with meetings, new declarations should be made to the relevant chair using the 'declaration of competing interests' form, this should be copied to the ARHAI Scotland infection control mailbox for recording. Electronic copies of declaration of interest forms and related correspondence will be archived by ARHAI Scotland. All declarations of interest are solely for the use of the NIPC programme and will be treated as confidential.

What are competing interests?

A competing interest is any interest that conflicts with your official duties, impairs your ability to carry out your duties, and/or impacts on your work. Specifically, this policy describes any interest that may consciously or unconsciously influence your ability to provide independent, unbiased contributions to the development of the NIPCM, or its associated literature reviews and supporting tools.

Competing interests can be financial or non-financial, professional, or personal. Competing interests can arise in relation to an organisation or another person. Examples of conflicts of interest may include:

- A role or association with any commercial healthcare organisation/supplier including:
 - Share holding;
 - A prospect of future employment;
 - Partnerships and other forms of business e.g. consultancy;
- Receiving products directly from a commercial organisation without charge or at a reduced rate for any purpose (does not include unsolicited trial products, small promotional materials such as pens or any product purchased at a reduced rate negotiated by NHS Procurement and Commissioning Facilities);
- Where a family member or close personal relationship exists with an external body or somewhere where you may be in a position to award services to;
- *Membership of professional bodies (voluntary or remunerated) or mutual support organisations, including lobbying or advocacy organisations, political parties, funding bodies such as nongovernmental organisations, research institutions, or charities;
- A position of authority in an organisation in the field of health care;
- Patent applications (pending or actual), including individual applications or those belonging to the organisation to which the member is affiliated and from which the member may benefit;
- Research grants (from any source, restricted or unrestricted);

- Writing or consulting for an educational company;
- An author or associated personally or professionally with an author on any published study or guideline that is being discussed as part of development of the NIPCM or its associated literature reviews and supporting tools.

*Members are expected to present the opinions and concerns of the professional body or organisation they are representing; this is a fundamental process for both the consensus and steering group and includes raising organisational barriers to implementation that have been identified by their peers and colleagues, as such these do not constitute a competing interest.

NIPCM Working Groups and IPC Oversight & Advisory Group

Declaration of Competing Interests

All relevant persons as identified in the NIPCM Working Groups and IPC Oversight & Advisory Group Competing Interests Policy are required to complete and return this form in the event that a competing interest arises that may prevent them from contributing to the development of the National Infection Prevention and Control Manual (NIPCM), its associated literature reviews and supporting tools.

Individual to complete

Name:

Job title:

Representing body/professional body:

.....

Email:

Statement of competing interest(s):

(Please provide details of the nature of any competing interests, including whether they apply to the development of the NIPCM in its entirety or to specific sections and whether they are temporary or permanent)

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I confirm that I have read and understood the NIPC competing interests policy and that the information within this form is accurate and complete to the best of my knowledge.

Signed: Date:

Signed by Chair: Date:

Appendix 3: Considered judgement form (SIGN50)

Question:	Evidence Table Ref:
1. Volume of Evidence - Quantity of evidence on this topic and quality of method	
2. Applicability – in Scotland	
3. Generalisability - How reasonable it is to generalise from the available evidence	
4. Consistency - Degree of consistency demonstrated by the available evidence	
5. Potential Impact of the intervention	
6. Other factors to consider while assessing the evidence base	

7. Evidence Statement – synthesis of the evidence relating to this question	Evidence level
8. Recommendation -	Grade of Recommendation

Appendix 4: Literature review evaluation tool

Once completed, please return to ARHAI Scotland Infection Control Team at:

NSS.ARHAInfectioncontrol@nhs.scot

Name:	
Organisation and/or network represented:	
Date:	
Literature Review Title:	

*Please provide further detail in comments column.

Does the literature review meet its objectives?		
Yes/No*	Section/Page No./Line No.	Comments/Suggested Amendments

Are the recommendations linked to the supporting evidence?		
Yes/No*	Section/Page No./Line No.	Comments/Suggested Amendments

Are the recommendations clear?		
Yes/No*	Section/Page No./Line No.	Comments/Suggested Amendments

Are there any relevant legislative/mandatory requirements or evidence that have not been included in the literature review?

*Yes/No	Section/Page No./Line No.	Comments/Suggested Amendments

Are there any gaps in this literature review?

*Yes/No	Section/Page No. /Line No.	Comments/Suggested Amendments

Are there any errors in this literature review?

*Yes/No	Section/Page No. /Line No.	Comments/Suggested Amendments

Any further comments?

Please use the box below to write any additional comments):

Appendix 5: Literature review search strategies

Hand Hygiene (SICPs):

Hand Hygiene Products

EMBASE and MEDLINE search 2000 to current

1. exp Hand Disinfection/
2. exp Hand Hygiene/
3. handwash\$.mp.
4. (hand\$ adj2 wash\$).mp.
5. hand disinfection.mp.
6. hand hygiene.mp.
7. hand cleansing.mp.
8. hand saniti\$.mp.
9. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8
10. exp Cross Infection/
11. exp Infection/
12. exp Disease Transmission, Infectious/
13. exp Infection Control/
14. exp Bacterial Infections/
15. 10 or 11 or 12 or 13 or 14
16. exp Disinfectants/
17. exp Soaps/
18. soap\$.mp.
19. exp Anti-Infective Agents, Local/
20. alcohol based hand rub\$.mp.
21. non alcohol based hand rub\$.mp.
22. ABHR.mp.
23. antimicrobial hand wipe\$.mp.
24. 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23
25. 9 and 15 and 24

Limit 25 to English language

CINAHL search 2000 to current

S26 S9 AND S15 AND S24 (English language)
S25 S9 AND S15 AND S24
S24 S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23
S23 "antimicrobial hand wipe*"
S22 "ABHR"
S21 "non alcohol based hand rub"
S20 "alcohol based hand rub*"
S19 (MH "Antiinfective Agents, Local+")
S18 "soap*" S17 (MH "Soaps")
S16 (MH "Disinfectants")
S15 S10 OR S11 OR S12 OR S13 OR S14
S14 (MH "Bacterial Infections+")
S13 (MH "Communicable Diseases+/TM")
S12 (MH "Infection Control+")
S11 (MH "Infection+")
S10 (MH "Cross Infection+")
S9 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7
S8 (hand*) N2 (wash*)
S7 "hand disinfection"
S6 hand saniti*
S5 "hand cleansing"
S4 handwash*
S3 (MH "Surgical Scrubbing")
S2 "hand hygiene"
S1 (MH "Handwashing+")

Hand Washing, Hand Rubbing and Indications for Hand Hygiene

EMBASE and MEDLINE search 2000 to current

1. exp Hand Disinfection/
2. exp Hand Hygiene/
3. handwash\$.mp.
4. (hand\$ adj2 wash\$).mp.
5. hand disinfection.mp.

6. hand hygiene.mp.
7. hand cleansing.mp.
8. hand saniti\$.mp.
9. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8
10. five moment\$.mp.
11. 5 moment\$.mp.
12. indication\$.mp.
13. exp Temprature/
14. temperature.mp.
15. method\$.mp.
16. technique\$.mp.
17. procedure\$.mp.
18. dry\$.mp.
19. jewelery.mp.
20. exp Jewelry/
21. jewellery.mp.
22. (hygiene adj4 facilit\$.mp.
23. exp Health Facility Environment/
24. exp Anti-Infective Agents, Local/
25. alcohol based hand rub\$.mp.
26. abhr.mp.
27. 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25
or 26
28. 9 and 27

Limit 28 to English Language

CINAHL search 2000 to current (indications)

- S9 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 (English language)
- S8 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7
- S7 (when or indication*) N4 (wash* N2 hand*)
- S6 (when or indication*) N4 (hand hygiene)
- S5 (when or indication*) N4 (clean* N2 hand*)
- S4 (when or indication*) N4 (disinfect* N2 hand*)

S3 (when or indication*) N4 (handwash*)

S2 "5 moment**"

S1 "five moment**"

CINAHL search 2000 to current (hand washing)

S24 S9 AND S22 (English language)

S23 S9 AND S22

S22 S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR
S17 OR S18 OR S19 OR S20 OR S21

S21 (hand) N2 (wash*) N4 (basin*)

S20 (hand) N2 (wash*) N4 (sink*)

S19 (hygiene) N4 (facilit*)

S18 (MH "Health Facility Environment")

S17 "jewelry"

S16 "jewellery"

S15 (MH "Jewelry")

S14 "dry**"

S13 "procedure**"

S12 "technique**"

S11 "temperature"

S10 (MH "Temperature+")

S9 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8

S8 "hand disinfection"

S7 hand saniti*

S6 "hand cleansing"

S5 (hand*) N2 (wash*)

S4 "handwash**"

S3 (MH "Surgical Scrubbing")

S2 "hand hygiene"

S1 (MH "Handwashing+")

CINAHL search 2000 to current (use of ABHR)

S25 S16 AND S23 (English language)
S24 S16 AND S23
S23 S17 OR S18 OR S19 OR S20 OR S21 OR S22
S22 "religio*"
S21 (MH "Religion and Religions+")
S20 (hygiene) N4 (facili*)
S19 (MH "Health Facility Environment")
S18 "procedure*"
S17 "technique*"
S16 S9 AND S15
S15 S10 OR S11 OR S12 OR S13 OR S14
S14 "alcohol*"
S13 (MH "Alcohols+")
S12 "ABHR"
S11 "alcohol based hand rub*"
S10 (MH "Antiinfective Agents, Local+")
S9 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8
S8 "hand disinfection"
S7 hand saniti*
S6 "hand cleansing"
S5 (hand*) N2 (wash*)
S4 "handwash*"
S3 (MH "Surgical Scrubbing")
S2 "hand hygiene"
S1 (MH "Handwashing+")

Skin Care

EMBASE and MEDLINE search 2000 to current

1. exp Hand Disinfection/
2. exp Hand Hygiene/
3. handwash\$.mp.
4. (hand\$ adj2 wash\$).mp.
5. hand disinfection.mp.

6. hand hygiene.mp.
7. hand cleansing.mp.
8. hand saniti\$.mp.
9. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8
10. exp Dermatitis, Contact/
11. exp Dermatitis, Irritant/
12. exp Eczema/
13. exp Hand Dermatoses/
14. exp Skin/
15. exp Skin Care/
16. 10 or 11 or 12 or 13 or 14 or 15
17. exp Soaps/
18. liquid soap\$.mp.
19. Anti-Infective Agents, Local/
20. alcohol based hand rub\$.mp.
21. ABHR.mp.
22. exp Emollients/
23. emollient\$.mp.
24. 17 or 18 or 19 or 20 or 21 or 22 or 23
25. 9 and 16 and 24

Limit 25 to English language

CINAHL search 2000 to current

- S30 S9 AND S19 AND S28 (English language)
- S29 S9 AND S19 AND S28
- S28 S20 OR S21 OR S22 OR S23 OR S24 OR 25 OR S26 OR S27
- S27 "emollient*"
- S26 (MH "Emollients+")
- S25 "ABHR"
- S24 "alcohol based hand rub*"
- S23 (MH "Antiinfective Agents, Local+")
- S22 "liquid soap"
- S21 "soap*"
- S20 MH "Soaps"

S19 S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18
 S18 "Skin Care+"
 S17 MH "Skin+"
 S16 S14 AND S15
 S15 MH "Hand+"
 S14 "MH "Dermatitis+""
 S13 "hand dermatitis"
 S12 (MH "Eczema")
 S11 (dermat*) N2 (irritant*)
 S10 (MH "Dermatitis, Contact+")
 S9 1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8
 S8 (hand*) N2 (wash*)
 S7 "hand disinfection*"
 S6 hand saniti*
 S5 "hand cleansing"
 S4 handwash*
 S3 MH "Surgical Scrubbing"
 S2 "hand hygiene"
 S1 MH "Handwashing+"

Surgical Hand Antisepsis in the Clinical Setting

EMBASE and MEDLINE search 2000 to current

1. exp Hand Disinfection/
2. exp Hand Hygiene/
3. handwash\$.mp.
4. (hand\$ adj2 wash\$).mp.
5. hand disinfection.mp.
6. hand hygiene.mp.
7. hand cleansing.mp.
8. hand saniti\$.mp.
9. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8
10. exp Specialties, Surgical/
11. invasive procedure\$.mp.
12. exp Operating Rooms/

13. operating theatre\$.mp.
14. 10 or 11 or 12 or 13
15. surgical scrub\$.mp.
16. (surg\$ adj2 scrub\$).mp.
17. jewelry.mp.
18. jewellery.mp.
19. technique\$.mp.
20. method\$.mp.
21. procedure\$.mp.
22. dry\$.mp.
23. (hygiene adj4 facilit\$).mp.
24. exp Health Facility Environment/
25. 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24
26. 9 and 14 and 25

Limit 26 to English language

CINAHL 2000 to current

- S29 S26 OR S27 (English language)
- S28 S26 OR S27
- S27 MH "Surgical Scrubbing"
- S26 S8 AND S14 AND S24
- S25 S8 AND S14 AND S24 149
- S24 S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23
- S23 MH "Health Facility Environment"
- S22 (hygiene) N4 (facilit*)
- S21 "dry*"
- S20 "procedure*"
- S19 "method*"
- S18 "technique*"
- S17 "jewellery"
- S16 "jewelry"
- S15 MH "Jewelry"
- S14 S9 OR S10 OR S11 OR S12 OR S13
- S13 "operating theatre*"

S12 MH "Operating Room Personnel+"
 S11 MH "Operating Rooms"
 S10 MH "Invasive Procedures+"
 S9 MH "Specialties, Surgical+"
 S8 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7
 S7 "hand disinfection"
 S6 "hand saniti*"
 S5 "hand cleansing"
 S4 (hand*) N2 (wash*)
 S3 "handwash*"
 S2 "hand hygiene"
 S1 MH "Handwashing+"

Management of equipment and the environment

Management of Patient Care Equipment (SICPs and TBPs)

EMBASE and MEDLINE search 2000 to current

1. diagnostic equipment/
2. disposable equipment/
3. (reus* adj3 equipment).mp.
4. (communal adj3 equipment).mp.
5. (non invasive adj3 equipment).mp.
6. medical device/
7. 1 or 2 or 3 or 4 or 5 or 6
8. disinfection/
9. decontamination/
10. decontaminat*.mp.
11. hospital service/
12. disinfectant agent/
13. surfactant/
14. cleaning/
15. infection control/
16. 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15
17. 7 and 16
18. disposable equipment/

19. (dispos* adj3 equipment).mp.
20. (single-use adj3 equipment).mp.
21. 18 or 19 or 20
22. (terminal adj3 clean*).mp.
23. (terminal adj3 disinfect*).mp.
24. deep clean*.mp.
25. (discharge adj3 clean*).mp.
26. 22 or 23 or 24 or 25
27. 21 and 26
28. 17 or 27

Limit 28 to English language

Safe Management of the Care Environment (SICPs)

EMBASE and MEDLINE search 2000 to current

1. disease transmission/
2. infection/
3. exp disinfection/
4. hospital service/
5. communicable disease control/
6. cross infection/
7. infection control/
8. 1 or 2 or 3 or 4 or 5 or 6 or 7
9. cleaning/
10. (environment* adj3 clean*).mp.
11. (environment adj3 contamin*).mp.
12. (environment adj3 disinfect*).mp.
13. (environment* adj3 decontaminat*).mp.
14. (surface* adj3 clean*).mp.
15. (surface* adj3 contaminat*).mp.
16. (surface* adj3 disinfect*).mp.
17. (surface* adj3 decontaminat*).mp.
18. 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17
19. 8 and 18

Limit 19 to English language and human

Safe Management of the Care Environment (TBPs)

EMBASE and MEDLINE search 2000 to current

1. exp disinfection/
2. decontamination/
3. detergent/
4. disinfectant agent/
5. exp contamination/
6. contaminat*.mp.
7. 1 or 2 or 3 or 4 or 5 or 6
8. patient isolation/ or isolation/
9. isolation hospital/
10. cohorting.mp.
11. side room.mp.
12. single room.mp.
13. (patient* adj3 room*).mp.
14. 8 or 9 or 10 or 11 or 12 or 13
15. 7 and 14

Limit 15 to English language

Safe Management of the Care Environment – Isolation and Cohorting (TBPs)

EMBASE and MEDLINE search 2000 to current

1. exp Patient Isolation/
2. exp Hospitals, Isolation/
3. cohorting.mp.
4. exp Patients' Rooms/
5. side room.mp.
6. single room.mp.
7. 1 or 2 or 3 or 4 or 5 or 6
8. decontamina*.mp.
9. exp Disinfection/
10. exp Disinfectants/
11. exp Detergents/
12. exp Decontamination/

13. 8 or 9 or 10 or 11 or 12

14. 7 and 13

Limit 14 to English language

Safe Management of the Care Environment - Terminal Cleaning (TBPs)

EMBASE and MEDLINE search 2000 to current

1. (terminal adj3 clean*).mp.
2. (terminal adj3 disinfect*).mp.
3. deep clean*.mp.
4. (discharge adj3 clean*).mp.
5. 1 or 2 or 3 or 4

Limit 5 to English language

Personal Protective Equipment (PPE)

Aprons and Gowns (SICPs and TBPs)

EMBASE and MEDLINE search from 2000 - Current

1. Gown*.mp
2. Apron*.mp
3. 1 or 2
4. Exp Hospitals/
5. Exp Infections/
6. Exp Infection Control/
7. Exp Disease Transmission, Infectious/
8. 4 or 5 or 6 or 7
9. 3 and 8

CINAHL search from 2000 - Current

1. Gown*
2. Apron*
3. 1 or 2
4. (MH "Hospitals+")
5. (MH "Infection+")
6. (MH "Infection Control+")
7. (MH "Disease Transmission+")
8. 4 or 5 or 6 or 7
9. 3 and 8

Eye/Face Protection (SICPs and TBPs)

EMBASE and MEDLINE search 2000 to current

1. Eye Protective Devices/
2. Goggles.mp
3. Face shield*.mp
4. Visor*.mp
5. Safety glasses.mp
6. 1 or 2 or 3 or 4 or 5
7. Exp Hospitals/
8. Exp Infections/
9. Exp Infection Control/
10. Exp Disease Transmission, Infectious/
11. 7 or 8 or 9 or 10
12. 6 and 11

CINAHL search from 2000 to current

1. Eye Protective Devices
2. goggles
3. face shield*

4. visor
5. safety glasses
6. 1 or 2 or 3 or 4 or 5
7. Exp Hospitals
8. Exp Infection
9. Exp Infection Control
10. Exp Disease Transmission
11. 7 or 8 or 9 or 10
12. 6 and 11

Footwear (SICPs)

EMBASE and MEDLINE search 2000 to current

1. Shoes/
2. (shoe* adj3 cover*).mp
3. overshoe*.mp
4. over shoe*.mp
5. footwear.mp
6. shoe*.mp
7. 1 or 2 or 3 or 4 or 5 or 6
8. Exp Hospitals/
9. Exp Infections/
10. Exp Infection Control/
11. Exp Disease Transmission, Infectious/
12. 8 or 9 or 10 or 11
13. 7 and 12

Limit 13 to English language and human

CINAHL search 2000 to current

- S14 S7 and S12 (English language)
S13 S7 and S12
S12 S8 or S9 or S10 or S11

- S11 (MH "Disease Transmission+")
- S10 (MH "Infection Control+")
- S9 (MH "Infection+")
- S8 (MH "Hospitals+")
- S7 S1 or S2 or S3 or S4 or S5 or S6
- S6 shoe*
- S5 footwear
- S4 over shoe*
- S3 overshoe*
- S2 shoe* n3 cover*
- S1 (MH "Shoes")

Gloves (SICPs)

EMBASE and MEDLINE search 2000 to current

1. Exp Gloves, Protective/
2. Exp Gloves, Surgical/
3. Glove?.mp
4. 1 or 2 or 3
5. Exp Infection/
6. Exp Infection Control/
7. Exp Cross Infection/
8. Exp Disease Transmission, Infectious/
9. 5 or 6 or 7 or 8
10. 4 and 9

Limit 10 to English language

Headwear (SICPs)

EMBASE and MEDLINE search 2000 to current

1. Head Protective Devices/
2. head wear.mp.
3. headwear.mp.
4. headgear.mp.
5. head gear.mp.

6. hat?.mp.
7. 1 or 2 or 3 or 4 or 5 or 6
8. exp Infections/
9. exp Infection Control/
10. exp Disease Transmission, Infectious/
11. exp Hospitals/
12. 8 or 9 or 10 or 11
13. 7 and 12

Limit 13 to English language

CINAHL search 2000 to current

- S14 S6 AND S13 (English language)
- S13 S7 OR S8 OR S9 OR S10 OR S11 OR S12
- S12 (MH "Cross Infection+")
- S11 (MH "Religion and Religions+")
- S10 (MH "Disease Transmission+")
- S9 (MH "Infection Control+")
- S8 (MH "Infection+")
- S7 (MH "Hospitals+")
- S6 S1 OR S2 OR S3 OR S4 OR S5
- S5 "headwear"
- S4 headgear
- S3 head wear
- S2 hat?
- S1 (MH "Head Protective Devices")

Surgical Face Masks (SICPs and TBPs)

EMBASE and MEDLINE search 2000 to current

1. exp Masks/
2. mask?.mp.
3. surgical mask?.mp.
4. 1 or 2 or 3
5. exp infection/
6. exp Infection Control/

7. exp Cross Infection/
8. exp Disease Transmission, Infectious/
9. transmission based precaution?.mp. (203)
10. exp infectious disease transmission, patient-to-professional/
11. ((contact or airborne or droplet) and infection\$.mp.
12. ((contact or airborne or droplet) and precaution\$.mp.
13. barrier precautions.mp.
14. exp Patient Isolation/
15. exp Universal Precautions/
16. enteric precautions.mp.
17. source isolation.mp.
18. isolation precautions.mp.
19. strict isolation.mp.
20. 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19
21. 4 and 20

Limit 21 to English language

Respiratory Protective Equipment (RPE) (TBPs)

EMBASE and MEDLINE search 2000 to current

1. exp Respiratory Protective Devices/
2. respiratory.mp.
3. respirators.mp.
4. FFP3.mp.
5. filtering face piece.mp.
6. filtering facepiece.mp.
7. 1 or 2 or 3 or 4 or 5 or 6
8. exp Infection/
9. exp Infection Control/
10. exp Cross Infection/
11. exp Disease Transmission, Infectious
12. decontamination.mp. or Decontamination/
13. contamination.mp. or Equipment Contamination/
14. 8 or 9 or 10 or 11 or 12 or 13
15. 7 and 14

Limit 15 to English language

CINAHL search 2000 to current

S22 S7 AND S20 (English language)

S21 S7 AND S20

S20 S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR 17 OR S18
OR S19

S19 (MH "Bacterial Contamination")

S18 (MH "Microbial Contamination")

S17 "contamination"

S16 (MH "Equipment Contamination")

S15 "decontamination"

S14 (MH "Sterilisation and Disinfection+")

S13 (MH "Disease Transmission, Horizontal+")

S12 (MH "Disease Transmission, Patient-to-Professional")

S11 (MH "Disease Transmission+")

S10 (MH "Cross Infection+")

S9 (MH "Infection Control+")

S8 (MH "Infection+")

S7 S1 OR S2 OR S3 OR S4 OR S5 OR S6

S6 "FFP3"

S5 "filtering facepiece"

S4 "filtering face piece"

S3 "respirators"

S2 "respirator"

S1 (MH "Respiratory Protective Devices")

Personal Protective Equipment (PPE) for Infectious Diseases of High Consequence (IDHC) (TBPs)

EMBASE and MEDLINE search 2000 to current

1. PPE or personal protective equipment.mp
2. coverall or suit.mp
3. glove\$ or apron or visor\$.mp
4. boot cover\$ or over shoes or shoe cover.mp
5. surgical mask\$.mp
6. respiratory protection or respirator or N95 or FFP3 or filtering face piece.mp
7. enhanced PPE or enhanced personal protective equipment.mp
8. 1 or 2 or 3 or 4 or 5 or 6 or 7
9. pandemic or epidemic.mp
10. VHF or viral haemorrhagic fever or ebola or Crimean Congo haemorrhagic fever or Marburg virus.mp
11. influenza or avian influenza.mp
12. MERS-CoV or middle eastern respiratory syndrome or coronavirus or SARS or severe acute respiratory syndrome.mp
13. smallpox or monkeypox.mp
14. nipah virus or hantavirus.mp
15. plague or Yesinia pestis.mp
16. Severe fever with thrombocytopaenia syndrome.mp
17. infectious disease\$ of high consequence or high consequence infectious disease\$ or high consequence infection.mp
18. 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17
19. donning or doffing or remov\$.mp
20. contamination or decontamination.mp
21. competence or competency or competent.mp
22. infection control.mp
23. 19 or 20 or 21 or 22
24. 8 and 18 and 23

Limit 24 to English language

Aerosol Generating Procedures (AGPs) (TBPs)

EMBASE and MEDLINE search 2000 to current

1. exp high frequency ventilation/
2. ventilation, mechanical.mp
3. intubation, intratracheal/
4. Endotracheal intubation.mp.
5. Tracheostomy.mp.
6. bronchoscopy.mp.
7. (Nebuli*ation or nebuli*e).mp.
8. (Sputum adj2 induction).mp.
9. (Oxygen adj2 therapy).mp.
10. (Autopsy or Post-mortem).mp.
11. ((Respiratory or airway or air way or open) adj3 suction*).mp.
12. Heat moisture exchange.mp. (
13. thoracostomy.mp.
14. ((chest adj3 physiotherapy) or (chest adj3 physical therapy)).mp.
15. (sputum adj3 (induction or inducing)).mp.
16. (lung function test* or pulmonary function test*).mp.
17. exp cardiopulmonary resuscitation/
18. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17
19. aerosol generating procedure.tw.
20. aerosol generating procedure*.mp.
21. (aerosol adj3 procedure).mp.
22. (aerosol or airborne or airbourne).mp.
23. Occupational exposure.mp.
24. Infectious disease transmission.mp.

25. Airborne infection.mp.
26. Infection control.mp.
27. Infection control, dental.mp.
28. exp cross infection/
29. Disease outbreaks.mp.
30. Disease transmission.mp.
31. Aerosol*.mp.
32. 19 or 20 or 21 or 22 or 25 or 31
33. 18 and 32
34. 23 or 24 or 26 or 28 or 29 or 30 or 33
35. 18 and 32 and 34
36. limit 35 to english language
37. limit 36 to human
38. limit 37 to humans

CINAHL search 2000 to current

S20 Limit to English language

S19 S17 AND S18

S18 S12 OR S14 OR S15 OR S16

S17 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S13

S16 "exp infection control" OR (MH "Infection Control+") OR (MH "Cross Infection+")

S15 (MM "Occupational Exposure")

S14 "airborne"

S13 (MH "Ultrasonic Surgical Procedures+")

S12 "aerosol generating procedure" OR (MM "Aerosols")

- S11 (MH "Resuscitation, Cardiopulmonary") OR (MH "Bystander CPR") OR "cardiopulmonary resuscitation"
- S10 (MH "Chest Physical Therapy") OR (MH "Chest Physiotherapy (Iowa NIC)") OR (MH "Chest Physiotherapy (Saba CCC)") OR "chest physiotherapy or chest physical therapy"
- S9 "Autopsy or Postmortem"
- S8 (MH "Sputum") OR "induction of sputum or sputum induction"
- S7 (MH "Nebulizers and Vaporizers") OR (MH "Bronchial Provocation Tests") OR "Nebulisation or nebulise or nebulization or nebulize" S6 (MH "Bronchoscopy") OR "bronchoscopy"
- S5 (MH "Thoracostomy")
- S4 (MH "Tracheostomy") OR "tracheostomoy"
- S3 (MH "Intubation, Intratracheal+") OR (MH "Intubation+") OR (MH "Tube Removal") OR (MH "Laryngeal Masks") OR (MH "Extubation")
- S2 (MH "Ventilation, High Frequency+") OR (MM "Ventilators, Mechanical") OR (MH "Positive Pressure Ventilation+") OR (MH "Tracheostomy and Ventilator Swallowing and Speaking Valve") OR (MH "Ventilation, Manual") OR (MH "Ventilation, Negative Pressure") OR (MM "Intermittent Positive Pressure Ventilation") OR (MH "Respiration, Artificial+")
- S1 (MH "Ventilation, High Frequency+")

Management of Blood and Body Fluid Spillages (SICPs)

MEDLINE search 2020 to current

1. exp Blood/
2. exp Body Fluids/
3. exp Feces/
4. exp Urine/
5. exp Bodily Secretions/
6. exp Vaginal Discharge/
7. 1 or 2 or 3 or 4 or 5 or 6
8. exp Disinfection/
9. exp Decontamination/
10. exp Disinfectants/
11. housekeeping, hospital/ or laundry service, hospital/
12. Occupational Exposure/pc [Prevention & Control]
13. clean*.mp
14. exp Universal Precautions/
15. 8 or 9 or 10 or 11 or 12 or 13 or 14
16. 7 and 15

Limit 16 to English language

EMBASE search 2000 to current

1. exp blood/
2. exp body fluid/
3. exp urine/
4. exp feces/
5. exp bodily secretions/
6. bodily secretions.mp.
7. bodily fluids.mp.
8. 1 or 2 or 3 or 4 or 5 or 6 or 7
9. occupational exposure/pc [Prevention]
10. exp disinfection/
11. exp disinfectant agent/
12. exp decontamination/

13. exp detergent/
14. exp hospital service/
15. exp laundry/
16. exp cleaning/
17. domestic chemical/
18. housekeeping/
19. clean*.mp.
20. 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19
21. 8 and 20
22. exp animals/ not humans
23. 21 NOT 22
24. limit 23 to (conference abstract or letter)
25. 23 NOT 24

Limit 25 to English language

CINAHL search 2000 to current

- S24 S8 AND S21 (Limit year 2000 to 2019)
- S23 S8 AND S21 (English language)
- S22 S8 AND S21
- S21 S8 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19
OR S20
- S20 (MH "Mandatory Reporting") OR "mandatory requirements"
- S19 (MH "Policy and Procedure Manuals")
- S18 (MH "Hospital Policies+")
- S17 (MH "Legislation") OR (MH "Government Publications") OR (MH "Grey Literature")
- S16 "clean*"
- S15 (MH "Housekeeping Department") OR (MH "Laundry Department")
- S14 (MH "Disinfectants")
- S13 (MH "Cleaning Compounds")
- S12 "spillage*"

- S11 (MH "Occupational Exposure/PC")
- S10 (MH "Sterilisation and Disinfection+")
- S9 (MH "Universal Precautions")
- S8 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7
- S7 vaginal discharge
- S6 bodily fluids
- S5 "bodily secretions"
- S4 (MH "Feces+")
- S3 (MH "Urine")
- S2 (MH "Body Fluids+")
- S1 (MH "Blood+")

Occupational Exposure Management (including sharps) (SICPs)

EMBASE and MEDLINE search 2000 to current

1. Exp Needlestick Injuries/
2. Exp Occupational Exposure/
3. (sharp? adj3 injur*).mp
4. 1 or 2 or 3
5. Exp Accident Prevention/
6. Exp Infection Control/
7. Exp Infection Control/ Exp Infections/
8. (safe* adj2 practice*).
9. Infectious Disease Transmission, Patient-to-Professional/
10. Exp Infectious Disease Transmission, Patient-to-Professional/ Exp Blood-Borne Pathogens/
11. 5 or 6 or 7 or 8 or 9 or 10
12. 4 and 11

Limit 12 to English language

CINAHL

1. (MH "Sharps Injuries+")
2. (MH "Occupational Exposure")
3. Sharp* N3 injur*
4. 1 or 2 or 3
5. (MH "Safety+")
6. (MH "Infection Control+")
7. (MH "Infection+")
8. Safe* N2 practice"
9. (MH "Disease Transmission, Patient-to-Professional")
10. 5 or 6 or 7 or 8 or 9
11. 4 and 10

Safe Management of Linen (SICPs and TBPs)

MEDLINE and EMBASE search 2000 to current

1. Exp "Bedding and Linens"/
2. linen*.mp
3. bedding*.mp
4. 1 or 2 or 3
5. Laundering/
6. Laundry Service, Hospital/
7. laundr*.mp
8. launder*.mp
9. exp Hospitals/
10. exp Infections/
11. exp Infection Control/
12. exp Disease Transmission, Infectious/
13. 5 or 6 or 7 or 8
14. 9 or 10 or 11 or 12
15. 4 and 13 or 14

Limit 15 to English language

Safe Disposal of Waste (SICPs)

EMBASE and MEDLINE search 2000 to current

1. exp Medical Waste/
2. exp Hazardous Waste/
3. exp Refuse Disposal/
4. exp Waste Disposal, Fluid/
5. exp Waste Management/
6. exp Medical Waste Disposal/
7. clinical waste.mp.
8. health* waste.mp.
9. sharp* disposal.mp.
10. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9
11. exp Hospitals/
12. exp Infection/
13. exp Infection Control/
14. exp Cross Infection/
15. exp Transportation/
16. exp Disease Transmission, Infectious/
17. 11 or 12 or 13 or 14 or 15 or 16
18. 10 and 17

Limit 18 to English language

CINAHL search 2000 to current

- S17 S8 AND S15 English Language
- S16 S8 AND S15
- S15 S9 OR S10 OR S11 OR S12 OR S13 OR S14
- S14 (MH "Transportation+")
- S13 (MH "Communicable Diseases+")
- S12 (MH "Cross Infection+")

- S11 (MH "Infection Control+")
- S10 (MH "Infection+")
- S9 (MH "Hospitals+")
- S8 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7
- S7 "health* waste"
- S6 "clinical waste"
- S5 "waste management"
- S4 (MH "Sharps Disposal")
- S3 (MH "Medical Waste Disposal")
- S2 (MH "Medical Waste+")
- S1 (MH "Hazardous Materials")

Cough Etiquette/Respiratory Hygiene (SICPs)

MEDLINE search 2015 to current

1. Exp cough/
2. Exp sneezing/
3. Cough etiquette.mp
4. Respiratory hygiene.mp
5. 1 or 2 or 3 or 4
6. Exp Hand hygiene/
7. Exp Infection Control/
8. Exp Cross Infection/
9. Exp Disease Transmission, Infectious/
10. 6 or 7 or 8 or 9
11. 5 and 10

Limit 11 to English language

EMBASE search 2015 to current

1. Exp coughing/
2. Exp sneezing/

3. Cough etiquette.mp
4. Respiratory hygiene.mp
5. 1 or 2 or 3 or 4
6. Exp hand washing/
7. Exp infection control/
8. Exp cross infection/
9. Exp disease transmission/
10. 6 or 7 or 8 or 9
11. 5 and 10

Limit 11 to English language

CINAHL searched 2015 to current

- S11 S5 and S10 English language and human
- S10 S6 or S7 or S8 or S9
- S9 (MH"Disease Transmission+")
- S8 (MH"Cross Infection+")
- S7 (MH"Infection Control+")
- S6 (MH"Handwashing+")
- S5 S1 or S2 or S3 or S4
- S4 "Respiratory hygiene"
- S3 "Cough etiquette"
- S2 (MH"Sneezing")
- S1 (MH"Cough")

Patient Placement, Isolation, and Cohorting

Patient Placement Isolation and Cohorting (SICPs)

MEDLINE search 17th July 2018 to current

1. exp patient isolation/
2. exp hospitals, isolation/
3. cohorting.mp.

4. (EXP RESIDENTIAL FACILITIES/ OR EXP HOME CARE SERVICES/) AND ISOLATION.MP
5. exp patients' rooms/
6. single room?.mp.
7. side room?.mp.
8. 1 or 2 or 3 or 4 or 5 or 6 or 7
9. exp infections/
10. exp disease transmission, infectious/
11. exp universal precautions/
12. exp infection control/
13. 9 or 10 or 11 or 12
14. 8 and 13

Limit 14 to English language and humans

EMBASE search 17th July 2018 to current

1. exp patient isolation/
2. exp hospitals, isolation/
3. cohorting.mp.
4. (EXP RESIDENTIAL FACILITIES/ OR EXP HOME CARE SERVICES/) AND ISOLATION.MP
5. exp patients' rooms/
6. single room?.mp.
7. side room?.mp.
8. 1 or 2 or 3 or 4 or 5 or 6 or 7
9. exp infections/
10. exp disease transmission, infectious/
11. exp universal precautions/
12. exp infection control/
13. 9 or 10 or 11 or 12
14. 8 and 13 English language and humans

Limit 14 to (English language and humans)

CINAHL search 17th July 2018 to current

S13 S11 and S12 (Limit to English language and exclude Medline results)

S12 S7 or S8 or S9 or S10

S11 S1 or S2 or S3 or S4 or S5 or S6

S10 (MH "Infection Control+")

S9 TX universal precautions

S8 (MH "Disease Transmission+")

S7 (MH "Infection+")

S6 TX single room

S5 TX side room

S4 (MH "Patients' Rooms+")

S3 TX cohorting

S2 (MH "HOSPITALS+" AND "ISOLATION") OR (MH "RESIDENTIAL FACILITIES+" AND "ISOLATION")

S1 (MH "Patient Isolation+")

Infection Prevention and Control during Care of the Deceased (TBPs)

EMBASE and MEDLINE search 2000 to current

1. Exp. Cadaver/
2. Last offices.mp
3. Exp funeral rites/
4. Care after death.mp
5. Exp mortuary practice/
6. (recent*adj3 deceased).mp
7. Exp embalming/
8. Body bag*.mp
9. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8
10. Exp infection/
11. Exp infection control/
12. Exp cross infection/

13. Exp disease outbreaks/
14. Exp disease transmission, infectious
15. 10 or 11 or 12 or 13 or 14
16. 9 and 15

Limit 16 to English language

Management of Incidents and Outbreaks in Neonatal Units (NNUs)

EMBASE and MEDLINE search 2000 to current

1. (neonat* or NICU or newborn or preterm or premature)
2. (outbreak adj3 prevention).mp
3. (outbreak adj3 management).mp
4. (outbreak adj3 control).mp
5. (outbreak adj3 reporting).mp
6. (outbreak adj3 investigation).mp
7. 2 or 3 or 4 or 5 or 6
8. 1 and 7

Limit 8 to English language

Definitions of Transmission Based Precautions (TBPs)

MEDLINE and EMBASE search 2000 to current

1. "transmission based precaution*".mp.
2. "additional infection control*".mp.
3. "airborne transmission*".mp.
4. "droplet transmission*".mp.
5. "contact transmission*".mp.
6. airborne.mp.
7. droplet*.mp.
8. "contact precaution*".mp.
9. exp Aerosols/
10. aerosol*.mp.
11. exp Infection Control/
12. exp Infections/
13. exp Disease Transmission, Infectious/

14. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10
15. 11 or 12 or 13
16. 14 and 15

Limit 16 to English language

Healthcare Infection Incidents and Outbreaks in NHSScotland

Existing legislation and recent (<1 year) guidance was available to answer all research questions for this review and so no search strategy was required.

Appendix 6: Comparison of single-person and two-person methodology

Protocol/methodology	Single-person review	Two-person systematic review
Development of research questions	No difference	No difference
Identifying evidence	Lead reviewer only	Both reviewers independently select articles for inclusion and agree by discussion
Evidence appraisal and grading	Lead reviewer only	Lead reviewer appraises all evidence and completes evidence tables, second review completes a check of at least 30% of the appraisals and evidence tables
Development of recommendations	Lead reviewer suggests recommendations for Sign-off by the NCIC	Lead reviewer suggests recommendations, second author agrees the content before sign-off by the NCIC,
Consultation	No difference	No difference
Development of the NIPCM	No difference	No difference
Development of supporting tools	No difference	No difference
Maintaining and updating the NIPCM	No difference	No difference
Presentation of guidance	No difference	No difference