NHS National Services Scotland

National Infection Prevention and Control Manual: Methodology

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ARHAI Scotland
Antimicrobial Resistance and Healthcare Associated Infection

Key Information

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Version history

Version	Date	Summary of changes
1.0	November 2016	New document
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).'
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.
4.0	November 2022	Updated to include new ARHAI Scotland NIPCM governance structure. Update of search strategies in Appendix 5.
4.1	January 2024	Update of search strategies for hand hygiene products and skincare in Appendix 5
5.0	March 2025	Updated to include new methodology changes as piloted in Draft 4.1 (new grading of recommendations and good practice points and introduction of considered judgement forms). Removal of appendix 5 (literature review search strategies) as the search strategies will now feature in each individual literature review.

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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:	ARHAI Scotland Infection Prevention and Control (IPC) Oversight and Advisory Group, ARHAI Scotland National Policies, Guidance and Evidence (NPGE) Working Group, Infection Control in the Built Environment and Decontamination (ICBED) Working Group, Care Home Infection Prevention and Control (CHIPC) Oversight and Advisory Group, Clinical Assurance Oversight and Advisory Group.
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:	Annual.
Cross reference:	The National Infection Prevention and Control Manual.

Contents

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), and updated on 17 May 2012.

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 Care Home Infection Prevention and Control Manual (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.

The NIPCM aims to:

- make it easy for care staff to apply effective IPC precautions
- reduce variation and optimise IPC 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,
  - Care Home Infection Prevention and Control (CHIPC) programme.
- **Level 2** provides collective governance for the 6 Priority Programmes with reporting into the ARHAI Scotland Senior Management Team.
- **Level 3** is ARHAI Scotland reporting into the NHSScotland Assure Directorate Management Team (DMT).

2.2 Membership

2.2.1 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)
- NHSScotland Assure Engineering and Assurance (by invite)
- NHSScotland Assure Sustainability Team
- Occupational Health, NHS Scotland
- NHS Education for Scotland (NES)
- Scottish Executive Nurse Directors (SENDs)
- Scottish Government Chief Nursing Officer's Directorate (CNOD) (observing only)
- Health and Safety
- ARHAI Scotland Nurse Consultant Infection Control
- ARHAI Scotland Senior Nurse Infection Control
- ARHAI Scotland Healthcare Scientist

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, specifically, related to healthcare associated infection and infection control, or health protection, or in a position to provide expertise regarding application to practice for the sector they represent. 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 IPC guidance. This person will also have a good understanding of the subject matter and will be a resident of an NHSScotland board. The lay representative is expected to attend all meetings and provide comment from the perspective of patients and visitors.

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)
- NHSScotland Assure Engineering and Assurance
- Scottish Government Chief Nursing Officer's Directorate (CNOD) (observing only)
- ARHAI Scotland Nurse Consultant Infection Control
- ARHAI Scotland Senior Nurse Infection Control
- ARHAI Scotland Healthcare Scientist

2.2.2 Oversight and Advisory Groups

The CHIPC Oversight and Advisory 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
- Scottish Government Adult Social Care Policy Unit (observing only)
- Scottish Government Chief Nursing Officer's Directorate (CNOD) (observing only)
- Care Home representative
- ARHAI Scotland Nurse Consultant Infection Control
- ARHAI Scotland Senior Nurse Infection Control
- ARHAI Scotland Healthcare Scientist

The CHIPC oversight and advisory group currently has a remit to support content additions and updates to the care home manual.

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)
- NHS Scotland Assure Engineering and Assurance

- Scottish Government HAI Policy Unit
- NHS Education for Scotland
- Care Inspectorate
- ARHAI Scotland Scottish One Health Antimicrobial Use and Antimicrobial Resistance (SONAAR)
- ARHAI Scotland Data and Intelligence (D&I)
- ARHAI Scotland Nurse Consultant Infection Control
- ARHAI Scotland Senior Nurse Infection Control
- ARHAI Scotland Lead Healthcare Scientist

2.3 Roles and responsibilities

2.3.1 Working Groups

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 of 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 and update new and existing tools, procedures and systems that could assist Scottish health and care settings and ARHAI Scotland in the prevention, identification and control of healthcare infection outbreaks and incidents.

2.3.2 IPC Oversight & Advisory Group members

IPC Oversight & Advisory group members must:

- Contribute to the continual development of the NIPCM.
- Provide expert opinion and 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 and 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. 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 three other external (non-ARHAI Scotland) members. Ad hoc meetings of the Working Group may be arranged as necessary.

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. A scoping review may be undertaken by ARHAI Scotland to ensure there is not any existing evidence-based guidance that may be suitable or appropriate for modification for Scotland – in which case, a new literature review may not be required. If there is existing evidence-based guidance available, it must achieve an AGREE II rating of 'recommend' or 'recommend with modifications' (see Section 3.3 for detail).

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 issues that have been identified by the IPC Oversight & Advisory Group, or common themes emerging from stakeholder enquiries and infection incidents or outbreaks reported to ARHAI Scotland or identified in the literature. All question sets are drafted by a Healthcare Scientist in collaboration with Senior Infection Control Nurses, 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

A Healthcare Scientist is responsible for running searches and retrieving articles. First and second stage screening and selection of relevant articles is carried out independently by at least two reviewers. 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 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' (population, intervention, comparison, outcome) framework. These undergo a consultation with the relevant Working Groups and the final searches are further optimised by the NSS library service. The NIPCM literature review search strategies are available in the NIPCM within each literature review.

3.2.2 Databases and resources searched

The following electronic databases are searched for all relevant papers using the search strategies:

- 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 to identify any relevant legislation, policy, guidance documents and any other 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)
- Public Health Agency Canada
- National Health and Medical Research Council Australia

3.2.3 Inclusion and exclusion criteria

Titles and abstracts are reviewed by subject relevance (inclusion) independently by two reviewers (Healthcare Scientists), the following exclusion criteria are applied.

Exclusion:

- item is not applicable to health or 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 (for example SIGN 50 level 1- or 2-)
- item is not available in English language
- item uses animal models of infection
- item is a conference abstract or letter
- item is a pre-print publication
- item is a narrative review or systematic review with no meta-analysis

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 guideline documents are appraised and graded using the SIGN 50 methodology and AGREE II tool, respectively. A lead reviewer (Healthcare Scientist) critically appraises each study or guideline document. A second Healthcare Scientist carries out a check of a minimum 30% of the included studies. Disagreements are resolved by discussion, a final decision on any disagreements is made by the IPC Lead Healthcare Scientist.

3.3.1 SIGN 50 grades 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 II grades for guidelines

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 with modifications: 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.

3.3.3 Evidence tables

Following assessment of the extant scientific literature, evidence tables are compiled summarising each item and discussing its impact on, or contribution to, the specified topic area. Evidence tables are used in conjunction with the modified SIGN 50 considered judgement form (Appendix 3) to summarise the evidence in a draft literature review. At this stage in the process, only Part A of the Considered Judgement Form (Appendix 3) is drafted, which summarises the quantity, quality, consistency, applicability, and generalisability of the available evidence. Publication bias is also noted here.

Evidence tables are published along with the completed literature reviews (reviews published 2024 and onwards).

3.4 External consultation

For new literature reviews, the draft literature review and Part A of the Considered Judgement Form (Appendix 3) undergo external consultation at this stage with the Working Group(s). Documents are disseminated via the relevant Working Group (see section 2.2) to each of the professional bodies listed in section 2.2 accompanied by an online 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 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 Healthcare Scientist, Senior Nurse Infection Control and Lead Nurse Consultant Infection Control, and any changes required are made to the literature review and Considered

Judgement Forms. Any points that require further discussion are brought to the next Working Group meeting or are shared electronically via a further consultation.

4. Development of recommendations and good practice points

Once the draft literature review and Part A of the Considered Judgement Form have been reviewed by the Working Group(s), or, internally approved by the Lead HCS IPC if external consultation was not undertaken, draft recommendations and good practice points are developed. The lead reviewer (Healthcare Scientist) and Senior Nurse Infection Control, informed by the approved Part A of the Considered Judgement Form, drafts recommendations and good practice points within Part B of the Considered Judgement Form. This includes adding draft wording for the benefit-harm assessment, feasibility, expert opinion, value judgements, intentional vagueness, and exceptions of the recommendations proposed.

4.1 Assigning recommendations and good practice points

The ‘HICPAC’ (Healthcare Infection Control Practices Advisory Committee) recommendation grading system used for developing ARHAI Scotland literature review recommendations from 2018-2023 (Table 1) was replaced with a new system (Table 2) from 2024 onwards. This was in acknowledgement that IPC guidance may be informed by lower quality evidence when high-quality evidence is impossible to obtain, and the anticipated benefits of including low-quality evidence strongly outweigh the harms. The establishment of good practice points is intended to provide guidance in areas where evidence is considered insufficient but there is rationale for best practice based on the clinical and technical experience of the Working Group, and a clear balance between benefits and harms. SIGN 50 level 4 evidence cannot be used in isolation to develop a recommendation, it can however be used to inform development of a good practice point.

Table 1: Recommendation grading system for literature reviews published between 2018-2023, which used the HICPAC grading system

Literature reviews published before October 2018 used the SIGN 50 (1999-2012) ABCD system for grading recommendations.

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 50 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 50 level 2+, 3, 4, AGREE recommend
Category C	Expert opinion, these may be formed by the working groups when there is no robust professional or scientific literature available to inform guidance.	SIGN 50 level 4, or opinion of working groups
No recommendation	Insufficient evidence to recommend one way or another	N/A

Table 2: New Recommendation-Good Practice Point system for literature reviews published from 2024 onwards

	Description	Evidence
Recommendation	'Recommendations' should be supported by high- to moderate-quality evidence (SIGN 50 level 1++, 1+, 2++, 2+, AGREE II recommend). In some circumstances, however, 'Recommendations' may be made based on lower quality evidence when high-quality evidence is impossible to obtain, and the anticipated benefits strongly outweigh the harms, or when the Recommendation is required by Legislation or Mandatory Guidance	Sufficient evidence (SIGN 50 level 1++, 1+, 2++, 2+, 3, ~~4~~ AGREE II Recommend AGREE II Recommend with Modifications) Legislation, or mandatory guidance
Good Practice Point	Insufficient evidence or a lack of evidence to make a recommendation, but identified best practice based on the clinical/technical experience of the Working Group, with a clear balance between benefits and harms.	Insufficient evidence + Working Group opinion OR No evidence + Working Group opinion
No Recommendation	Both a lack of pertinent evidence and an unclear balance between benefits and harms	No evidence

* A Recommendation cannot be developed when there is only SIGN 50 level 4 evidence available.

4.2 External consultation

Part B of the Considered Judgement Forms undergoes a process of external consultation to ensure recommendations and good practice points are unbiased and appropriate for all the applicable health and care settings. Documents are disseminated via the relevant Working Group (see section 2.1) to each of the professional bodies listed in section 2.2 with an evaluation tool. Each member of the

Working Group is expected to collate and return the comments of the professional body/organisation they represent. Where it is deemed necessary, additional experts/professional groups relevant to the topic area are also included in the consultation process. The ARHAI Scotland administration team collates all feedback from the group which is then addressed by the lead reviewer (Healthcare Scientist), Senior Nurse Infection Control and Lead Nurse Consultant Infection Control. Following consultation, changes are made to Part B of the Considered Judgement Form including amendments to draft recommendations and good practice points. Any points that require further discussion are brought to the Working Group 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.

The Working Group may be required to meet on a more frequent basis to develop Part B of the Considered Judgement Form and reach consensus on recommendations and good practice points.

Responses to consultation comments are issued electronically to the Working Group.

4.3 Finalising the literature review

Once consensus has been reached by the Working Group(s), all discussions are recorded within the considered judgement forms.

The literature review along with the Considered Judgment Forms and evidence tables are then published in the NIPCM.

5. Development of the NIPCM

Following approval of the literature review by the Working Group, the literature review recommendations and good practice points are incorporated into the relevant sections/chapters of the NIPCM, including the care home manual where appropriate. The recommendations and good practice points 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. An internal review ensures that any NIPCM additions are considered in a clinical context and

align with existing NIPCM content. Development of new NIPCM chapters or new topic content may undergo an external consultation with stakeholders via the Working Groups. The NIPCM is not intended to state recommendations for specific sectors or specialities. The individual recommendations, good practice points and evidence (including grade(s)) underpinning these are presented in the associated literature reviews and considered judgement forms.

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 TBPs 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

Chapter 4 is underpinned by one literature review:

- Infection prevention and control (IPC) for safe healthcare water systems

New chapters, and any changes to the NIPCM outwith 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

7.1 Monthly evidence reviews

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 is monitored using monthly autoalerts of Medline and Embase which utilise the literature review search strategies.

Healthcare Scientists review all titles and abstracts to identify any evidence that supports, modifies or refutes the recommendations of the NIPCM.

Any evidence identified from the monthly autoalert reviews which supports the current recommendations of the NIPCM is collated in an ongoing evidence table which is presented to the Working Groups 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 as a minimum).

Any evidence identified which contradicts 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 resulting from the evidence appraisal may result in amendments to existing recommendations and good practice points, or the creation of a new good practice point if supported by the working group. All changes are documented within the relevant Considered Judgement Form.

Changes are made to the NIPCM after consulting with the Nurse Consultant Infection Control, relevant Working Group (and if applicable, the IPC Oversight & Advisory Group).

7.2 Updates due to reasons other than emerging evidence

Stakeholder feedback, emerging legislation, guidance or policy may result in a change to the content of the NIPCM. Assessment of these may result in amendments to existing recommendations and good practice points, or the creation of a new good practice point if supported by the working group. All changes are documented within the relevant Considered Judgement Form.

Changes are made to the NIPCM after consulting with the Nurse Consultant Infection Control, relevant Working Group (and if applicable, the IPC Oversight & Advisory Group).

Detailed roles and responsibilities for updating the NIPCM can be found in appendix 1.

8. Presentation of documents

Each literature review is complemented by a considered judgement form, evidence tables, and an executive summary document.

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

1. Research questions
2. Methodology
3. Discussion
   - 3.1 Implications for practice
   - 3.2 Implications for research
4. References
5. Appendices

The contents of the considered judgement forms (see Appendix 3) are limited to:

1. Considered judgements
2. Definitions
3. References

An Executive Summary for each literature provides an overview of the scope of the literature review, key highlights and notable changes to recommendations and good practice points. Any major changes to practice expected as a result of a literature review update are highlighted. A full list of the recommendations and good practice points are provided in the executive summary.

All draft versions of documents 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
- purpose and description of the document
- approvals
- target audience
- across-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 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 for example 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 are included.

An Equality Impact Assessment is conducted annually for the NIPCM. Equality analysis is a way of considering the effect on different groups with protected characteristics from discrimination by the Equality Act. This is to ensure the NIPCM will be fully effective and inclusive 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. They do not take part in consultations or the forming of recommendations and good practice points. 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. Notification of changes are also uploaded to the 'latest news' section of the NIPCM.

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 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 IPC team 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

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 and appendices
- CIPC NC Clinical lead: Care Home Manual and associated tools and 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 all published NIPCM content.

NPGE, ICBED and CHIPC 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 IPC 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.
- Preparing updates to the NIPCM based on literature review outputs and feedback from the Working Groups.

Healthcare Scientists responsible for:

- establishing autoalerts as required (on identification of new subject areas/ agreement with Nurse Consultant Infection Control)
- monitoring outputs of the autoalerts (monthly)
- screening the titles and abstracts of identified literature for relevance
- obtaining potentially relevant papers
- critically appraising identified literature
- producing quarterly summary evidence tables
- updating literature reviews as a minimum 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 (NC) 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 (including consultations) 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

Research question 1: (Insert question)

A Quality of evidence

1.1 How reliable is the body of evidence?

(see SIGN 50, section 5.3.1, 5.3.4)

Comment here on the quantity of evidence available on this topic and its methodological quality. Please include citations and evidence levels.

If there is no available evidence to answer the key question, go to section B.

Comments	Evidence level

1.2 Is the evidence consistent in its conclusions?

(see SIGN 50, section 5.3.2)

Comment here on the degree of consistency demonstrated by the evidence. Where there are conflicting results, indicate how the judgement was formed as to the overall direction of the evidence.

Comments

1.3 Is the evidence applicable to Scottish health and care settings?

(see SIGN 50, section 5.3.3)

For example, do the studies include interventions, comparators or outcomes that are common to Scottish health and care settings?

Comments

1.4 Are the studies generalisable to the target population?

Comment here on sample size and methods of sample selection. Is the sample representative of the specific population or group of interest? Generalisability is only relevant to primary research studies.

Comments

1.5 Are there concerns about publication bias?

(see SIGN 50, section 5.3.5)

Comment here on whether there is a risk in the evidence base that studies have been selectively published based on their results and thus a risk that results from published studies are systematically different from unpublished evidence.

Comments

B: Evidence to decision

1.6 Recommendations

What Recommendations or Good Practice Points are appropriate based on this evidence?

Note the following terminology:

- **"must"** implies that the health and care setting must implement the recommended approach and is used where a recommendation has been directly lifted from legislation or mandatory guidance
- **"should"** implies that the health and care setting "should" implement the recommended approach unless a clear and compelling rationale for an alternative approach is present
- **"should consider"** implies that the health and care setting should consider implementing the recommended approach

Recommendation	Grading

1.7 Balancing benefits and harms

Comment here on the potential impact of the Recommendation or Good Practice Point on service users, visitors and staff. Benefits and harms include considerations beyond infection prevention and control.

Benefits

List the favourable changes in outcome that would likely occur if the Recommendation or Good Practice Point were followed correctly. Be explicit and clear about benefits.

Benefits

Risks and harms

List the adverse events or other unfavourable outcomes that may occur if the Recommendation or Good Practice Point were followed correctly. Be explicit and clear about risks and harms.

Risks and harms

Benefit-Harm assessment

Classify as “benefit outweighs harm” (or vice versa) or a “balance of benefit and harm.” Description of this balance can be from the individual service user, staff or visitor perspective, the societal perspective, or both. Recommendations or Good Practice Points are possible when clear benefit is not offset by important harms, costs or adverse events (or vice versa).

Benefit-Harm assessment

1.8 Feasibility

Is the Recommendation or Good Practice Point implementable in the Scottish context?

Describe (if applicable):

- financial implications
- opportunity costs
- material or human resource requirements
- facility needs

- sustainability issues
- human factors

and any other issues that may be associated with following a Recommendation or Good Practice Point. State clearly if information on feasibility is lacking.

Feasibility

1.9 Expert opinion

Summarise the evidence and expert opinion used in creating the Recommendation or Good Practice Point. Translating evidence into action often involves expert opinion where evidence is insufficient or unavailable. Clearly outlining that expert opinion helps users understand its influence on interpreting objective evidence.

Expert opinion

1.10 Value judgements

Summarise value judgements used in creating the Recommendation or Good Practice Point. If none were involved, state “none”. Translating evidence into action often involves value judgements, which include guiding principles, ethical considerations, or other beliefs and priorities. Clearly outlining value judgements helps users understand their influence on interpreting objective evidence.

Value judgements

1.11 Intentional vagueness

State reasons for any intentional vagueness in the Recommendation or Good Practice Point. If none was intended, state “none”. Recommendations or Good Practice Points should be clear and specific, but if there is a decision to be vague, acknowledging the reasoning clearly promotes transparency. Reasons for vagueness may include:

- inadequate evidence
- inability to achieve consensus regarding evidence quality, anticipated benefits or harms, or interpretation of evidence
- legal considerations
- economic reasons
- ethical or religious reasons

Intentional vagueness

1.12 Exceptions

List situations or circumstances in which the Recommendation or Good Practice Point should not be applied.

Exceptions

1.13 Recommendations for research

List any aspects of the question that require further research.

Recommendations for research

Appendix 4: Literature review evaluation tool

(Insert literature review title)

Name: ……

Organisation and/or network represented:

……

Date: ……

Question 1: Does the literature review answer its research questions?

Yes/No	Page/line number	Comments/suggested amendments

Question 2: Are there any evidence gaps in this literature review?

Yes/No	Page/line number	Comments/suggested amendments

Question 3: Are there any relevant legislative/mandatory requirements that have not been included in the literature review?

Yes/No	Page/line number	Comments/suggested amendments

Question 4: Are there any errors in this literature review?

Yes/No	Page/line number	Comments/suggested amendments

Question 5: Any further comments on the literature review?

Yes/No	Page/line number	Comments/suggested amendments